

Permit with introductory note

Environment Protection Act (CAP. 549)

Industrial Emissions (Framework) Regulations (S.L. 549.76).

Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (S.L. 549.77).

Sant'Antnin Waste Treatment Plant
Triq Wied iz-Ziju,
Marsaskala. MSK 4613

Permit number
 IP 0005/13/B

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Introductory note

The following Permit is issued under Regulation 7 of the Industrial Emissions (Framework) Regulations, S.L. 549.76 ("the Industrial Emissions (Framework) Regulations") to operate an installation carrying out activities covered by the description in Section 5.3(b)(i) in Schedule 1 of the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations S.L. 549.77 ("the Industrial Emissions (IPPC) Regulations"), to the extent authorised by the Permit, i.e.

"Recovery of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment"ⁱ.

Aspects of the operation of the installation which are not specifically regulated by conditions in the Permit may also be subject to the condition implied by Regulation 8 the Industrial Emissions (IPPC) Regulations, which require the Permit holder to use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Conditions marked with a '∞' shall be construed as conditions which are to be enforced by the Authority responsible for such an issue.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, managed, operated and decommissioned.

In some sections, the Permit conditions require the Permit holder to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. These conditions do not explain what BAT is.

A non-technical description of the installation is given in the original application, but the main activity of the installation is as follows:

- **Operation of an anaerobic digester (AD)**
- **Operation of material recovery facility**
- **Operation of a biogas plant**

Note that the Permit requires the submission of certain information to the Competent Authority. In addition, the Competent Authority has the power to seek further information at any time under regulation 11 of the Industrial Emissions (Framework) Regulations, provided that it acts reasonably.

Other IPPC Permits relating to this installation

Permit holder	Permit Number	Date of Issue
<i>Not applicable</i>		

Superseded Licences/Authorisations/Consents relating to this installation

Holder	Reference Number	Date of Issue
<i>WasteServ Malta Ltd.</i>	<i>WM 0022/06</i>	<i>18 February 2008</i>
<i>WasteServ Malta Ltd.</i>	<i>EP 0021/09</i>	<i>22 March 2010</i>
<i>WasteServ Malta Ltd.</i>	<i>EP 0021/09/B</i>	<i>5 September 2011</i>
<i>WasteServ Malta Ltd.</i>	<i>EP 0021/09/C</i>	<i>6 March 2013</i>
<i>WasteServ Malta Ltd.</i>	<i>EP 0021/09/D</i>	<i>14 October 2014</i>
<i>WasteServ Malta Ltd</i>	<i>IP 0005/13/A</i>	<i>9th December 2015</i>

Public Registers

This IPPC Permit and application is available to the public through the Competent Authority in accordance with the requirements of the Industrial Emissions (IPPC) Regulations. Although certain information may be withheld from the public where it is commercially confidential or contrary to national security, this clause has not been applied to this application including the relevant documentation and permit.

Variations to the Permit

ⁱ The capacity being permitted is without prejudice to permit conditions of development permit.

This Permit may be varied at any time in the future (by the Authority serving a Variation Notice on the Permit holder). If the Permit holder himself wants any of the Conditions of the Permit to be changed, a formal application must be submitted to the Competent Authority. The **Status Log** within the Introductory Note to any such Variation Notice will include summary details of the variation, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made to the Competent Authority by the Permit holder. For the application to be successful, the Permit holder must be able to demonstrate to the Competent Authority that there is no pollution and public health risk and that no further steps are required to return the site to a satisfactory state. Should this be required, an application for surrender of the permit is to be submitted at least six months prior to expiry of this permit.

Transfer of the Permit or part of the Permit

Upon the joint application of a Permit Holder and a proposed transferee, the Permit Holder may request to transfer an environment permit. The permit shall not be transferred from the Permit Holder without prior approval from the Authority. Upon the Authority's decision to transfer the permit to the transferee, all rights, obligations, liabilities shall subsist onto the transferee.

Status Log

Detail	Date	Comment
<i>Application IP 0005/13</i>	<i>Received on 5 July 2013</i>	<i>Not 'duly made'</i>
<i>Response to request for information</i>	<i>Request dated 14 December 2013</i>	<i>Response dated 7 March 2014 Not 'duly made'</i>
<i>Response to request for information</i>	<i>Request dated 15 March 2014</i>	<i>Response received 10 July 2014 Not 'duly made'</i>
<i>Response to request for information</i>	<i>Requests dated December 2014 to January 2015</i>	<i>Responses received in December 2014 and January 2-15</i>
		<i>Consolidated version received 09 February 2015</i>
<i>Public consultation</i>	<i>Commenced on 21 March 2015</i>	<i>Concluded on 21 April 2015</i>
<i>Permit determined</i>	<i>13th August 2015</i>	
<i>Permit Issued (IP 0005/13/A)</i>	<i>9th December 2015</i>	
<i>Requested variation to extend hours of operation</i>	<i>Request dated 19th October 2018</i>	<i>Variation issued by Director of Environment & Resources on 24th October 2018</i>
<i>Renewal application submitted</i>	<i>9th January 2018</i>	
<i>Permit validity extended</i>	<i>16th March 2018</i>	<i>From 16th March 2018 to 9th June 2019</i>
<i>Renewal application updated to a variation</i>	<i>6th June 2019</i>	
<i>Permit validity extended</i>	<i>14th June 2019</i>	<i>From 9th June 2019 to 31st May 2020</i>
<i>Permit validity extended</i>	<i>15th May 2020</i>	<i>From the 9th June 2020 to 9th December 2020</i>
<i>Application duly made and consolidated application received</i>	<i>19th October 2020</i>	
<i>Public Consultation</i>	<i>Commenced 26th October 2020</i>	<i>Concluded 9th November 2020</i>
<i>Permit determined</i>	<i>4th December 2020</i>	

End of Introductory Note

Permit

Permit number

IP 0005/13/B

Approved Documents:

IP 0005/13/B/DOC1

IP 0005/13/B/DOC2

IP 0005/13/B/DOC3

IP 0005/13/B/DOC4

IP 0005/13/B/DOC5

IP 0005/13/B/DOC6

IP 0005/13/B/DOC7

The Environment and Resources Authority (hereinafter the Authority; the Competent Authority or ERA) in exercise of its powers under Regulation 7 of the Industrial Emissions (Framework) Regulations, S.L. 549.76 ("the Industrial Emissions (Framework) Regulations"), hereby authorises:

Richard Bilocca obo WasteServ Malta Limited (hereinafter "the Permit holder")

Of / Whose Registered Office (or principal place of business) is at:

ECOHIVE Complex,

Tul il-Kosta,

In-Naxxar NXR9030.

(Company registration number: **C30560**)



to operate an installation at:

Sant' Antnin Waste Treatment Plant,

Triq Sant'Antnin,

Marsaskala.

The permit is valid for a period of four (4) years from the date of the granting. The Permit Holder is able to renew the permit upon application with the Authority expressing his/her intention at least nine (9) months prior to the expiry of this permit. The permit will be considered renewed once the official renewed permit is issued by the Authority.

Environment and Resources Authority		
APPROVAL		
Board No. 120	Held on 4 th December 2020	Date Granted:
 		13/01/2021
Chairman_____	Secretary_____	

Authorised to sign on behalf of the Competent Authority

Conditions

1. General

1.1. Permitted Activities

- 1.1.1 The Permit holder is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Table 1.1.1		
Activity listed in Schedule 1 of the Industrial Emissions (IPPC) Regulations / Associated Activity	Description of specified activity	Limits of specified activity
Section 5.3(b)(i): Recovery of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment	Collection, sorting, preliminary treatment, baling and storage of permitted non-hazardous wastes	From receipt of raw waste to sorting, baling and storage of material for a temporary period.
Operation of AD Plant	Biological treatment – hydrolysis and digestion of the biological waste suspension (slurry)	From receipt of the biological waste suspension (slurry) to treatment (hydrolysis and digestion) and production of the liquid digestion residue.
	Aerobisation – aeration of the liquid digestion residue, dewatering and compost storage	From receipt of the liquid digestion residue to aeration, dewatering and storage of the dewatered substrate.
Operation of a Material Recovery Facility (MRF)	Collecting, manual sorting, baling using two balers and storage of permitted non-hazardous waste	From receipt of raw waste to inspection, separation, baling of material, and temporary storage.
Storage of glass	Piling of glass utilizing a wheel shovel.	From the unloading of glass by waste carrier to temporary storage, and repackaging pending export
Associated activity of general maintenance and repairs	Maintenance and repair/s on equipment and/or machines within the installation (MRF and MTP/AD).	From maintenance/repair activity to appropriate recovery/disposal of any waste generated on site.
	Truck and wheel washing area for cleaning of vehicles	From cleaning of vehicles which exit the site to appropriate disposal of wash waters.
Associated activity of utilities	Collection and treatment of liquor from waste carrier vehicles.	Transport of leachate and process water to the AD plant for processing, and associated bunding.
	Associated pipework linking the former MTP shed and AD plant	

Associated activity of mitigation of emissions, including operation of filtration systems, fast-roller shutters and air curtains	Mitigation of emissions of odorous air from installation.
Associated activity of biogas production, handling and utilisation	From generation and storage of biogas to production of power and heat in AD boiler, two CHPs or flaring.
Operation of one boiler and one generator.	From receipt of fuel to production of energy.
Associated 3000Ltr diesel/light fuel oil storage tank and towable fuel truck.	

1.2. Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, as shown on the Site Plan in Schedule 6 to this Permit as per approved document IP 0005/13/B/DOC2.
- 1.2.2 Site security systems shall be provided at all times during the subsistence of this Permit, the objective of which shall be to prevent access by persons not authorised either by the Permit holder or under legal powers of entry. These shall be installed, operated and maintained, and shall be fully documented and recorded.

1.3. Overarching Management Condition

- 1.3.1 Without prejudice to the other conditions of this Permit, the Permit holder shall implement and maintain an Environmental Management System (EMS), and an organisational structure, and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit. An EMS can take the form of a standardised system (e.g. EN ISO 14001:2015 or EMAS) or a non-standardised ("customised") system, provided that is properly designed and implemented
- 1.3.2 The Permit holder shall submit (including as part of the EMS) the following reports annually as part of the Annual Environmental Report of the site, according to the timeframe specified in Condition 5.3:
- Environmental Policy containing the installation's environmental objectives and targets;
 - Environmental Management Programme report (for the reporting year);
 - Environmental Management Programme proposal (for the following year);
- 1.3.3 The Permitted Installation shall, subject to the conditions of this Permit, be managed, controlled and operated as described in the application and subsequent responses to requests for information submitted as per the Status Log above, or as otherwise previously agreed in writing by the Authority.

1.4. Improvement Programme

- 1.4.1 The Permit holder shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Authority within 10 working days on ced.facilities@era.org.mt of the completion of each such requirement.

Table 1.4.1: Improvement programme

Reference	Requirement	Date
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6	Photographic evidence of bunds installed to provide secondary containment for storage areas containing oils and other liquid waste generated on site.	Within one month from the granting of the permit
8	Certification from an independent warranted engineer or architect showing that all potentially contaminated runoff within the maintenance area is being collected by gutters and treated by an adequately sized oil-water interceptor constructed in accordance with standard EN 858.	Within two months from the granting of the permit
11 [∞]	To obtain a Sewer Discharge Permit with the Water Services Corporation as per condition 3.91 of this permit.	Within six months of granting of the permit
15	To construct a safe and secure wheel washing area to be used by all waste carriers exiting the site.	Within nine months of granting of the permit
17	Provision of consolidated proposal for monitoring of groundwater, air and wastewater emissions to the satisfaction of the Competent Authority Submission of notification of commencement of monitoring in accordance with the approved consolidated monitoring proposal.	Within three months of granting of the permit Within six months of approval of monitoring proposal.
19	Installation of a new groundwater monitoring borehole in the "South Fields" as described in Approved Doc IP 0005/13/B/DOC1.	Within two months of granting of the permit
20	a) To submit for the Authority's approval, a detailed baseline monitoring strategy drafted by an independent consultant coordinating the sampling, analysis and reporting in accordance with Approved Doc IP 0005/13/B/DOC1 which includes the limits of detection, calibration certificates for instruments used, lab accreditation certificates and curriculum vitae of the persons collecting the samples/doing in-situ measurements and any other specific requirement as outlined in this permit. b) To submit a baseline report in conformity with Articles 16(2) and 22 of the Industrial Emissions Directive, 2010/75/EU and Approved Doc IP 0005/13/B/DOC2	a) Within two months of granting of the permit b) Within four months from approval of a)
21	Decommissioning report in accordance with the decommissioning plan approved by ERA for both the 9,000 litre heavy gasoil tank and the diesel tank with its dispensing equipment.	Within three months from the granting of the permit
22	a) Decommissioning plan for the Regenerative Thermal Oxidiser on site including timeframes. b) Decommissioning report in accordance with the decommissioning plan approved by ERA in a).	a) Within one month from the granting of the permit b) Within timeframes agreed with the Authority through a).

23	Submission of monitoring results for both Combined Heat and Power plants and emergency generators in accordance with condition 3.68.	Within four months from the granting of the permit
24	Implementation of fire, health and safety upgrades described in the "status update report" approved doc IP 0005/13/B/DOC4	Within timeframes indicated in IP 0005/13/B/DOC4
25	Installation of covering structures using canopies and containers as indicated in approved doc IP 0005/13/B/DOC7.	Within 18 months from granting of permit.
26	Submission of a detailed decommissioning plan as per condition 3.187 which includes a target date for complete closure and decommissioning	Within one year from the granting of the permit.

1.5. Operational Changes

- 1.5.1 The Permit holder shall seek the Authority's written agreement prior to any operational changes as defined by S.L 549.77 by sending to the Authority: written notice of the details of the proposed change, including an assessment of its possible effects (including changes in emissions and waste production) on risks to the environment and public health from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.
- 1.5.2 Any such change shall not be implemented until agreed to in writing by the Authority. As from the agreed implementation date, the Permit holder shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.
- 1.5.3 The Director of Environment and Resources and any officials to whom this role is delegated are hereby authorised to make decisions on variations to this permit, with the exception of the following cases:
- variations which could lead to significant impact on human health or the environment;
 - any change in the nature or functioning or an extension of an installation where the change or extension in itself reaches the capacity thresholds set out in Schedule 1 of the Industrial Emissions (IPPC) Regulations;
 - variations covered by the Environmental Impact Assessment Regulations;
 - aspects of the operations specifically prohibited by this permit;
 - changes to emission limit values;
 - changes to fees;
 - renewal of the validity of this permit.

1.6. General Considerations

- 1.6.1. The conditions and obligations of this permit are without prejudice to any other regulation, code of practice, conditions or requirements requested by other Authorities or entities, including but not limited the Planning Authority, the Occupational Health and Safety Authority, Transport Malta and the Regulator for Energy and Water Services (REWS).
- 1.6.2. This permit is granted saving third party rights. The Permit holder is not excused from obtaining any other permission required by law.
- 1.6.3. The Permitted Installation shall be managed, controlled, supervised and operated by staff that are aware of the importance of environmental protection and suitably trained on the requirements of this Permit, in particular on those permit conditions relevant to their duties. All staff shall be provided with adequate training and written operating instructions to enable them to effectively carry out their duties. Training records shall be maintained in line with Condition 4.4.
- 1.6.4. The operator is to prevent litter or other wastes escaping from the site boundaries. Any such escape of waste shall be collected immediately upon detection.

- 1.6.5. A copy of this permit shall be available at all times on site at the permitted facility, including any Variation Notices or amendments to it.
- 1.6.6. All persons have a duty of care to protect the environment. The Permit Holder shall become familiar with his legal obligations and good environmental practice.
- 1.6.7. The site shall be maintained in a tidy condition, free from litter and waste (whether arising from own activities or external sources).
- 1.6.8. In these conditions and their interpretation, all terms shall have the same meaning as that assigned to them in CAP549 Environment Protection Act and its subsidiary legislation.
- 1.6.9. The Authority may carry out regular pre-set or unannounced compliance or monitoring checks that vary in frequency according to the site's compliance with the permit conditions and safeguarding of natural assets. Any checks or audits carried out by the Authority may be made at the Permit Holder's financial expense at rate and arrangement communicated by ERA's Compliance and Enforcement Directorate.
- 1.6.10. The Authority's representatives may inspect and photograph any part of the site and ask for any closed or locked areas to be opened and may demand to be provided with any proof, documentation, plans, receipts or any other records. The Permit Holder shall also provide all the necessary assistance to enable the Authority to take samples if necessary.
- 1.6.11. The Authority may add, amend, delete or substitute any of the conditions of this permit after notifying the Permit Holder of its intention and after describing the changes to the Permit Holder. This is without prejudice to any prevailing circumstances that would preclude the Authority from following such a procedure.
- 1.6.12. The permit is issued against a Bank Guarantee of € 1,072,300. The guarantee is covered in accordance with the Letter of Undertaking covering Government Projects ref MF35/05/160. This guarantee will have to be maintained throughout the validity of the permit. Following renewal and/or variations to this permit, the Authority may require amendments to the Bank Guarantee.
- 1.6.13. The Bank Guarantee shall remain in place for the duration of validity of this permit and shall only be released upon confirmation of full compliance with the permit conditions by the Authority.
- 1.6.14. The Authority may take part or all of the bank guarantee if the Permit Holder fails to take the necessary action, or fails to fulfil his legal obligations under the Act or its subsidiary legislation thereof, in cases of non-compliance with these permit conditions, or in cases where environmental integrity is threatened. This bank guarantee is without prejudice to any environmental liabilities incurred by the Permit Holder through failure to adhere with permit conditions or any other works/activity carried out on site. Should the Authority forfeit the Bank Guarantee either in part or in full, the permit holder shall ensure that this is replenished without undue delay, in any case not exceeding 2 months from the date of forfeiture.
- 1.6.15. In cases where the bank guarantee does not cover the expenses incurred by the Authority to take any remedial action on the Permit Holder's behalf, the Permit Holder is to financially reimburse the Authority of all the expenses incurred within.
- 1.6.16. A copy of this permit and those parts of the application referred to in this Permit shall be available at all times at the site office, including any variation notices of amendments to it.
- 1.6.17. The Authority may request additional monitoring and/or review of the operational practices and commission any audits/reports as deemed necessary to address any circumstances that may affect the quality of the surrounding environment, at the expense of the Permit holder.
- 1.6.18. Without prejudice to condition 1.6.17 the Authority may take any action deemed necessary including but not limited to the suspension of any activity/operation until investigations are concluded.
- 1.6.19. The Authority may suspend or revoke this permit or part of this permit where significant mismanagement of the site is observed or any of the permit conditions are not respected after

a written warning is given by the Authority or in any eventuality that gives the Authority enough reason to suspend/revoke this permit.

- 1.6.20. Any incident including accidental release of liquid, solid or gaseous materials from the site that could be regarded as causing environmental damage, or as posing a threat of environmental damage, shall be reported as soon as possible and not later than within 24 hours to ERA, without prejudice to the emergency plan of the installation.
- 1.6.21. The Permit Holder shall undertake all necessary measures and precautions to prevent spillage of raw materials, intermediates, products, waste and any other materials.
- 1.6.22. Unpredicted impacts and nuisances which may arise from this operation and that may have a significant adverse effect on public health are to be immediately addressed by the Permit Holder and the necessary mitigation measures taken.[∞]
- 1.6.23. Complaints lodged by the public regarding any adverse impacts/nuisances should be immediately addressed by the Permit Holder. All complaints lodged and actions taken are to be recorded and such records are to be readily available to the Competent Authorities when requested.[∞]

2. Off-site Conditions

- 2.1. At all times during the year the Operator is to ascertain that the roads leading to the facility are clean from debris and spillage. In the event that debris is observed on the road the Operator is to take remedial action and ascertain that the roads are immediately cleaned.

3. Operating Conditions

In-Process Controls

- 3.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the IPPC application, or as otherwise agreed in writing by the Authority in accordance with condition 1.5.1 of this Permit.

General Site Operations, Infrastructure and Security

- 3.2 Without prejudice to any code of practice or any other regulations or agreements between or from other Authorities or governmental bodies, the specified waste management operations authorised by this Permit shall be carried out within the times specified in Table 3.2 below:

Table 3.2: Permitted operating hours	
Specified waste management operations	Permitted hours
MRF (under normal circumstances)	Monday 06:30hrs – 23:00hrs
Monday to Sunday	Tuesday to Sunday 06:30hrs – 22:30hrs
Internal Transfer of Waste only except glass (from one receiving area to another)	Monday to Sunday
Monday to Sunday	05:30hrs - 06:30hrs
MRF (during emergency situations)	Monday to Sunday
Monday to Sunday	24hrs
AD plant	Monday to Sunday

Table 3.2: Permitted operating hours	
Specified waste management operations	Permitted hours
	24hrs
Loading of recyclables into containers for export	Monday to Saturday 07:00hrs – 18:00hrs
Cleaning (under normal circumstances)	Monday to Sunday 22:30hrs – 06:30hrs
Waste Acceptance	Monday 06:30hrs - 23:00hrs Tuesday to Friday 06:30hrs – 22:30hrs Saturday 07:00hrs – 19:00hrs

- 3.3 Unless there is an emergency, maintenance works shall not be carried out outside operational hours described in condition 3.2 and only cleaning works shall be carried out during non-operational hours.
- 3.4 During non-operating hours the site should be firmly closed and totally inaccessible to third parties, both by vehicle and on foot.
- 3.5 The entrance/exit area to the Permitted Site should be constructed and maintained on impervious grounds and should be regularly cleaned so as to prevent vehicles from transporting or depositing mud, waste and debris onto public roads.
- 3.6 Whenever the Site is receiving/ despatching wastes, efficient measures shall be provided, operated and maintained with the objective of preventing the deposit or tracking of mud or debris arising from the Site onto public or other areas outside the Site, which shall include public roads and areas of public access. These shall include the actions described in Table 3.6 or equivalent.

Table 3.6:- Measures to Prevent Mud and Debris on Roads		
Equipment Feature	or	Detailed actions
Wheel wash		Prior to the exit area to the Site.
Road sweeping		Used to sweep the main access road, other hard surfaced areas in the installation and the roads outside the installation, at a minimum on a weekly basis. Road sweeper should be properly equipped with dust filters.
Daily inspection		Of the wheel cleaning facilities, the installation road, and the highway outside the installation

- 3.7 All vehicles operated or engaged by the Permit holder leaving the waste management facilities managed by the Permit holder shall, before leaving the facilities, be cleaned as necessary using the specified equipment and shall be checked to ensure that they are clear of loose waste and that any waste is secure.
- 3.8 The Permit holder shall ensure that contaminated wash water discharges resulting from the use of the vehicle/wheel wash or road sweeping equipment are adequately contained to prevent undesirable leakages into the environment. Waste water liquid shall be stored and/or disposed

of at facilities authorised by the Authority to accept such waste. Records of such movements of waste water offsite shall be kept and information on the quantities disposed of annually shall be submitted as part of the AER.

- 3.9 In the event that mud, debris or waste arising from the Site is deposited onto public or other areas outside the Site, the following remedial measures shall be implemented immediately:
- The affected areas outside the Site shall be cleaned; and
 - Traffic shall be isolated from sources of mud and debris within the Site to prevent further tracking of mud and debris, and measures shall be taken to clear any such sources as soon as practicable.
- 3.10 The site perimeter shall be clearly delineated either by a chain link fence, bollards or walls conforming to applicable development permits issued under the Development Planning Act, 2016 (Act I of 2016) and subsidiary legislation.
- 3.11 The site shall be kept in a clean a tidy manner, avoiding any wind blown litter, spillages or accumulation of waste material other than baled waste. The Permit holder shall perform regular daily cleanings of the site to remove windblown or other accumulated debris. Any such deposits shall be given immediate attention and removed from site within 24 hours.
- 3.12 Measures shall be implemented and maintained throughout the operational life of the Site to control and monitor the presence of pests on the Site, in accordance with the standards specified in Table 3.13[∞]
- 3.13 Pest control measures shall be only used within the site boundary and should favour methods which do not affect protected wildlife.[∞]

Table 3.13: Standards for monitoring and control of pest infestations

a) Monitoring of pest infestations	An inspection of stored wastes for pest infestations shall be carried out at least at weekly intervals by the Site supervisor, and shall be recorded.
b) Pest infestations action plan	<ol style="list-style-type: none"> On detection or notification of pest infestations, immediate action shall be taken to secure the attendance of a professional pest control contractor, to eliminate the pest infestation; and The incident and the remedial action shall be recorded.

- 3.14 All related documentation should be on site and made available to the Authority on request. [∞]
- 3.15 All mechanical parts and machinery shall be stored in closed designated structures (not open to the elements) constructed on impervious grounds capable of containing any accidental spills of fuels, oils or any other hazardous chemical/s.
- 3.16 All maintenance of on-site machinery and equipment shall be carried out on an impervious surface where a thorough clean-up of fuels, oils or any other hazardous chemical/s can be readily undertaken.

Waste

Waste Acceptance

- 3.17 This site is authorised to accept and process waste as per European Waste Catalogue Codes in Schedule 3 of this Permit.
- 3.18 The Permit holder shall apply the precautionary principle to safeguard the environment whilst carrying out the permitted activities and shall immediately refuse the entry of waste that is suspected to be in breach of the conditions of this permit.
- 3.19 The designated and labelled quarantine area shall be kept within the site boundary to temporarily hold unpermitted waste that may inadvertently enter the site. A non-leaking skip or

- similar contained structure shall be utilised for the temporary storage of unpermitted waste. The quantity of waste in the quarantine area should not exceed the capacity of said area at any given time. Such wastes shall be kept segregated according to EWC and may not be mixed with other wastes on site.
- 3.20 All wastes shall be received, inspected, accepted or rejected, and recorded. Rejected waste is to be directed to the Quarantine area and stored for a period not exceeding 14 days (except for odorous waste which is to be stored in contained areas for a period not exceeding 24 hours), after which it is disposed in an authorised facility, either locally or abroad.
- 3.21 A record shall be kept of all rejected wastes and all wastes kept in quarantine storage.
- 3.22 No waste management operations shall be authorised by this Permit unless specified in and undertaken in accordance with the list of permitted operations specified in Table 1.1.1 of this permit.
- 3.23 The total amount of waste accepted, treated and stored on site shall not exceed a total combined capacity of 71,000 tonnes per year.
- 3.24 The Permit holder shall refuse the entry of vehicle carrying waste which are not registered in accordance with the Waste Management (Activity Registration) Regulations, (S.L. 549.45). Any such vehicles shall be recorded and the Authority shall be notified of such instances in a quarterly manner.
- 3.25 The Permit holder may refuse the entry of any waste carrier in instances where the vehicle is not properly maintained and/or shall direct the waste carrier to make use of the cleaning facilities available on site.
- 3.26 The Permit holder shall take note of any waste carriers that are rejected from entering the site as they do not satisfy the waste acceptance criteria or the requirements of conditions 3.17 and 3.25 above. At such instance the Permit holder shall take note of the vehicle's registration number and the time of the incident as well as the reason why the waste was not accepted on site, and provide a quarterly report to be agreed with the Competent Authority.
- 3.27 No acceptance, storage, treatment or recovery of flammable, toxic and/or hazardous waste is allowed on site.
- 3.28 Incompatible wastes that are likely, in combination with each other or with other material at the facility, to give rise to pollution of the environment or harm to human health outside the Site, shall be clearly identified and kept physically separate in designated areas.
- 3.29 The Permit holder shall ensure to issue a receipt for every consignment of wastes accepted on Site indicating the date and time of the consignment and the weight of the waste received, as well as the EWC code of such waste received. Each receipt should indicate the site name and permit number, as well as bearing a unique sequential number. Records of all waste consignments leaving the site shall also be officially recorded.
- 3.30 The Permit holder shall maintain records of the weight of each waste consignment received and /or removed from the site and its EWC code, and such data is to be collected using a properly calibrated weighbridge or scale.
- 3.31 A record shall be kept of each load of waste accepted and each load of waste removed from the Site. This record shall include the following details:
- 3.30.1 Loads in: Nature (solid, sludge or liquid), waste type (as per condition 3.17), quantity (tonnes), date received, date accepted.
- 3.30.2 Loads out: Nature (solid, liquid or sludge), waste type, quantity of waste removed (tonnes), date removed.
- 3.32 The weighbridge/s shall be maintained, calibrated and certified by an independent warranted engineer or by the equipment's manufacturing company once every year. The weighbridge or scales used shall record quantities of wastes in tonnes to an accuracy of 0.01 tonnes and shall

be calibrated and certified by the Malta Competition and Consumer Affairs Authority (MCCAA) in accordance with EN 45501:1992, Accuracy Class III once every year. This certificate is to be submitted to the Authority as part of the Annual Environment Report.

Waste Storage and Handling

- 3.33 The Permit holder shall use BAT in the design, maintenance and operation of all facilities for the storage and handling of waste on site such that there are no releases to water or land during normal operation and that emissions to air and risk of accidental release to water or land are minimised.
- 3.34 All wastes shall be stored within their designated and controlled storage area(s) prior to ultimate disposal or recovery.
- 3.35 The total volume of dry recyclable waste pending treatment in the MRF shall not exceed 25 tonnes at any one time and kept under cover at all times.
- 3.36 All wastes shall be stored within a designated impermeable and controlled storage area(s) prior to ultimate disposal. Wastes destined for recovery operations shall be stored in a designated container or area and shall be segregated as per different waste streams.
- 3.37 The Permit holder shall ensure that no waste escapes to the environment during storage, processing and/or handling of such materials offsite or onsite.
- 3.38 Without prejudice to other conditions in this permit, all stockpiles and bales of waste shall be stored in a covered area according to the fire prevention measures described in approved document IP 0005/13/B/DOC3 or as otherwise directed by the Civil Protection Department.[∞]
- 3.39 All liquid hazardous wastes generated on site shall be stored indoors or under cover in a bunded area. The capacity of each bund shall be a minimum of 110% of the largest container within the bund or 25% of the total capacity of all the containers within the bund, whichever is the greater. Mixing of different hazardous wastes is not permitted.
- 3.40 The total amount of waste that can be stored at any given time cannot exceed the limits of the site boundaries. The height of stockpiles shall be as permitted by the development permit.
- 3.41 Solid and liquid waste generated from the air emission filtration systems including wet scrubbers and fabric filter maintenance/ cleaning shall be considered as hazardous waste and disposed of accordingly unless certified otherwise by an accredited laboratory.
- 3.42 No storage of waste is permitted for a period exceeding 12 months pending disposal operations or 36 months pending recovery or treatment operations.
- 3.43 The Permit Holder shall ensure to issue a receipt / certificate for every consignment of wastes accepted on Site indicating the date and time of the consignment and the weight of the waste received. The Permit Holder shall also ensure to attain a receipt / certificate for every consignment of waste removed from the Site also indicating the date and time of the consignment and the weight of the waste removed. Each receipt / certificate shall indicate the site name and permit number, as well as bearing a unique sequential number. Where applicable, this also applies to any Recycling Certificates issued by the Permit Holder. As from 1st January 2019, certificates for packaging waste as per obligations of the Waste Management (Packaging and Packaging Waste) Regulations (S.L. 549.43) shall however be issued utilising the recovery/disposal certificates provided by the Authority as part of Schedule 2 of this permit, examples of which are annexed as Schedule 7 of this Permit.

Waste recovery and disposal

- 3.44 Any waste leaving the site after storage and/or processing shall only be sent to facilities licensed to accept the individual waste stream, either locally or abroad.
- 3.45 Matured digestate resulting from anaerobic digestion may be utilised to a dedicated use such as soil improver, fertiliser, etc., provided that the resultant product, in the absence of any

- relevant criteria set by EU or national legislation, satisfies the end-of-waste criteria under Regulation 6 of the Waste Regulations (S.L. 549.63) and any testing and analysis as approved by the Authority. The End-of-Waste process shall be applied for under the relevant specific application. Any matured digestate reaching these criteria may be transferred off-site as a product, following receipt of written consent from the Authority.
- 3.46 Any digestate not reaching the End-of-Waste criteria according to the Waste Regulations (S.L. 549.63), and any criteria as laid down by the Authority, shall be deposited in an authorised facility permitted to accept such waste.
- 3.47 Solid digestate arising from the anaerobic digestion process in approved document IP 0003/19/DOC2 shall be stored in the location indicated in the approved site layout plan and in such a way to prevent odour.
- 3.48 The Permit holder shall make use of the services of a registered waste carrier for the transport of waste from the site in accordance with the Waste Management (Activity Registration) Regulations 2007 (S.L. 549.45). Where the company removes wastes using its own transport the vehicle(s) must also be registered as a waste carrier in accordance with S.L. 549.45.
- 3.49 Movement of hazardous waste (generated on site only) to authorised facilities shall be covered by a valid consignment permit obtainable from the Competent Authority. Each movement shall also be covered by a consignment note obtainable from the Authority.
- 3.50 Prior to initiating any waste export procedure, the Permit Holder shall check with the Competent Authority in the country of export, to ensure that the correct export code/s according to the relevant Annexes of Regulation No 1013/2006 on shipments of waste are being applied.
- 3.51 Transboundary movement of waste shall be carried out in accordance with the following regulations, as amended from time to time:
- c) Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste as implemented through SL 549.65.
 - d) Commission Regulation (EC) N° 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) N° 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of waste does not apply; and
 - e) any other applicable legislation.
- 3.52 The Permit holder shall be committed to reduce waste generation where possible.
- 3.53 No incineration of waste is permitted on site.
- 3.54 Disposal of wastes including rejects, expired products, and other wastes are to be managed in accordance with the legal obligations of the Waste Regulations (S.L. 549.63). Off-site disposal or recovery of wastes may only take place at a facility licensed for that purpose.
- 3.55 As part of the Annual Environmental Report for the installation, the Permit Holder shall produce a report on the off-site transfers of waste from the Permitted Installation over the previous calendar year, providing the information according to the approved template for reporting for that given year.

Emissions

Emissions to Air

- 3.56 Emissions to air shall only arise from the emission points specified in Table 3.57.

Table 3.57 : Emission points to air	
Emission point references	Source
PS 1	MRF extraction vent

PS 2	Reception Hall & MTP extraction vent (also known as Backhouse Filter)
PS 4A	CP1
PS 4B	CP2
PS 5	Emergency flare
PS 6	Emergency diesel generator
PS 8	AD Boiler

- 3.57 The limits for emissions to air for the parameters and emission points set out in Table 3.58 shall not be exceeded. All the limits refer to dry gas at a temperature of 273,15 K and a pressure of 101,3 kPa, without correction for oxygen and without dilution, except for the limits for the combustion plants (PS 4 - PS 6) which shall be defined after correction for the water vapour content of the waste gases and at a standardised oxygen content of 3%.

Table 3.58 : Emission limits to air and monitoring		
Emission point reference	Parameter	Limit
1-2, 4A, 4B, 5, 8	TVOC	20 mg/Nm ³
1-2, 4A, 4B, 5, 8	Dust	5 mg/Nm ³
4A, 4B	Oxides of Sulphur	60mg/Nm ³
4A, 4B	Oxides of Nitrogen	190 mg/Nm ³
6		250 mg/Nm ³
4A, 4B, 6	Carbon Monoxide	-
4A, 4B, 5, 8	NH ₃	20 mg/Nm ³

- 3.58 Further to the Item 6 in the Improvement Program in Table 1.4.1 monitoring of all the emission points to air shall be carried out in accordance with the latest Environmental Monitoring Programme (EMP) approved by the Authority. In case of inconsistencies between the EMP and this permit, the latter shall prevail unless formally authorised otherwise by the Authority. Monitoring shall be carried out while equipment and activities are in operation. A copy of the monitoring results shall be included as part of the Annual Environmental Report.
- 3.59 Except for PS5 in Table 3.58, the Permit holder shall make sure that any sampling and chemical analyses is carried out by a laboratory accredited to at least EN ISO 17025:2017 and preferably for each and every test listed in Table 3.58. The Permit holder shall include a copy of the laboratory's accreditation certification in the AER.
- 3.60 Monitoring for PS1-3 shall be carried out at least on a monthly bases.
- 3.61 Emissions from the anaerobic digestion process shall be channelled and monitored from the boiler, flare or any of both combined heat and power plants.
- 3.62 The results obtained from the monitoring exercise shall be submitted to the Authority in a quarterly manner. Depending on the results of this monitoring, the Authority may require the permit holder to submit an action programme aimed at reducing the emission limits of certain parameters, as deemed necessary by the Authority. The Authority may restrict operations, require improvements to operations and/or require further monitoring.
- 3.63 ERA recommends that diesel (gas oil) used for the generator and boiler shall have a Sulphur content not greater than 0.1%.
- 3.64 Only diesel (gas oil) shall be utilised as a source of fuel for the generator whilst biogas or heavy gas oil shall be utilised as a fuel for the boiler referred to in Table 3.57 and the co-incineration of any material or additional fuel including engine or other waste oil is strictly prohibited. Any change in fuel type shall require the notification and approval of the Authority prior to commencement of its utilisation.
- 3.65 Industrial combustion plants (e.g. combined heat and power plants, generators, etc.) shall be compliant with the provisions of S.L. 549.122 (Limitation of Emissions of Certain Pollutants into

- the air from Medium Combustion Plants Regulations) and any other applicable subsidiary legislation.
- 3.66 The Permit Holder shall keep the periods of start-up and shut-down of the medium combustion plant as short as possible.
- 3.67 The Permit Holder shall ensure that both the Combined Heat and Power Plants and emergency generator referred to in Table 3.57 are certified every three years by an independent warranted engineer or an accredited laboratory. The certification shall include measurement of the parameters listed in Table 3.57. The certification and the monitoring results shall be submitted as part of the Annual Environmental Report. The data shall at the least be kept for a period of six years.
- 3.68 The operator shall submit certification for the AD boiler (PS 8) referred to in Table 3.57, by an independent warranted engineer showing that this combustion plants is in good working condition every four years as per Schedule 2.
- 3.69 Further to conditions 3.68 and 3.69, the Authority may request that the frequency of monitoring increases.
- 3.70 The operation of the flare in Table 3.57 shall be recorded and reported on an annual basis in the manner indicated in Schedule 2. In order to enable the estimated calculation of emissions to air from the emergency flare, the following parameters shall be recorded and made available to the Authority upon request: date of flaring event, heat content, ratio of assistance, velocity, and purge gas flow rate.
- 3.71 All processes which generate significant levels of airborne contaminants (such as dusts, toxic gases, odorous chemicals) shall have effective local collection and shall discharge (after treatment where necessary) through a stack or vent located and/or designed in such a way as to avoid local effect.
- 3.72 Should the Permit Holder intend to install equipment which could lead to additional emissions to air, a variation of this Permit must be secured prior to installation and operation of this equipment.
- 3.73 All non-road mobile machinery and diesel vehicles shall use automotive diesel which conforms to EN 590. In the case of immovable machinery used for shredding which operations on diesel, only gasoil (diesel) with a maximum 0.1% sulphur content or biodiesel which conforms to MSA EN 14214 (including the 10 ppm sulphur limit) may be used. The use of biodiesel which conforms to MSA EN 14214 is preferable.[∞]
- 3.74 All emissions to air from the specified waste management operations listed in Table 3.57 shall be free from visible concentrations of dusts, fibres or particulates that are likely to cause pollution of the environment or harm to human health or serious detriment to the amenity of the locality outside the Site boundary, as perceived by an authorised officer of the Authority.
- 3.75 Under abnormal operating conditions such as in the case of breakdown, the Permit holder shall reduce or close operations as soon as practical until normal operation can be restored.
- 3.76 In the event of, malfunction or breakdown leading to abnormal emissions, the Operator must:
- a) Investigate immediately and undertake corrective action to ensure compliance is restored without undue delay, and
 - b) Adjust the process or activity to minimise those emissions, and
 - c) Record the events and actions taken.
- 3.77 In the event of non-compliance causing immediate danger to human health, operation of the activity must be suspended and a notification immediately sent to Environmental Health Directorate. The Competent Authority shall also subsequently be informed within 24 hours.

- 3.78 Further to condition 3.78, the operator shall, at the written request of ERA and within 10 working days, identify the specific cause of the of the abnormal emission and examine means for its elimination or minimisation including:
- a) Relocating / redesigning / extending the emission point to a point where nuisance is minimized
 - b) Preventative measures such as replacement of process materials (e.g. odorous solvents) by substances which are less detrimental to the environment
 - c) Improved storage of materials
 - d) Use of additional abatement measures in line with condition 3.72.
- 3.79 All abatement equipment and ducting shall be cleaned and maintained on a regular basis, as per manufacturer specifications. The Permit Holder shall keep maintenance records for review by the Authority upon request.
- 3.80 Emissions from the mechanical-biological treatment process shall be collected and directed towards a wet scrubber and backhouse filter (identified as PS 2 in Table 3.57).
- 3.81 The operational effectiveness of filters (such as HEPA filters) for the control of emissions to air shall be monitored by means of an electrical current reading or equally effective means. Such recorders shall be visible and audible to operators working on the equipment such that an out of range incident can be easily and immediately identified.
- 3.82 When filters are found to have reached the pressure alert limit indicated by filter manufacturer, these shall be immediately replaced as per approved Standard Operating Procedure and where applicable, damaged filters shall be treated as hazardous waste as per S.L.549.63. Records of filter changes should be kept in line with Section 4 of the Permit.
- 3.83 The Permit holder is to ensure that all measures to limit odours are implemented on site both during operational and non-operational hours. The MTP/AD plant area shall be equipped with automated doors and industrial air curtains to reduce emissions from the installation. Such measures are to be used at all times and maintained where required.
- 3.84 All plant operation takes place in closed hall, all vehicle and staff doors have to be kept closed and only be opened for the minimum period necessary to enter / exit.
- 3.85 Exhaust air collection systems have to operated constantly during plant operation to maintain a negative pressure and collect all airborne emissions.
- 3.86 Typically all waste delivered has to be fully processed on the same day, so as to minimise the storage of untreated waste.
- 3.87 Halls including all equipment installed and floors are swept and cleaned regularly.
- 3.88 Exhaust air treatment systems are controlled daily for proper performance.
- 3.89 The following key waste and parameters shall be monitored and recorded for the anaerobic digestion process:
- a) pH and alkalinity of the digester feed;
 - b) digester operating temperature;
 - c) hydraulic and organic loading rates of the digester feed;
 - d) concentration of volatile fatty acids (VFA) and ammonia
 - e) within the digester and digestate;
 - f) biogas quantity, composition (e.g. H₂S) and pressure;
 - g) liquid and foam levels in the digester.

Discharges to the sewer

- 3.90 The Permit Holder shall ensure the Sewer Discharge Permit from the Water Services Corporation (WSC) is obtained and updated every year and shall supply all the information requested by the WSC and take all the necessary actions as instructed by the WSC and/or the Authority. The Permit Holder shall forward to the Authority a copy of any Sewer Discharge Permit issued by the Water Services Corporation within 10 days of its issue.∞
- 3.91 The Permit Holder shall follow the conditions of the Sewer Discharge Permit, as may be updated from time to time by the Water Services Corporation and the provisions of the Sewer Discharge Control Regulations (S.L. 545.08). ∞
- 3.92 No discharges of trade effluent into the sewer (whether from off-site or on-site discharge points) are allowed, unless specifically permitted by the Water Services Corporation. Prior to any discharge of trade effluent, the Permit Holder must provide evidence of authorisation including the Public Sewer Discharge Permit from the Water Services Corporation to the Authority.∞
- 3.93 The Permit Holder shall monitor for the parameters as per Water Services Corporation requirements. As part of Schedule 2 – Annual Environmental Report, the Permit Holder shall inform the Authority of any changes to the Sewer Discharge Permit of the installation or changes made by the Water Services Corporation to monitoring requirements or frequency of monitoring.
- 3.94 The Permit holder shall report discharges to the sewer as part of the Annual Environmental Report of the installation, in addition to any other reporting requirements set by the Water Services Corporation.
- 3.95 Clean rainwater from roofed structures shall be segregated from all process areas that are potentially contaminated with raw materials, intermediates and/or products.
- 3.96 Foul sewer drains must be strictly segregated from storm water drains.
- 3.97 Rain and second-class water are not to be used for human consumption or for personal use. ∞
- 3.98 Emergency shower and any other infrequently used water points are to be flushed once every seven days. These should be cleaned, descaled and disinfected every three months to prevent the risk of legionella growth.∞
- 3.99 Any processing water used within the facility that will have a direct contact with the personnel is to be treated with a biocide for the prevention of Legionnaires disease.∞
- 3.100 Any Legionella samples results with a positive count of the legionella bacteria are to be notified to the Water Regulator Auditing Unit within the Environmental Health Directorate.∞
- 3.101 Further to condition 3.93, emissions of trade effluent to sewer shall only arise from the emission point specified in Table 3.101, as indicated in approved document IP 0005/13/B/DOC2:∞

Table 3.101 : Emission point to sewer		
Emission point reference	Source	Location of emission point
E1	Trade effluent	Compost shed reservoir for process waters

- 3.102 The limits for the parameters set out in Table 3.102 for trade effluent discharge through E1 shall not be exceeded.∞

Table 3.102: Emission limits to sewer and monitoring		
Parameter	Limit	
pH	6-10	scale
Temperature	40	°C
Mercury	must not be present	-

Cadmium		
Settleable Solids (Total)	20	mL/L
Suspended Solids (Total)	500	mg/L
Nitrogen (Kjeldahl)	100	
Sulphide	10	
Hydrocyanic Acid	10	
Sulphate	1000	
Oil and Grease (free & emulsified)	200	
Chlorine (Free)	100	
Chloride	1000	
Chromium	0.15	
Silver	5	
Nickel	0.5	
Copper	0.5	
Lead	0.1	
Zinc	1	
Total non-ferrous metals calculation	30	
Total soluble non-ferrous metals calculation	10	
Arsenic	0.05	
Fluoride	10	
Boron	2	
Chemical Oxygen Demand (COD)	1000	
Biological Oxygen Demand (BOD)	500	
Total Phosphorus (TP)	20	

- 3.103 No transfer whatsoever of effluent from the Permitted Installation shall be made to any off-site effluent treatment plant without the written consent of the Authority.
- 3.104 Contaminated runoff collected in reservoirs shall be treated prior to discharge to sewer or disposed of in authorised facilities.

Discharges to groundwater

- 3.105 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance as per requirements of S.L. 549.53 Protection of Groundwater against Pollution and Deterioration Regulations.
- 3.106 Further to condition 3.106 the Permit Holder shall not allow any discharges to groundwater.
- 3.107 The operations of the installation shall not hinder the achievement of good chemical and quantitative status of groundwater as prescribed under the Water Policy Framework Regulations, S.L. 549.100.

Fugitive emissions of substances to air

- 3.108 The Permit holder shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation, in particular from the:
- process areas
 - storage areas, including solvent storage, raw materials storage and waste storage
 - buildings
 - pipes, valves and other transfer systems
 - open surfaces

provided always that the techniques used by the Permit holder shall be limited to those described in the Application as approved by the Authority.

Fugitive emissions of substances to water and sewer

- 3.109 No discharges to water (other than to sewer) shall take place at the installation.
- 3.110 The Permit holder shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to water (including to groundwater) and sewer from the Permitted Installation, in particular from:
- a) All structures under or over ground
 - b) Surfacing
 - c) Storage areas
 - d) Bunded areas.
- 3.111 Engineered site containment and drainage systems (including catchment pits, bunds and oil interceptor(s)/fuel separator(s)) shall be designed, constructed, inspected, validated and maintained; and shall be fully documented and recorded to be fit for purpose while meeting the following construction quality assurance standards. All areas are to:
- Be fully impermeable;
 - Be kept free from cracks which could increase permeability;
 - Be leak-proof and resistant to physical, mechanical and chemical stresses to which they may be subjected;
 - Fall towards the drainage system to prevent pond formation.
- Such systems shall be certified by an independent, warranted civil engineer or engineer as being leak-proof and resistant to physical, mechanical and chemical stresses to which they may be subjected. Testing of the oil interceptor(s)/fuel separator(s) shall be carried out as per EN 858 and shall amongst other things include an inspection of the interceptor for efficiency of operation. Such testing and certification shall be carried out prior to any renewal of this IPPC permit. The certification shall be submitted as part of the AER in the format specified in Schedule 2.
- 3.112 All pipes, pumps, valves and flanges forming part of the fuel and waste transfer systems shall be certified to be leak-proof by an independent, warranted civil engineer in the year prior to any renewal of this IPPC permit. The inspection report and any ensuing certification must be included in the AER in the format specified in Schedule 2.
- 3.113 The drainage system catering for potentially contaminated surface run-off must be sealed to ensure that it does not leak and is capable of collecting and containing runoff and other liquids draining from the impermeable pavement. Runoff from the drainage system is to pass through an oil-water interceptor.
- 3.114 All oil interceptor(s)/fuel retention separator(s) shall be monitored and maintained to ensure efficient operation. A log of monitoring and waste removal from the interceptor shall be maintained on site and be available for inspection by the Authority.
- 3.115 Oil interceptor(s)/fuel retention separator(s) shall be installed by an independent warranted architect or engineer as per EN 858.
- 3.116 All process and storage areas must be appropriately contained. Any accidental release of substances shall be duly treated prior to discharge into the sewers, or disposed according to The Waste Regulations S.L. 549.63 if treatment does not enable compliance with emission limit values. Records shall be kept of such discharges, including the volume discharged and other parameters, as agreed with the Water Services Corporation, as per the Sewer Discharge Permit.

Odour

- 3.117 The Permit Holder shall use BAT so as to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:
- a) Limiting the use of odorous materials;
 - b) Restricting odorous activities;
 - c) Controlling the storage conditions of odorous materials;

- d) Controlling processing parameters to minimise the generation of odour;
- e) Optimising the performance of abatement systems;
- f) Timely monitoring, inspection and maintenance;
- g) Employing an approved odour management plan,

provided always that the techniques used by the Permit Holder shall be limited to those described in the Application as approved by the Authority

- 3.118 Should odour problems persist, the Permit holder shall:
- a) Investigate immediately and undertake corrective action, and
 - b) Adjust the process or activity to minimise those emissions, and
 - c) Record the events and actions taken.
 - d) In the event of non-compliance causing immediate danger to human health, operation of the activity must be suspended and the Competent Authority informed within 24 hours.
- 3.119 The Operator is to ensure that the covering of waste which is stored outside enclosed buildings, is regularly maintained and that any damage to the coverings is prevented. No odours shall be generated from the outdoor waste storage area.
- 3.120 The Odour Management Plan in accordance with Approved DOC IP0005/13/DOC5 shall be maintained and followed through the lifetime of the permit.
- 3.121 There shall be no significant offensive odour, as perceived by an Authorised Officer of the Competent Authority, at locations offsite.

Noise and Vibration

- 3.122 The Permit holder shall use BAT so as to prevent or where that is not practicable to reduce emissions of noise and vibration from the Permitted Installation, in particular by:
- a) equipment maintenance, e.g. circulating pumps, extraction fans, compressors.
 - b) use and maintenance of appropriate attenuation, eg. silencers, barriers, enclosures;
 - c) appropriate timing and location of noisy activities and vehicle movements;
 - d) periodic checking of noise emissions, either qualitatively or quantitatively; and
 - e) maintenance of building fabric.
- provided always that the techniques used by the Permit holder be limited to those described in the Application as approved by the Authority.
- 3.123 Emergency generators and release valves shall only be tested between the hours of 10.00 and 17.00 Monday to Friday and not on any Public Holiday. Emergency sirens and alarms shall only be tested between 08:00 and 20:30 same days.
- 3.124 The level of noise emitted from the installation at all operational times shall not exceed the background noise level by more than 5dB.
- 3.125 Handling of glass shall be carried out in the following manner to minimise noise emissions:
- a) Occur between 06:30 and 19:00 only
 - b) Drop height shall be kept to a minimum
- 3.126 Monitoring of noise shall be carried out in locations, frequency and methods in accordance with the EMP. It shall, amongst others, include noise monitoring during glass handling activities and shall take place under normal operating conditions whilst having all noisy equipment (including the rudimentary sorting line electric engine and conveyor system) commissioned and in operation.
- 3.127 The annual noise monitoring report as proposed in the EMP is to be prepared and carried out by a consultant who is duly qualified and is approved by ERA in accordance with the authority's accreditation requirements, prior to the initiation of the monitoring and in line with the Terms of Reference provided in Schedule 5.

- 3.128 As part of the AER, records of noise monitoring of the previous year shall be submitted to the Competent Authority by not later than end of March after the end of each reporting year, in the format specified in Schedule 2 of this permit. A detailed report shall also accompany such results.

Emissions to Land

- 3.129 No emission from the Permitted Installation shall be made to land.

3.2 Management and Technically Competent Person

- 3.130 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all site staff carrying out work subject to the requirements of the Permit.

Training

- 3.131 The Permitted Installation shall be supervised and controlled by staff who are suitably trained and fully conversant with the requirements of this Permit.
- 3.132 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to effectively carry out their duties.
- 3.133 The Permit holder shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and on public health and shall keep records of all relevant training.

Maintenance

- 3.134 All plant and equipment used in operating the Permitted Installation shall be maintained in good operating condition and in such a manner to:
- a) prevent corrosion as applicable
 - b) Ensuring access to potentially leaky equipment
 - c) Regularly controlling protective equipment.
- 3.135 The Permit holder shall maintain a record of plant and equipment covered by condition 3.135, and for such plant and equipment:
- a) a written or electronic maintenance programme; and
 - b) records of its maintenance.
- 3.136 The Permit Holder shall notify the Authority about any major projected maintenance works on plant equipment that could result in abnormal emissions or waste generation, at least two weeks prior to the intended commencement date. This notification shall include details on what maintenance shall be carried out and what measures intended to minimise emissions or waste shall be emplaced.
- 3.137 All mechanical parts and machinery shall be stored in closed designated structures (not open to the elements) constructed on impervious grounds capable of containing any accidental spills of fuels, oils or any other hazardous chemical/s.
- 3.138 All maintenance of on-site machinery and equipment shall be carried out on an impervious surface where a thorough clean-up of fuels, oils or any other hazardous chemical/s can be readily undertaken.

Incidents and Complaints

- 3.139 The Permit holder shall maintain and implement written procedures for:

- a) taking prompt remedial action, investigating and reporting to the Competent Authority actual or potential non-compliance with operating procedures or emission limits and if such events occur;
 - b) investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short-term and long-term remedial measures and near-misses) and prompt implementation of appropriate actions; and
 - c) ensuring that detailed records are made of all such actions and investigations.
- 3.140 The Permit holder shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment and public health. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.
- 3.141 As part of the Annual Environmental Report, the Permit Holder shall provide a summary record of incidents and complaints in the format specified in Schedule 2.

Attendance of Technically Competent Person(s)

- 3.142 The Technically Competent Person (TCP) is responsible for the implementation of all the obligations stipulated in this permit, must supervise the rest of the staff on site and shall be the Permit Holder's technical focal point for the implementation of the conditions of this permit. Attendance of the technically competent person(s) at the Site shall be recorded on arrival and departure.
- 3.143 For the whole operational hours permitted for the Site under this Permit, the Technically Competent Person/s shall be physically in attendance at the Site. Prior to start of operations, the permit holder is to provide details as to how he intends to provide this coverage in order to take into account unavoidable absences due to vacation or sick leave.
- 3.144 In the event of any short or long periods of absence taken by the TCP for a period exceeding 10 days, the Permit Holder is obliged to find a replacement for that member of staff without delay.
- 3.145 Where the Authority has been notified that the site is either non-operational or closed, the Technically Competent Person shall be capable of attending the Site within one hour.

Changes in Technically competent Persons

- 3.146 Any changes/additions in technically competent management (person/s) and the name of any incoming person together with evidence that such person has the required technical competence and 24-hour contact details shall be submitted to the Authority in writing within 5 working days of the change in management.
- 3.147 In the event of the death, dismissal, resignation, leave, or of extended sick leave of the Technically Competent Management of the Site, the Permit holder shall immediately inform the Authority, and prove to the Authority that the Permit holder is actively seeking a replacement.

3.3 Energy Efficiency

- 3.148 As part of the Annual Environmental Report, the Permit holder shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by the end of March of each year, providing the information listed in Schedule 2. The energy consumption of the waste recovery unit is also to be included in this report.
- 3.149 The Permit holder shall maintain and operate the Permitted Installation so as to secure energy efficiency, in particular by:
- a) ensuring that the appropriate operating and maintenance systems are in place;
 - b) ensuring that all the plant is adequately insulated to minimise energy loss or gain;
 - c) ensuring that the type of lighting used is energy-efficient;
 - d) ensuring that all appropriate containment methods (e.g. seals) are employed and maintained to minimise energy loss;

- e) maintaining and implementing an energy efficiency plan which identifies energy-saving techniques that are applicable to the activities and their associated environmental benefit, and prioritises them.

3.4 Accident prevention and control

- 3.150 In the case of an accident (including chemical spills, fire etc.), the Permit Holder shall follow the Emergency Response Plan and shall notify the Authority within 24 hours.
- 3.151 In case of a major accident causing an imminent risk to health and safety, the Civil Protection Department are to be immediately notified following detection.
- 3.152 The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Authority notified of the results of the review within 2 months of its completion.
- 3.153 The Permit holder shall maintain and implement all health and safety measures in compliance with Act XXVII of 2000; Occupational Health and Safety Authority Chapter 424 and all relevant subsidiary legislation.∞
- 3.154 The Permit holder shall have sufficient employees trained to deal with any emergency that may arise, e.g. fire-fighting and first aid.∞
- 3.155 The Permit Holder is to keep the Authority updated on any major changes in operations that may impact on the health and safety of the employees, in compliance with Act XXVII of 2000 (Occupational Health and Safety Authority Act, 2000 (Chapter 424)) and all relevant subsidiary legislation.∞
- 3.156 The Permit Holder is to make available Health and Safety documentation freely available in compliance with Act XXVII of 2000 (Occupational Health and Safety Authority Act, 2000 (Chapter 424)) and all relevant subsidiary legislation.∞
- 3.157 Without prejudice to other conditions in this permit, all requirements and conditions in approved document IP 0005/13/B/DOC3 shall apply and be enforced by the Civil Protection Department.∞

Monitoring

- 3.158 Monitoring shall be carried out in accordance with the consolidated Environmental Monitoring Programme (EMP) for the Permitted Installation, as approved by the Authority.
- 3.159 Where the EMP for the Permitted Installation requires monitoring to take place at third party properties, the Permit Holder shall be responsible for access and sampling in accordance with the EMP.
- 3.160 The Permit holder shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored as specified in this Permit and associated BAT Conclusions in accordance with S.L. 549.77, and the results of such monitoring shall be assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions, and that measurements for the determination of concentrations of substances specified in this Permit shall be carried out representatively.
- 3.161 Measurements for the determination of concentrations of substances specified in this Permit shall be carried out representatively.
- 3.162 Sampling and analysis of all pollutants, as well as reference measurement methods to calibrate automated, continuous, measurement systems shall be carried out as specified by the appropriate CEN standards. If CEN standards are not available, ISO standards, national or international standards, which will ensure the provision of data of an equivalent scientific quality, as agreed in writing with the Authority, shall apply.

- 3.163 Monitoring equipment required by the EMP shall be accompanied by a valid calibration certificate.
- 3.164 Samples pending inorganic analysis shall be stored utilising plastic containers whereas those pending organic analysis are to be stored in amber glass bottles.
- 3.165 Monitoring and analysis required by the EMP shall be from a certified or accredited laboratory or laboratory in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta).
- 3.166 As part of the Annual Environmental Report, the Permit Holder shall provide evidence of certification, calibration or accreditation of equipment and/or laboratories used for the emissions monitoring.
- 3.167 With the exception of monitoring undertaken as part of the EMP, the Permit Holder shall notify the Authority at least 10 working days in advance of undertaking monitoring, where such notification has been requested in writing by the Authority.
- 3.168 The Permit holder shall maintain records of all monitoring taken or carried out (this includes records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys) and any assessment or evaluation made on the basis of such data.
- 3.169 The Permit Holder shall submit all the annual monitoring results as part of the Annual Environment Report (AER). The Authority reserves the right to change the frequency for submission of these reports whenever deemed necessary.
- 3.170 There shall be provided safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points already mentioned in this Permit; and safe means of access to other sampling/monitoring points when required by the Authority.

Storage

- 3.171 No storage of equipment and/or materials is permitted on property outside the site boundary, as per Schedule 6 of this Permit.
- 3.172 All process areas, bulk fuel and chemical storage tanks, shall be provided with an adequately designed bund system with an impermeable base and walls. The capacity of the bund shall be a minimum of 110% of the largest tank within the bund or 25% of the total capacity of all the tanks within the bund, whichever is greater. All filling and off-take points shall be located within the bund. The Permit holder shall also ensure and take all precautions in his competence to avoid any leakages or spills from liquid or solid material that can cause environmental harm.
- 3.173 All bulk liquid tanks, and associated bunding and pipe work shall be visually inspected and recorded at least twice a week.
- 3.174 The area for the production, drying and storage of compost shall be provided with an adequately designed bund system with an impermeable base and walls to avoid spillages or contamination of other sites.
- 3.175 The storage of raw materials, particularly liquids, shall take place only in areas with impervious ground and where thorough clean-up and site reinstatement can be readily undertaken.
- 3.176 Containers for bulk storage of chemicals (mainly fuels and lubricant oils for use on equipment and machinery stored within the installation) shall be properly designed, located, labelled, banded and maintained so as to prevent accidental spillage. Incompatible chemicals shall not be stored within the same bund. Dedicated storage areas shall be constructed and maintained in accordance with the fire, safety and ventilation report in approved document IP 0005/13/B/DOC6

Ozone Depleting Substances and Fluorinated Greenhouse Gases

- 3.177 Maintenance and servicing of equipment containing ozone depleting substances and fluorinated greenhouse gases shall be carried out in accordance with the legal provisions of Regulation (EU) No 517/2014 on fluorinated greenhouse gases and L.N. 143 of 2018 on Fluorinated Greenhouse Gases (Implementing) Regulations and Regulation (EC) No. 1005/2009 on substances that deplete the Ozone Layer. All maintenance and servicing shall be reported in the AER as per template in Schedule 2.
- 3.178 The use of HCFCs in the maintenance and servicing, in particular refilling, or products and equipment whose function relies on such substances shall be prohibited.
- 3.179 All installation, maintenance and servicing of equipment containing Fluorinated Greenhouse Gases shall abide by the requirements of EC Regulation No. 517/2014 on Fluorinated Greenhouse Gases, and S.L. 427.94 on Fluorinated Greenhouse Gases (Implementing) Regulations.
- 3.180 No new equipment or components containing substances falling within the scope of EC Regulation No. 1005/2009 on substances that deplete the Ozone Layer on substances that deplete the ozone layer, shall be installed within the site.

Closure and Decommissioning

- 3.181 The Permit holder shall maintain and operate the Permitted Installation so as to prevent or minimise any pollution and public health risk, including the generation of waste, on closure and decommissioning in particular by:-
- a) Attention to the design of new plant or equipment;
 - b) The maintenance of a record of any events which have, or might have, impacted on the condition of the site along with any further investigation or remediation work carried out; and
 - c) The maintenance of a site closure plan to demonstrate that the installation can be decommissioned avoiding any pollution and public health risk and returning the site of operation to a satisfactory state.
- 3.182 The Permit Holder shall maintain a Site Closure Plan (or Outline Decommissioning Plan) for the installation. This Plan shall at least include the following information:
- a) A draft waste management strategy which shall include:
 - i. The identification and characterisation of sources, types of wastes (including equipment, tanks, fuels and by-products);
 - ii. Criteria for segregation of wastes;
 - iii. Proposed treatment, conditioning, transport, storage and disposal/recovery methods;
 - iv. Potential reuse/recycling of such wastes.
 - b) A qualitative assessment of the potential for contamination of land and groundwater pollution which might arise from the historical and current processes carried out at the installation.
 - c) The identification of potential sources of emissions to the atmosphere, land and water (both seawater and groundwater) pollution which might arise from the decontamination process and corresponding mitigation measures to minimise the likelihood of such emissions.
- 3.183 The Permit holder shall carry out a full review of the Site Closure Plan at least every 4 years.

- 3.184 The Permit holder shall maintain a land and groundwater monitoring strategy according to these requirements:
- d) The list of the pollutants to be monitored.
 - e) The location of the points for the sampling of land, the sampling methods, the handling of the samples, the pre-treatment/extraction of the analytes (where applicable) and the methods used in order to analyse the samples are clearly detailed.
 - f) Samples will be analysed to the relevant EN or EN ISO standards or equivalent.
 - g) Samples shall be managed by a lab accredited (or in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta) or equivalent) to at least EN ISO 17025:2017 and preferably accredited for each and every analysis.
- 3.185 The Permit Holder shall notify the Authority prior to ceasing operations permanently in part or full, whereby an application for cessation of operations shall be made to the Authority.
- 3.186 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the installation in the permitted activity, the Permit Holder shall to the satisfaction of the Authority, decommission, render safe or remove for disposal/recovery, any land, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution and that may pose a public health risk.
- 3.187 The Permit holder shall submit to the Authority a full Decommissioning Plan which shall at least include all the following information:
- a) The results of any land and groundwater monitoring carried out to date
 - b) A detailed monitoring programme which will illustrates how the Permit holder will measure the current levels of various pollutant in the land and groundwater in line with the monitoring requirements of the baseline report.
 - c) The levels to which the site and any affected land and groundwater will have to be decontaminated.
 - d) Where the contamination of land and groundwater at the site poses a significant risk to human health or the environment as a result of the activities carried out by the Permit Holder, the Permit Holder shall submit a report indicating the actions to be taken for removal, control, containment or reduction of relevant hazardous substances so that the site, taking into account its current or approved future use, ceases to pose such a risk.
 - e) The methods which will be used in order to decontaminate the land. Such methods may also include isolation.
 - f) A detailed waste management strategy which shall be based on the draft strategy submitted as per condition 3.183).
 - g) The identification of potential sources of emissions to the atmosphere, land and water (both seawater and groundwater) pollution which might arise from the decontamination process and corresponding mitigation measures to minimise the likelihood of such emissions.
- 3.188 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the installation in the permitted activity, the Permit Holder shall to the satisfaction of the Authority, decommission, render safe or remove for disposal/recovery, any land, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution and that may pose a public health risk.

- 3.189 The approved Decommissioning Plan shall be implemented within 12 months of final cessation or decommissioning of the Permitted activities or part thereof or according to a timeframe as may be agreed with the Authority.

Multiple Operator installations

- 3.190 This is not a multi-Operator installation.

4. Records

- 4.1. Records should be kept on site in which the following information shall be recorded on a daily basis:
- a) Total amount of waste in kilos accepted on site;
 - b) Total amount of waste in kilos removed from site for disposal or further treatment;
 - c) Total amount of waste in kilos refused unloading on site;
 - d) Total amount in kilos of unaccepted material sent to the quarantine area and by which registered waste carrier it was transported;
 - e) Any incidents that took place on site such as mechanical faults in the machinery or equipment used on site, any spills, fires, etc., and the remedial action taken;
 - f) Names of visitors;
 - g) Any other incidents that the Permit holder deems important to record.
 - h) Each event recorded within the daily operations log must be completed within 24 hours of the event.
- 4.2. Disposal and/or recovery certificates and any documentation related to transfer of waste to and from the site and/or related to its end disposal and/or recovery shall be kept on record and made available for inspection for a period of at least 5 years from date of their issue. Copies of such certificates shall be submitted on an annual basis as part of the AER.
- 4.3. The Permit Holder shall maintain a computer database linked to the weighbridge data, allowing for tracking of incoming and outgoing waste, and act as a stock control system.
- 4.4. The Permit holder shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-
- a) be made available for inspection by the Authority at any reasonable time;
 - b) be supplied to the Authority on demand and without charge and in the format requested;
 - c) be legible;
 - d) be made as soon as reasonably practicable;
 - e) indicate any amendments which have been made and shall include the original record wherever possible; and
 - f) be retained at the Permitted Installation, or other location agreed by the Authority in writing, for a minimum period of 5 years from the date when the records were made, unless otherwise agreed in writing.

5. Reporting

- 5.1. All reports and written and/or oral notifications required by this Permit and notifications required by Regulation 7 of the Industrial Emissions (IPPC) Regulations shall be made and sent to the Authority using the contact details notified in writing to the Permit holder by the Authority.
- 5.2. The Permit Holder shall submit to the Authority an Annual Environmental Report (AER) of the previous year by not later than end of March of each year, providing the information listed in Schedule 2 of this permit and the reporting templates available on the ERA website and in the format specified therein as communicated by ERA from time to time). It shall be ensured that all certification and documentation as per Schedule 2 are submitted. The AER shall be forwarded to the Authority in electronic format.
- 5.3. An independent auditor shall be engaged by the Permit Holder to certify all of the waste reporting required by this permit, in line with the Audit Procedures - Terms of Reference found in Schedule 4 of this permit. The results of such audit are to be submitted to the Authority in

the form of a report, as part of the AER or by the 31st of March of each reporting year, The Authority may carry out any such audits on the installation itself as deemed necessary at the expense of the Permit Holder in line with condition 1.6.17.

- 5.4. In the case of waste that is sent for treatment or recovery to another facility locally or abroad, the audit trail shall cover all waste from the point of generation or collection to the end recovery or disposal facility.
- 5.5. The Permit holder shall, within 6 months of receipt of written notice from the Authority, submit to the Authority a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Permit holder, that may provide environmental improvement.
- 5.6. In the event where operations cease temporarily (2 weeks or more), the TCP or Operator are obliged to notify the Authority within two (2) days and are also to inform the Authority with regards to when the works are intended to resume.

6. Notifications

- 6.1. The Permit holder shall notify the Authority without delay of:-
 - a) the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;
 - b) the detection of any fugitive emission which has caused, is causing or may cause significant pollution and/or a public health risk unless the quantity emitted is so trivial that it would be incapable of causing significant pollution and/or a public health risk;
 - c) the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution and/or public health risk; and
 - d) any accident which has caused, is causing or has the potential to cause significant pollution and/or public health risk.
- 6.2. The Permit Holder shall submit written confirmation to the Authority of any notification under condition 6.1, by sending:-
 - a) the information listed in Schedule 1 to this Permit within 24 hours of such notification; and
 - b) the information regarding non-compliance incidents in Schedule 2 according to the timeframe specified in Condition 5.2 **Error! Reference source not found.**;

and such information shall be in accordance with that Schedule.

- 6.3. The Permit holder shall give written notification as soon as practicable prior to any of the following:-
 - a) permanent cessation of the operation of part or all of the Permitted Installation;
 - b) cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and
 - c) resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition b).
- 6.4. The Permit holder shall notify the Authority, as soon as practicable, of any information concerning the state of the site which affects or updates that provided to the Authority as part of the Site Report submitted with the application for this Permit.
- 6.5. The Permit holder shall notify the following matters to the Authority in writing within 10 working days of their occurrence:-
 - 6.5.1. Where the Permit holder is a registered company:

- a) any change in the Permit holder's trading name, registered name or registered office address;
- b) any change to particulars of the Permit holder's ultimate holding company (including details of an ultimate holding company where an Permit holder has become a subsidiary); and
- c) any steps taken with a view to the Permit holder going into administration, entering into a company voluntary arrangement or being wound up.

6.5.2. Where the Permit holder is a corporate body other than a registered company:

- a) any change in the Permit holder's name or address; and
- b) any steps taken with a view to the dissolution of the Permit holder.

6.5.3. In any other case:

- a) the death of any of the named Permit holders (where the Permit holder consists of more than one named individual);
- b) any change in the Permit holder's name(s) or address(es);
- c) any steps taken with a view to the Permit holder, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership.

6. Setting up of a Monitoring Committee

- 6.1 A Monitoring Committee shall be set up, with the aim of monitoring the progress being made by the Operator in the implementation of the EMS and other permit conditions within the permit. The Committee shall be chaired by the Director of Environment Resources or his/her delegate, two representatives of WasteServ Malta Ltd, and two representatives from the Marsaskala Local Council. One of the Local Council representative shall be a neighbouring resident of the installation as determined by the same Local Council.
- 6.2 The meeting shall be postponed if within 15 minutes of the scheduled meeting time a quorum consisting of at least a representative of each party is present.
- 6.3 The Committee shall be chaired by ERA representatives who shall convene the Committee at least once every two months unless otherwise agreed to amongst the Committee members. Any member of the Committee may request the Chairman to convene any other meetings of the Committee and the Chairman shall convene such a meeting within 10 days from such a request.
- 6.4 The Permit Holder shall provide secretarial assistance for taking minutes during the Committee Meetings.
- 6.5 The Local Council, in agreement with ERA, may appoint an expert to assist the Local Council in the interpretation of data which is to be made publicly available or to provide professional assistance with respect to specialised technical input. Prior to the appointment of the independent expert, the local council shall provide a formal request to the Monitoring Committee indicating the nature and expenses related to such work.
- 6.6 The above expert shall be at the expense of the Operator with the funds being recouped from the Permit Holder. The value provided for such assistance shall not exceed a total of €10,000 (incl. VAT) throughout any calendar year. The Local Council shall provide the Monitoring Committee with a receipt of the expenses incurred from the study.
- 6.7 All information requests made through this permit shall be forwarded to the Monitoring Committee through the Authority.

7. Interpretation

- 7.1. In this Permit, the following expressions shall have the following meanings:-

“AER” means the Annual Environmental Report.

“Application” means the application for this Permit, together with any response to a notice served under Regulation 5 to the Industrial Emissions (IPPC) Regulations and any operational change agreed under the conditions of this Permit.

“Authorised Officer” means any officer of the Authority authorised in writing pursuant to the Environment Protection Act 2016 to exercise any of the powers specified therein.

“Background concentration” means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation onto the site.

“BAT” means best available techniques, which means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: “available techniques” means “those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced in Malta, as long as they are reasonably accessible to the Permit holder”; “best” means “in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole” and “techniques” “includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.”

“Engineer” for engineering works specified in these conditions, means a person who works in the relevant branch of engineering and possesses a warrant to carry out the profession of an engineer in Malta.

“Fugitive emission” means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission limit under conditions 3.57 and 3.58 of this Permit.

“Groundwater” means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous Waste” means hazardous waste as defined in The Waste Regulations, 2011 (S.L. 549.63).

“Industrial Emissions (IPPC) Regulations” means the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (S.L. 549.77) and words and expressions defined in the Industrial Emissions (IPPC) Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit. It shall include any future amendments or superseding legislation.

“Malta” means the Island of Malta, the Island of Gozo and the other islands of the Maltese Archipelago, including the territorial waters thereof.

“Monitoring” includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

“Permitted Installation” means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

“Sewer” means sewer within the meaning of section 219(1) of the Water Industry Act 1991.

“Staff” includes employees, directors or other officers of the Permit holder, and any other person under the Permit holder’s direct or indirect control, including contractors.

“Surface water” means inland waters, except groundwater; transitional waters and coastal waters

“Technically Competent Person” means a person possessing the qualifications, experience and technical competence to abide by the conditions of the Permit;

“Technically Competent Management” means the Technically Competent Person or Persons in control of the day-to-day activities authorised by the Permit and carried on at the Site;

The Authority” or *“the Competent Authority”* or *“ERA”* means the Malta Environment and Resources Authority or such other body or person as the Minister responsible for the environment may by order in the Gazette prescribe;

“The Permit holder” means a natural or legal person who is in occupation of the Site and has responsibility for carrying out day to day activities at the Site and to whom the Permit has been issued and / or transferred;

“The Regulations” means the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (LN 10 of 2013), and any regulations amending or replacing them;

“The Site” means the land, structures, plant and equipment to which this Permit relates;

“Year” or *“reporting year”* means calendar year ending 31 December.

- 7.2. Where a minimum limit is set for pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.
- 7.3. Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means:-
- 7.3.1 in relation to gases from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- 7.3.2 in relation to gases from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for oxygen content, and expressed in $\mu\text{g}/\text{Nm}^3$ or mg/Nm^3 .
- 7.4. Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

Schedule 1

Notification of abnormal emissions and significant adverse environmental effects

This page outlines the information that the Permit holder must provide to satisfy conditions 5.1 and 5.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the Industrial Emissions (IPPC) Regulations.

Part A

Permit Number	
Name of Permit holder	
Location of Installation	
Location of the emission	
Time and date of the emission	

Substance(s) emitted	Media (e.g. air, groundwater)	Best estimate of the quantity or the rate of emission (include units)	Time between which the emission took place

Measures taken, or intended to be taken, to stop the emission	
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Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm or any public health risk which has been or may be caused by the emission.	
The dates of any unauthorised emissions from the installation in the preceding 24 months.	

Name ⁱ	
Post	
Signature	
Date	

ⁱ authorised to sign on behalf of Permit holder

Schedule 2

Annual Environmental Report

Important note

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S2.1 Introduction

IPPC Permit Number	
Reporting Year (Calendar Year: 1 January to 31 December)	
Name and location of Site	
Brief description of activities at the site	

S2.2 Environment Management System & Reporting

Please attach a supporting document with the following:

1. Environmental Policy containing the installation's environmental objectives and targets;
2. Environmental Management Programme report (for the reporting year);
3. Environmental Management Programme proposal (for the following year);

Tick (✓)

S2.3 Process Data**S2.3.1 Annual Summary**

	Units	Previous reporting year	Current reporting year
Quantity of waste treated	tonnes		
Total Annual Energy Consumption (from electricity and other sources)	MWh		
Electricity from renewable energy sources	MWh		
Total energy consumption per unit waste treated	MWh/tonne of waste treated		
Annual water consumption from mains water	m ³		
Annual water consumption from rainwater	m ³		
Annual water consumption from other sources (e.g. bowser)	m ³		
Total water consumption per unit waste treated	m ³ /tonne of waste treated		
Annual quantity of waste produced	tonnes		
Waste produced per unit waste treated	tonne waste produced/tonne waste treated		

S2.3.2 Fuel consumption

	Units	Estimated total fuel	Sulphur Content ¹	Consumption	
				Previous Year	Current Year

¹ Specify units (e.g. as percentage, or mg/kg)

		used by the plants expressed in Tera Joules per year for each plant category			
Diesel	m ³				
Heavy Gasoil	m ³				
Biogas	m ³				

S2.4 Records of waste

As per condition 5.2, the Permit Holder shall submit to the Authority information on waste records of the previous year by not later than end of March of each year, providing the information listed in the ERA website and in the format specified therein as may be communicated by the Authority from time to time). (<https://era.org.mt/era-topic-categories/reporting-obligations/>)

Furthermore, the Permit Holder is to provide the annual mass of waste entering the Anaerobic Digester classified according to the European Waste Catalogue codes as follows:

EWC code	Annual mass of waste processed by AD plant (metric tonnes)

S2.5 Testing of site containment and drainage systems, and fuel transfer system

	Number on site	Date of last test	Certification submitted (Tick ✓)	Testing due on (date)
Catchment pits				
Bunds				
Fuel separator				
Pipes				
Pumps				
Valves				
Flanges				
Weighbridge				
Others: (specify)				

S2.6 Incidents and Complaints

S2.6.1 Non-Compliance Incidents during Reporting Year

Date of incident	Brief description of Incident	Cause	Corrective action

Total number of non-compliance incidents for previous year:

Total number of non-compliance incidents for current reporting year:

S2.6.2 Complaints made by the public

Date of complaint	Description of complaint	Actions taken

Total number of complaints for previous year:

Total number of complaints for current reporting year:

S2.7 Transport

Name of registered waste carrier used during reporting year	Waste type(s) transported

S2.8 Data on Ozone depleting substances and Fluorinated greenhouse gases.**S2.8.1 Registration of equipment installed or decommissioned in the reporting year**

Equipment code	Type of equipment	Use	Charge (kg)	Type of substance
EQ 1				

S2.8.2 Maintenance Schedule¹

Data Submitted for each scheduled inspection ²	Equipment Code							
	EQ 1							Continue as required
Date of inspection								
All amounts of leakages detected (in Kg)								
Actions taken to eliminate such leakages								
Quantity and nature of the substances involved								
Serial number of the personnel involved								

¹ To note that equipment containing more than 3 kgs shall be inspected at least every 12 months, equipment containing more than 30 kgs shall be inspected at least every 6 months and equipment containing more than 300 kgs shall be inspected at least every 12 months.

² Table to be repeated for every scheduled inspection as per 'footnote 1' above.

Quantities added and/or recovered (in Kg).								
--	--	--	--	--	--	--	--	--

S2.9 Monitoring Data

S2.9.1 Emissions to air

-	Emission point reference	Limit Value	Standard methodology used	Total annual number of exceedances ¹		Concentration (Annual Average)			Total Annual Load		
				Previous year ²	Present year	Unit	Previous year	Present year	Unit	Previous year	Present year
TVOC	1	20 mg/Nm ³				mg/Nm ³			kg		
	2										
	4A										
	4B										
	5 ³										
	8										
NH ₃	4A	20 mg/Nm ³				mg/Nm ³			kg		
	4B										
	5 ³										
	8										
Dust	1	5 mg/Nm ³				mg/Nm ³			kg		
	2										
	4A										
	4B										
	5 ³										
	8										
Oxides of Sulphur	4A	60 mg/Nm ³				mg/Nm ³			kg		
	4B										
Oxides of Nitrogen	4A	190 mg/Nm ³				mg/Nm ³			kg		
	4B										
	6	250 mg/Nm ³									
Carbon Monoxide	4A	-		-	-	mg/Nm ³			kg		
	4B			-	-						
	6			-	-						

¹ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

² "Previous year" is not applicable for the first reporting year.

³ Estimates for pollutants emitted by the emergency flare may be provided subject to condition 3.70.

Name of laboratory where tests in this section have been carried out	
Is this laboratory accredited (certified) for the above tests?	Yes <input type="checkbox"/> No <input type="checkbox"/>

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓) ☐

S2.10.2 Emergency Flare

Total quantity of gas sent for flaring (please specify S.I. unit).						
Total duration of flaring events						
Total number of flaring events						
Total percentage of operational hours of the installation						
Standard Emission Factors used to estimate emissions						
Total estimated annual load (kg) of NO _x , CO and hydrocarbons emitted:	Nox:		CO:		Hydrocarbons:	

S2.10.3 Discharges to sewer[∞]

Was trade effluent discharged to the sewer during the reporting year?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Describe any changes to the Sewer Discharge Permit of the installation or changes made by the Water Services Corporation to monitoring requirements or frequency of monitoring as per condition 3.94. Include and refer to any associated documentation as required.	

If trade effluent was discharged to the sewer during the reporting year, the following table must be filled:

Parameter ¹	Limit ²	Standard methodology used	Total annual number of exceedances ³		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
Volume			-	-	-	-	-	m ³		
pH	6-10									
Temperature	40°C									
Mercury	must not be present									
Cadmium										
Settleable Solids (Total)	20 mg/l									
Suspended Solids (Total)	500 mg/l									
Nitrogen (Kjeldahl)	100 mg/l									
Sulphide	10 mg/l									
Hydrocyanic Acid	10 mg/l									
Sulphate	1000 mg/l									
Oil and Grease (free & emulsified)	200 mg/l									
Chlorine (Free)	100 mg/l									
Chloride	1000 mg/l									
Chromium	0.15 mg/l									
Silver	5 mg/l									
Nickel	0.5 mg/l									
Copper	0.5 mg/l									
Lead	0.1 mg/l									
Zinc	1 mg/l									

¹ Further parameters may be required by the Water Services Corporation, according to the Sewer Discharge Permit.

² Stricter limits may be required by the Water Services Corporation, according to the Sewer Discharge Permit.

³ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

Total non-ferrous metals calculation	30 mg/l									
Total soluble non-ferrous metals calculation	10 mg/l									
Arsenic	0.05 mg/l									
Fluoride	10 mg/l									
Boron	2 mg/l									
Chemical Oxygen Demand (COD)	1000 mg/l									
Biological Oxygen Demand (BOD)	500 mg/l									
Total Phosphorus (TP)	20 mg/l									
... add as required...										

Name of laboratory where tests in this section have been carried out	
Is this laboratory accredited (certified) for the above tests?	Yes <input type="checkbox"/> No <input type="checkbox"/>

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory ☐ Tick (☐)

S2.12 Submission of Certifications and Documentation

Submission	Tick (✓)
Certification of weighbridge	<input type="checkbox"/>
Good-working order certificate for generator and boiler prior to the renewal of the permit	<input type="checkbox"/>
Engineer's certificate of oil-water interceptor prior to the renewal of the permit	<input type="checkbox"/>
Inspection of oil/water interceptors by an independent warranted engineer	<input type="checkbox"/>

Engineer's certificate of process pipes, valves and flanges prior to the renewal of the permit	<input type="checkbox"/>
Submission of independent waste audit report every year	<input type="checkbox"/>
Quarterly report on refused waste carrier vehicles in accordance with condition 3.24	<input type="checkbox"/>
Quarterly monitoring reports in accordance with condition 3.62	<input type="checkbox"/>
Revision of draft site closure plan carried out by not later than end 2024.	<input type="checkbox"/>

Schedule 3

Complete List of Wastes Permitted on Site as per EWC codesⁱ

15 Waste packaging (including separately collected municipal packaging waste)

- 15 01 01 Paper and cardboard packaging
- 15 01 02 Plastic packaging
- 15 01 03 Wooden packaging
- 15 01 04 Metallic packaging
- 15 01 06 Mixed packaging
- 15 01 07 Glass packaging

16 Waste not otherwise specified in the list

- 16 01 19 Plastic
- 16 02 16 Plastics resulting from dismantling of washing machines
- 16 02 16 Plastics resulting from dismantling of computers
- 16 02 16 Copper pipes from A/C units
- 16 02 16 Plastics resulting from dismantling of A/C units

20 Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions

- 20 01 01 Paper and cardboard
- 20 01 02 Glass
- 20 01 08 Biodegradable kitchen and canteen waste
- 20 01 39 Plastics
- 20 01 40 Metals
- 20 02 01 Biodegradable waste
- 20 03 01 Mixed municipal waste
- 20 03 07 Bulky waste
- 20 03 02 Wastes from markets

ⁱ European Waste Catalogue Code (Reference: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014D0955>)

Schedule 4

Terms of Reference for Compliance Audits related to Annual Reporting for Authorised Waste Facilities

- S4.1 The auditor shall be independent (i.e. an auditor who would be eligible for appointment as company auditor), certified, and approved by the Authority. The auditor shall have access to in-house environmental expertise or otherwise appoint a consultant having environmental expertise to assist him.
- S4.2 The auditor would be required to certify all the information reported to the Authority by the Authorised Waste Facility as specified in the ERA permit itself.
- S4.3 A sound auditing procedure for traceability, monitoring, and control shall be in place for all the authorised waste managed on site in relation to the Waste Management permit or an Environmental permit.
- S4.4 The audit trail shall cover all waste from the point of acceptance of waste into the facility to the end recovery or disposal facility (local or foreign).
- S4.5 Proper records and documentation shall be kept where authorised waste are sent to duly authorised interim storage facilities, pending transfer to an authorised end disposal/recovery facilities. In such cases, proof is to be provided, as regards to that the authorised waste has been transferred to an authorised end disposal/recovery facility within a maximum of twelve (12) calendar months from the end of the annual reporting period.

The points overleaf shall be covered by the auditors in such audits, providing a detailed report of their findings. The Authority may reserve the right to request clarifications and further information from the auditors other than that provided in the audit report.

#	Nature and extent of audit procedures	Timing	Done by and date	W/P ref
1	Objective: To confirm that there is a signed receipt for every waste transfer received at the site <ul style="list-style-type: none"> Choose a random sample of 10% of the signed receipts for every waste transfer received at the site for each quarter within the calendar year and confirm that all waste entries are covered by an issued signed receipt. 			
2	Objective: To ensure that an adequate audit trail is maintained to ensure that when a particular waste stream is being treated it can be traced back to its waste generator <ul style="list-style-type: none"> Choose a random sample of 10% of the total waste being treated and ensure that its origin can be traced back. 			
3	Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with a hazardous waste consignment permit and consignment note <ul style="list-style-type: none"> In cases of movement within the island of Malta, choose a random sample of 10% of the total no. of hazardous waste movements into and out of the site and confirm that all such movements are covered by a valid hazardous waste consignment permit and a waste consignment note. Confirm also that the relevant EWC code has been used. 			
4	Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with relevant TFS documentation of the Waste Shipments Regulation in cases of export <ul style="list-style-type: none"> In cases of export, choose a random sample of 10% of the total no. of hazardous waste movements out of the site and the relevant TFS movement forms and confirm that all such movements are covered by valid relevant documentation. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			

5	<p>Objective: To confirm that any movement of non-hazardous waste movements from the site being sent for treatment abroad are covered by the relevant Annex VII documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total no. of non-hazardous waste movements into and out of the site are covered by valid relevant documentation and/or records. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			
6	<p>Objective: To verify whether the quantities reported by the Waste Facility make reasonable sense</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total amount of waste being handled at the facility and confirm that all waste entries (in and out of the site) reported are verified by relative documentation and/or records. 			
7	<p>Objective: To ensure that the waste vehicles used by the authorised facility to transfer the waste to other permitted sites are registered with ERA</p> <ul style="list-style-type: none"> Obtain a list of approved waste carriers from ERA and confirm that the ones used by facility are registered with ERA. 			
8	<p>Objective: To ensure that, in cases where waste is transferred from the facility to other waste management facilities, locally or abroad, the waste management facilities used would either be approved by ERA or the Competent Authority of the Country of Destination</p> <ul style="list-style-type: none"> Obtain a list of locally approved waste management facilities from ERA and confirm that the ones used by the facility are approved and authorised by ERA. Obtain a copy of the permits of any foreign authorised waste management facilities which have been utilised. An original copy of the permit and an approved translated version of the permit is to be presented to ERA. 			

9	<p>Objective: To ensure that the declared quantities of waste exported during the previous calendar year were actually received at the authorised facilities and declared to ERA</p> <ul style="list-style-type: none"> • Obtain all certificates received from recycling facilities and confirm that these have all been declared to ERA prior to shipment • Confirm arithmetical correctness of all reported data in this regard. 			
10	<p>Objective: To identify the waste being treated both locally and abroad, and ensure that it has been recovered appropriately</p> <ul style="list-style-type: none"> • Ensure that all relevant documentation, including but not limited to, the hazardous waste consignment permit and consignment note applications, are available in case of local treatment. • Identify the materials exported according to the EWC Code and review actual documentation (including bills of lading) confirming an audit trail showing that the waste has been sent to a recovery facility as per permit requirements. 			

Schedule 5

Terms of Reference for Noise Monitoring

1. Introduction

The noise monitoring shall be carried out by the Operator. A consultant that is either an accredited Acoustic expert or qualified professional Engineer and is approved by ERA according to the following criteria shall be commissioned who will propose a monitoring procedure for measuring noise levels within and around the installation as described in section 2 below.

The person(s) undertaking the “on field monitoring” shall be in possession of a certification for the collection of data.

The noise monitoring and impact study report shall be compiled and reviewed by a person who is in possession of a:

- (a) Bachelors degree in Acoustics, **or**
- (b) Bachelors degree in any of the following: Physics, Architecture, Civil Engineering or Engineering, Environmental Health, Environmental Science/Management, Occupational Health and Safety, **and** an MQF Level 7 specialisation in Acoustics, **or**
- (c) Bachelors degree in any of the following: Physics, Architecture, Civil Engineering or Engineering, Environmental Health, Environmental Science/Management, Occupational Health and Safety **and** in addition the consultant must be at least an associate member of the Institute of Acoustics or be employed by an organization who are members of the Association of Noise Consultants or equivalent grade of Membership of a professional body for those working in acoustics and noise in any one of the EU member states or any other reputable professional body to the satisfaction of ERA, **or**
- (d) Certification for the collection of data, such as “Certificate of Competence in Environmental Noise Measurement” issued by the Institute of Acoustics (IoA) or any other equivalent qualification issued by a comparable Professional Association dealing with acoustics in any one of the EU and EEA Member States or any qualifications issued by an educational institution to the satisfaction of ERA **and** five (5) years’ experience in noise measurements and assessments.

Copies of such qualifications and certification shall be submitted to ERA prior to the monitoring proposal.

The consultant, in collaboration with ERA, may, where applicable need to consult and seek advice from the Local Council during the selection of the sensitive receptors.

2. Content of monitoring study

The monitoring study should address the following issues:

1. A description of the installation – this shall include a description of all processes carried out on site and related equipment and infrastructures.
2. A description of the surrounding areas – this shall include identification of the types of activities, whether residential or commercial, roads and other amenities. These shall be location-specific taking into account their location with respect to the site.
3. Identification of the main sources of noise and vibration – this shall include all processes on site, including aspects such as transport noise on site, plant equipment, mechanical operations, etc (amongst others) and their times of operation.

4. Identification of the closest noise sensitive receptors – this shall be carried out after assessing the noise levels in the plant's perimeter and in the other locations identified in point 2 above under normal operating conditions of the plant. The various monitoring points shall be identified with a unique code and an analyses of the ambient noise to which each monitoring point is subjected to.

5. Environmental Noise Study – this shall include details of the standards used for measurements, equipment used including calibration details and certificates, resultant measurement data, assessment methods and complaints significance scale. The study is to be carried out according to the latest revisions of ISO1996 and the rating of industrial noise affecting residential areas shall be according to the latest revisions of BS4142. The study should include perimeter noise levels, baseline noise study of sensitive receptor sites, noise impact on site sensitive receipts including day and night background levels.

The data compiled for both day and night is a typical representation of the current situation at all receptor points and the measurement time interval is sufficient enough to obtain representative value of a typical background when the specific noise source will be operating. For facilities that operate continuously for 24 hours, it may be appropriate to measure at a time when all other noises have subsided. If it is possible 'specific noise' is estimated by measuring the noise level with and without the facility running.

6. The monitoring shall be performed exclusively using a calibrated type 1 sound level meter conforming to BS 6698/IEC 61672 Class 1. The use of type 2 sound level meters or less is not considered acceptable and will not be considered. The sound level meter, calibrator and microphone must hold a valid current calibration certificate from an accredited laboratory (ex. UKAS)

7. Prior to the initial data collection and at the end of the monitoring day, all acoustic instrumentation system such as the sound level meters are calibrated, and checked immediately before and after each series of monitoring readings. Results must be within $\pm 1.0\text{dB}$, otherwise discarded and read again.

8. As a basis for the collection of background data, monitoring shall be carried out during a period when there are no operations at the facility. If this is not possible, operations are to be temporarily suppressed during readings. If this is still not possible, a measurement at an alternative location where the residual sound is comparable to the assessment location(s) with justifications shall be provided.

In case that operating conditions of the site are significantly different during the day, evening or night periods, the measurement procedure will be repeated for those periods of day/evening or night. Therefore, information from the operator is requested prior to the commencement of the measurements. If the information requested is not provided in time, the Consultants will assume that the site operates uniformly during the day, evening and night periods and measure during the daytime only. However, baseline noise levels would still need to be measured at the nearest noise sensitive locations at night in order to determine the impact.

9. The background noise measurements shall be accompanied by a critical listening of all the other noise sources present in the background. Due to certain acoustic features such as tonality, impulsivity and intermittency the inclusion of specific noise level plus any adjustment for the different noise characteristic features, the rating level, $L_{Ar,Tr}$ should be reported in accordance with BS 4142:2014, and any revision thereof, depending on the subjective assessment made while taking the readings.

10. Monitoring shall consider seasonal variations including but not limited to the occurrence of the fireworks and any other similar typical seasonal predominant noise sources. The recommended time periods over a twenty-four hour period are categorized in terms of daytime, from 0700-2300 hrs ($L_{Aeq, [16\text{hrs}]}$) and night-time period from 2300 – 0700 hrs ($L_{Aeq [8\text{hrs}]}$).

11. For the propagation of noise from the power plant, the use of ISO 9613, ISO 8297: 1994, ISO 3744:2010 and ISO 3746:2010; and any revision thereof (as per the interim methods of the

Environmental Noise Directive 2002/49/EC) is strongly recommended.

12. In the case of multi-operator installations where the evaluation and monitoring needs to distinguish between the impact caused by different or interconnected operators within the same installation, the application of the following standards is deemed necessary: standard ISO8297: 1994 and any revision thereof, and ISO37XX series or specifically ISO 9614-2:1996.

13. Impact assessment of noise events on noise sensitive receptor site – this shall include an assessment according to the guidelines BS 4142:2014, ISO1996 and ISO9613 or any other standard and any other standard methodology stipulated by the Authority. A summary of the data obtained after the study has been carried out in relation to the noise sensitive receptors identified above shall be submitted.

14. Conclusions and Mitigation measures – this shall include a summary report of findings from the noise monitoring study including the impact assessment of noise events on noise receptors sites and any remedial action and/or mitigation measures to be implemented by the operator in order to reduce impacts resulting from the site of operation.

Schedule 6

Site Plan

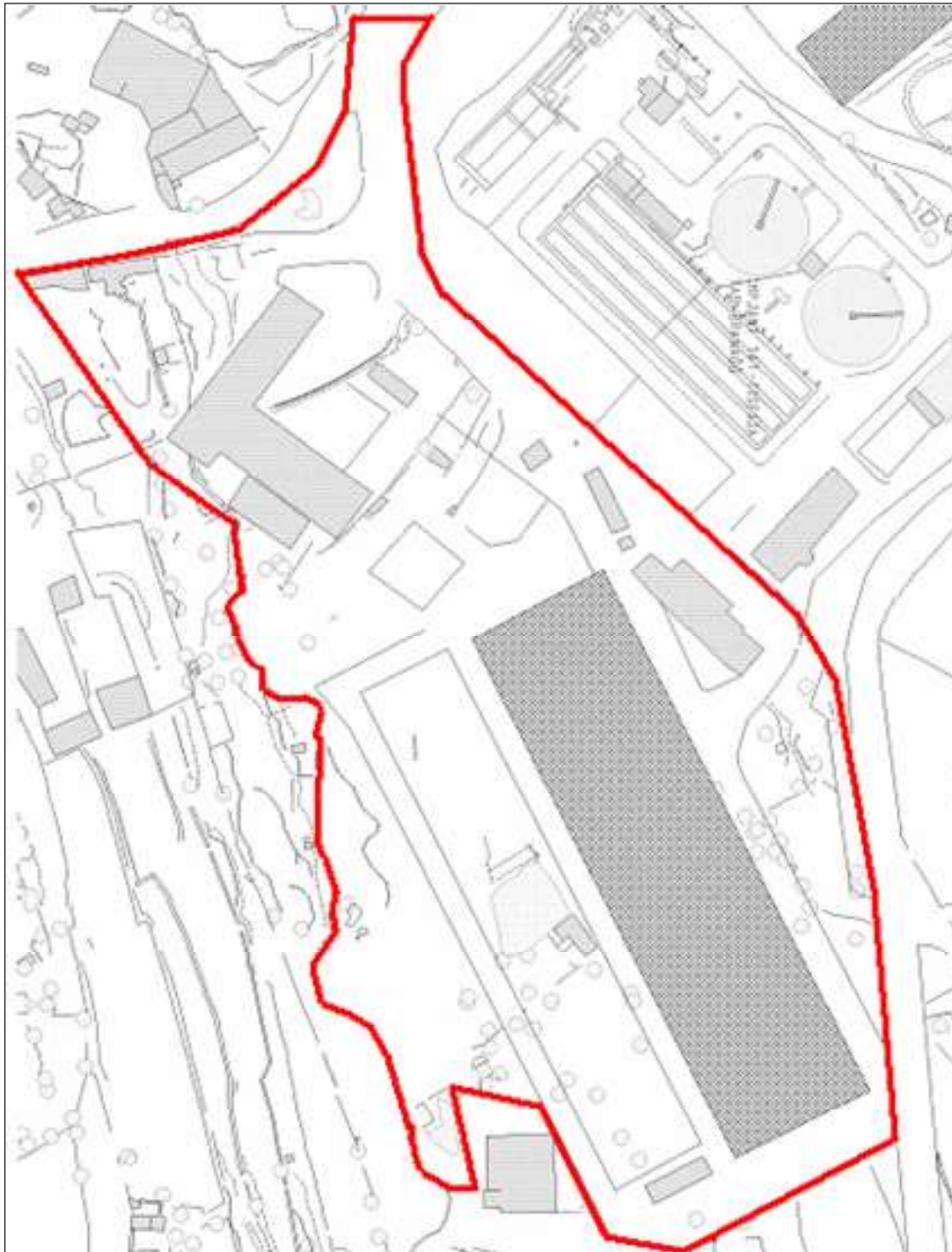


Fig. S6.1: Site of installation, showing extent of area authorised for activity (in red). The extent of the site boundary is indicative and should not be used for interpretation purposes.

Schedule 7

Packaging Certificate ERA Form

Example 1 (separately collected packaging waste):

Recovery/Disposal Certificate for Packaging Waste

Certificate Number: **WPC 00123**

Date of Issuance: _____

I, Name of Establishment/Undertaking, with authorisation number EP 000X/YY/Z certify that quantity tonnes of category of (paper) packaging waste classified under EWC code 15 01 01 has been collected from name of waste generator on/in DD/MM/YYYY. The waste collected has been treated as indicated in the following table:

% Recovered / Disposed	Amount (in kg)	Recovery/ Disposal Code	Category of mixed Packaging waste under 15 01 06	Fate of Waste	Proof of Recovery / Disposal
60	120,000	R3	N/A	Exported directly to <i>Country of Destination</i>	Container No CMAU1234567
20	40,000	R3	N/A	Recovered/Disposed Locally at <i>Name of Establishment/Undertaking</i>	Certificate Number WPC 00124
10	20,000	R3	N/A	Sold to <i>Name of Establishment/Undertaking</i>	Certificate Number WPC 00125
10	20,000	D1	N/A	Disposed Locally at <i>Name of Establishment/ Undertaking</i>	Certificate Number WPC 00126

Name, Signature and Stamp



ERA
Environment & Resources Authority

Hexagon House, Spencer Hill, Marsa MRS 1441

T. (+356) 2292 3500 E info@era.org.mt W era.org.mt

***Disclaimer:** This certificate has been issued on the official ERA form and shall not be construed as a certificate issued by ERA.

Example 2 (mixed packaging waste):

Recovery/Disposal Certificate for Packaging Waste					
Certificate Number: WPC 00123					
Date of Issuance: _____					
I, <u>Name of Establishment/Undertaking</u> , with authorisation number <u>EP 000X/YY/Z</u> certify that <u>quantity</u> tonnes of <u>mixed</u>					
packaging waste classified under EWC code <u>15 01 06</u> has been collected from <u>name of waste generator</u> on/in <u>DD/MM/YYYY</u> . The					
waste collected has been treated as indicated in the following table:					
% Recovered / Disposed	Amount (in kg)	Recovery/ Disposal Code	Category of mixed Packaging waste under 15 01 06	Fate of Waste	Proof of Recovery / Disposal
25	50,000	R3	Plastic packaging	Exported directly to <i>Country of Destination</i>	Container No CMAU1234567
50	100,000	R3	Cardboard	Recovered/Disposed Locally at <i>Name of Establishment/Undertaking</i>	Certificate Number WPC 00124
15	30,000	R3	Metallic packaging	Sold to <i>Name of Establishment/Undertaking</i>	Certificate Number WPC 00125
N/A	N/A	N/A	N/A	N/A	N/A

Name, Signature and Stamp



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END OF PERMIT



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Version 6

Method Statement

Baseline Land and Groundwater Investigation at SAWTP

Details of Client and Project Site

Client:	WasteServ Malta Ltd.
Address:	EkoCentre, Latmija Road, Marsaskala, MSK 4613, Malta
Project Site:	Sant Antnin Waste Treatment Plant (SAWTP), M'skala, Malta

Job Description

The then Malta Environment and Planning Authority (MEPA) granted the permit for the current SAWTP in 2006. Phase 1 (Materials Recovery Facility) became operational in February 2008, while the second and final phase (Mechanical Biological Treatment Plant) was commissioned on 25th November 2010. Unfortunately, an onsite land baseline data set was never collected from the site. The Environment and Resources Authority (ERA), which superseded MEPA, is now requesting that this is carried out without further delay.

The process shall follow ERA's *Terms of reference for Site Clearance and Land Contamination Investigations, November 2019*. This document shall outline the proposed sampling locations, procedures and chemical analysis. This shall be subject to ERA review and approval. A comprehensive Covering Report that shall include the sampling details, a discussion on the results obtained, and a copy of the laboratory analytical reports, shall be prepared once the chemical analysis results are made available.

History of the site

Scant information about any historical industrial uses of the site could be found. This is most likely because of the fact there was indeed no past industrial activity on the site. That general area on the outskirts of Marsaskala was used as a broad unregulated landfill during the times of the British. The Family Park adjacent to the site is built almost entirely on the former dumping site. This is denoted by its elevation when compared to the adjacent road level. It is likely that the SAWTP is built, at least in part, also on land which formerly housed the landfill. The Water Services Corporation (WSC) water treatment tanks were built besides the site in the 1970s. These are to date still operational.

Given the fact that a landfill existed on or very near to the SAWTP, the baseline levels of contaminants in terrain on site and close by are most likely higher than average. Unfortunately, no onsite or offsite baseline soil, water or air analysis exists. This should have ideally been carried out before the commissioning of the SAWTP to be able to compare current levels with levels that existed prior to operational activity. It is pointless to carry out baseline tests at this stage after years of

operations. However, monitoring has been carried out regularly in recent years. In the absence of proper baseline levels, current levels should be compared to previous data and any upward trends should be noted and investigated further.

A major fire incident occurred on the 22nd May 2017. The fire originated from the RDF stored in the outside yard and progressed until the other end of the Materials Recovery Facility (MRF) shed opposite the Mechanical Treatment Plant (MTP), completely destroying it and its contents in the process. Consequently, the MRF process no longer takes place on site. However, a manual process known as the Rudimentary Sorting Line (RSL) now takes place instead to cater for “grey bag” recyclable waste. The MTP used to operate until 2019, but this has been replaced with the Organic Processing Plant (OPP). As was the case with the MTP, treated waste from the OPP will still proceed into the Anaerobic Digestion (AD) plant. The principal difference between MTP and OPP is that MTP treated “black bag” municipal solid waste (MSW), whereas the OPP shall treat “white bag” organic waste. External waste storage areas are also present on site. A description of the processes and storage areas is given below.

Rudimentary Sorting Line

The Grey Bag is loaded into the bag opener. The Bag Opener opens the bags and the material falls onto an incline conveyor. The incline conveyor transports the material from the bag opener to the sorting conveyor. Sorters are stationed at the sorting conveyor; each assigned a material to collect. The collected materials are dropped into the underlying bunkers and baled accordingly. The bales are then transported to the storage area.

MTP Process

Roadside Collection Vehicles go through the weighbridge where their gross weight is recorded; they proceed to the Waste Acceptance Station (WAS) and unload their contents. Both the black bag containing municipal solid waste and the white bag containing organic waste are accepted at SAWTP. The black bag and the white bag are placed in two different zones of the receiving area, since they are passed through the same process of the black bag; however, they are processed at different times.

The bags are loaded into the bag opener by a front loader, where the bags are torn and contents spilled onto a conveyor. Two sorters stationed towards the beginning of the conveyor remove bulky waste and spoiled cardboard. The spoiled cardboard is removed and transported to the MRF section at Malta North. Bulky waste such as carpets and small household items are landfilled.

The remaining waste passes on to the drum screen, which acts as a sieve. Objects larger than 50mm are rejected and led to the compacters, which compact the waste prior to it being landfilled. The fraction which is smaller than 50mm, is passed on the weighing belt which weighs the amount of MSW being passed on to the mixer via the screw conveyor. Water is added in the mixer according to the amount of MSW supplemented in the mixer.

From the mixer the resultant slurry is passed on to the star screen, which separates the mixture according to size. Larger impurities are removed, while organic matter which smaller in size is passed on to the sand trap. The sand trap separates the slurry according to buoyancy. Heavier particles such as stones, cat litter and broken glass descend to the bottom and are removed to be landfilled. Lights such as cork and expanded polystyrene are skimmed from the top of the slurry and removed to be landfilled. The remaining organic rich liquid is passed through the Rotacut which chops the solids to smaller particles; this ensures better homogeneity in the digesters as well as reduces the risk of blockages.

The organic matter is pumped into the hydrolyser where it undergoes hydrolysis and acidogenesis, producing carboxylic acids. Further biological degradation (acetogenesis) in the hydrolyser yields acetic acid, hydrogen and carbon dioxide. The solution passes sequentially into three digesters, where the digestate undergoes methanogenesis.

Following anaerobic digestion, the digestate is transferred to the aeration tanks, where oxygen is added to stop anaerobic digestion and to stabilize the material. The material is then passed through the decanters after a flocculant is added, to remove digestate from the process water. The process water is stored in the process water tank, to be used again in the mixers, while the digestate is stored in the compost shed prior to being landfilled. The liquid that exudes from the digestate in the compost shed seeps into the reservoir situated beneath the compost shed.

OPP Process

Roadside Collection Vehicles go through the weighbridge where their gross weight is recorded; they proceed to the receiving area and unload their contents. The white bag containing organic waste is accepted at SAWTP. Within the receiving area the white bag is separated from the grey bag by means of concrete blocks placed on concrete casting *in situ*.

The organic bags are loaded into one feeding bunker by a front loader. The feeding bunker can be tilted by means of a hydraulic system. The bunker is equipped with a built-in discharge screw conveyor that carries the organic bags to a series of feeding screw conveyors. The feeding screw conveyors transport the organic bags to the ADOS mills.

The mill mainly consists a horizontal high-speed rotating hammer which allows the separation of plastics and other impurities from the feedstock. Water is added to the input material in the mills, where it is converted into an easy pumpable sludge. The plastics and other impurities are collected in self dumping hoppers to be landfilled.

The pumpable sludge from the mills is transferred to the ADOS sedimentation tanks where impurities are separated from the sludge. The sedimentation tank operates according to the buoyancy principle. Heavier particles such as stones, glass, *etc.*, descend to the bottom and are collected in a self-dumping hopper to be landfilled. The floating layer consisting of cork, expanded polystyrene, *etc.*, is skimmed from the top of the slurry and collected in self-dumping hoppers to be landfilled. The remaining organic rich liquid is passed through the Rotacut which chops the solids to smaller particles; this ensures better homogeneity in the digesters as well as reduces the risk of blockages.

The organic matter is pumped into the hydrolyser where it undergoes hydrolysis and acidogenesis, producing carboxylic acids. Further biological degradation (acetogenesis) in the hydrolyser yields acetic acid, hydrogen, and carbon dioxide. The solution passes sequentially into three digesters, where the digestate undergoes methanogenesis.

Following anaerobic digestion, the digestate is transferred to the aeration tanks, where oxygen is added to stop anaerobic digestion and to stabilize the material. The material is then passed through the decanters after a flocculant is added to remove digestate from the process water. The process water is stored in the process water tank, to be used again in the mixers, while the digestate is stored in the compost shed prior to being landfilled. The liquid that exudes from the digestate in the compost shed seeps into the reservoir situated beneath the compost shed.

External waste storage areas present on site

There are currently 3 external waste storage areas present on site. These are:

1. Compost shed
2. Yard near family park
3. Ex-MRF site (began to be used as such after the MRF shed was destroyed by the fire incident)

The Compost shed is used to store the digestate produced. This is deposited via the two conveyor belts. The digestate is mechanically shifted around the compost shed with a wheel loader to make use of the entire space and avoid a pile up beneath the conveyors. The Compost shed is surrounded by three high walls at the sides and rear but is open on the front to allow vehicular access. A gutter is present along the front to collect leachate and redirect it to the Compost Shed Reservoir below.

The storage area in the Yard near the family park has been extended to also incorporate the entire area formerly occupied by the MRF shed. The list of wastes stored in this combined area is given in Table 1.

Table 1: List of waste stored at Yard – Ex-MRF site

Type	Description	EWC Code
1	Aluminium Cans	19 12 03
2	Ferrous Cans	19 12 02
3	PP Ropes (unprocessed)	20 01 39
4	EPS	19 12 04
5	Car Bumpers	16 01 19
6	PP Crates	19 12 04
7	Aluminium Profile	19 12 03
8	Glass Packaging	19 12 05
9	Rigid Plastic (Deckchairs)	19 12 04
10	Plastic Toys (Mixed Plastics)	19 12 04
11	PET Clear and Colour	19 12 04
12	HDPE	19 12 04
13	Spoilt Cardboard	19 12 01
14	Grey/Green Bag (unprocessed)	15 01 06
15	Stainless steel (sinks etc)	19 12 03
16	Metal Ferrous Scrap	19 12 02
17	Cooking Oil (unprocessed)	20 01 08

Site Plan

Site plans of SAWTP, showing hardstanding and markings of items of interest, are presented in Figure 1 and Figure 2.

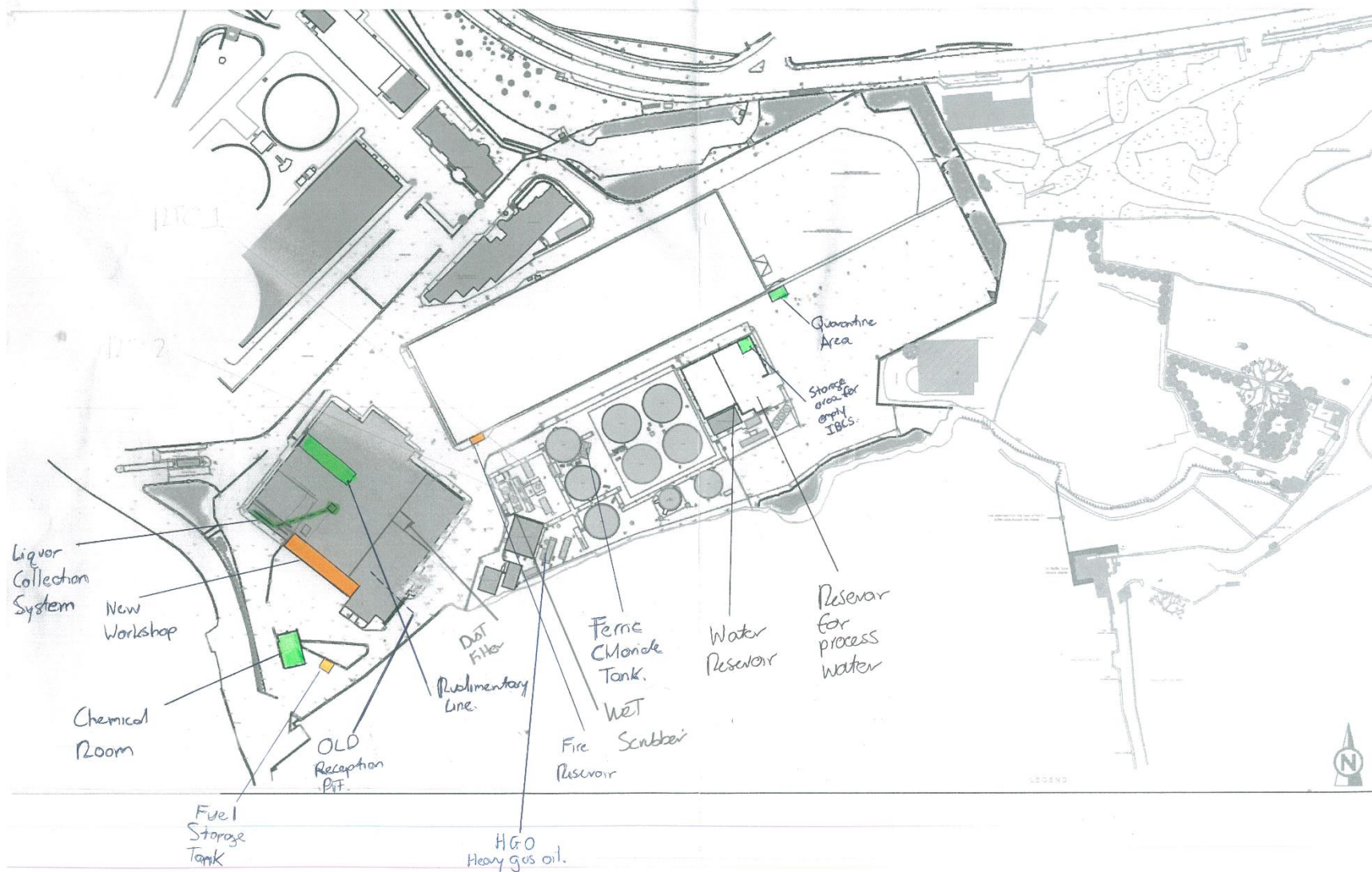


Figure 1: Site Plan

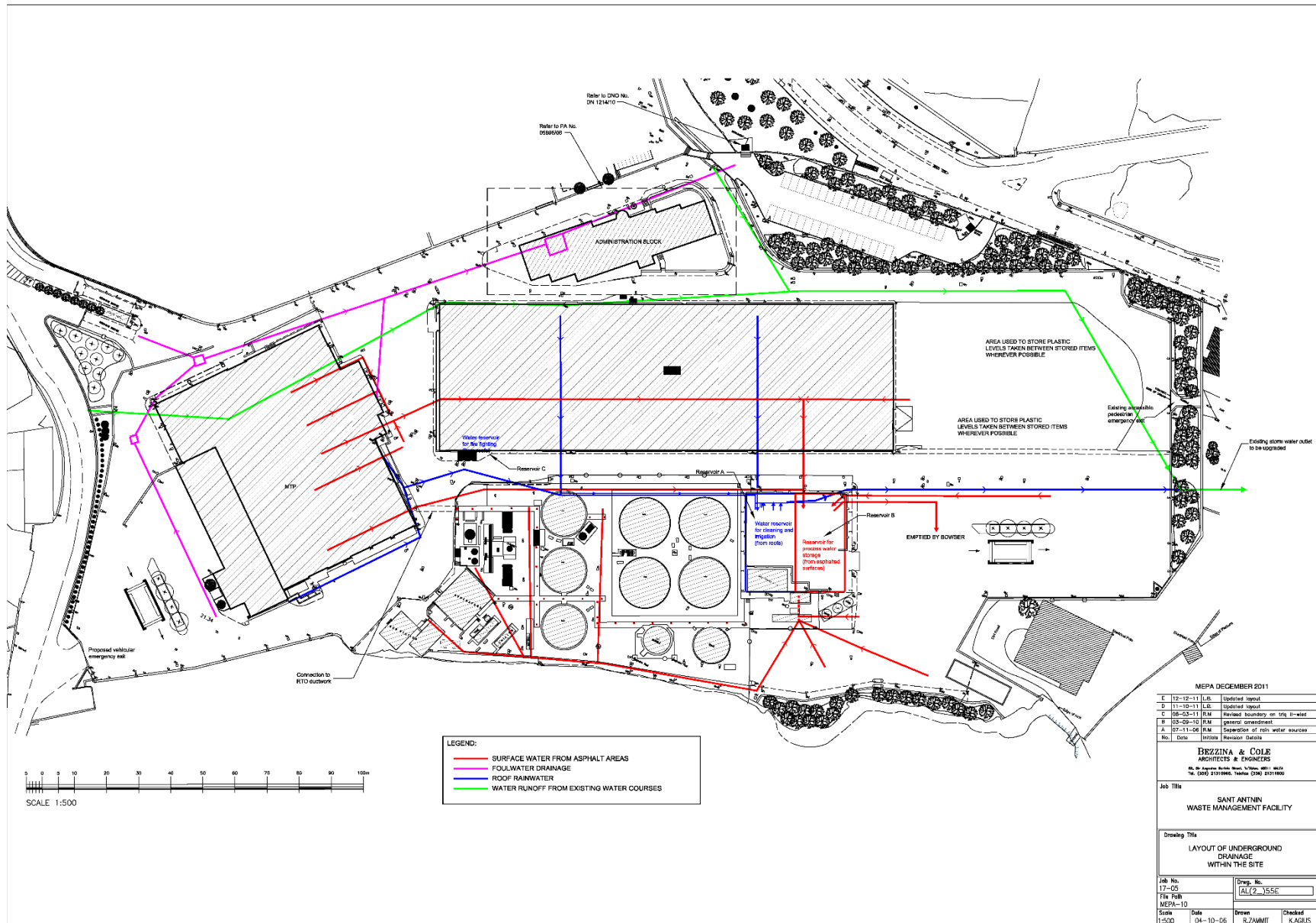


Figure 2: Site Plan
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Sampling

A depth contamination profile should be established through coring. Sampling locations are, in principle, recommended to be at intersections of the grid placed on the site plan shown in Figure 3 for equal spatial distribution. However, some points should be shifted slightly towards key areas of greater potential concern, such as the:

- Rudimentary line
- Liquor collection system
- Compost shed
- Ferric chloride tank
- Fuel storage tank

The exact GPS coordinates shall be noted during sampling.

It should be pointed out that:

- Sampling within the compost shed is not possible since this would mean coring into the ceiling of the reservoir situated beneath it. Hence, the sampling point is recommended to be sited immediately outside the shed's entry way.
- Sampling within the gutter of the liquor collection system is also not possible since this would damage its waterproofing integrity. Hence, the sampling point is recommended to be immediately besides it.
- Sampling besides the fire pump room had to be shifted slightly to avoid coring into the ceiling of the reservoir situated beneath it.

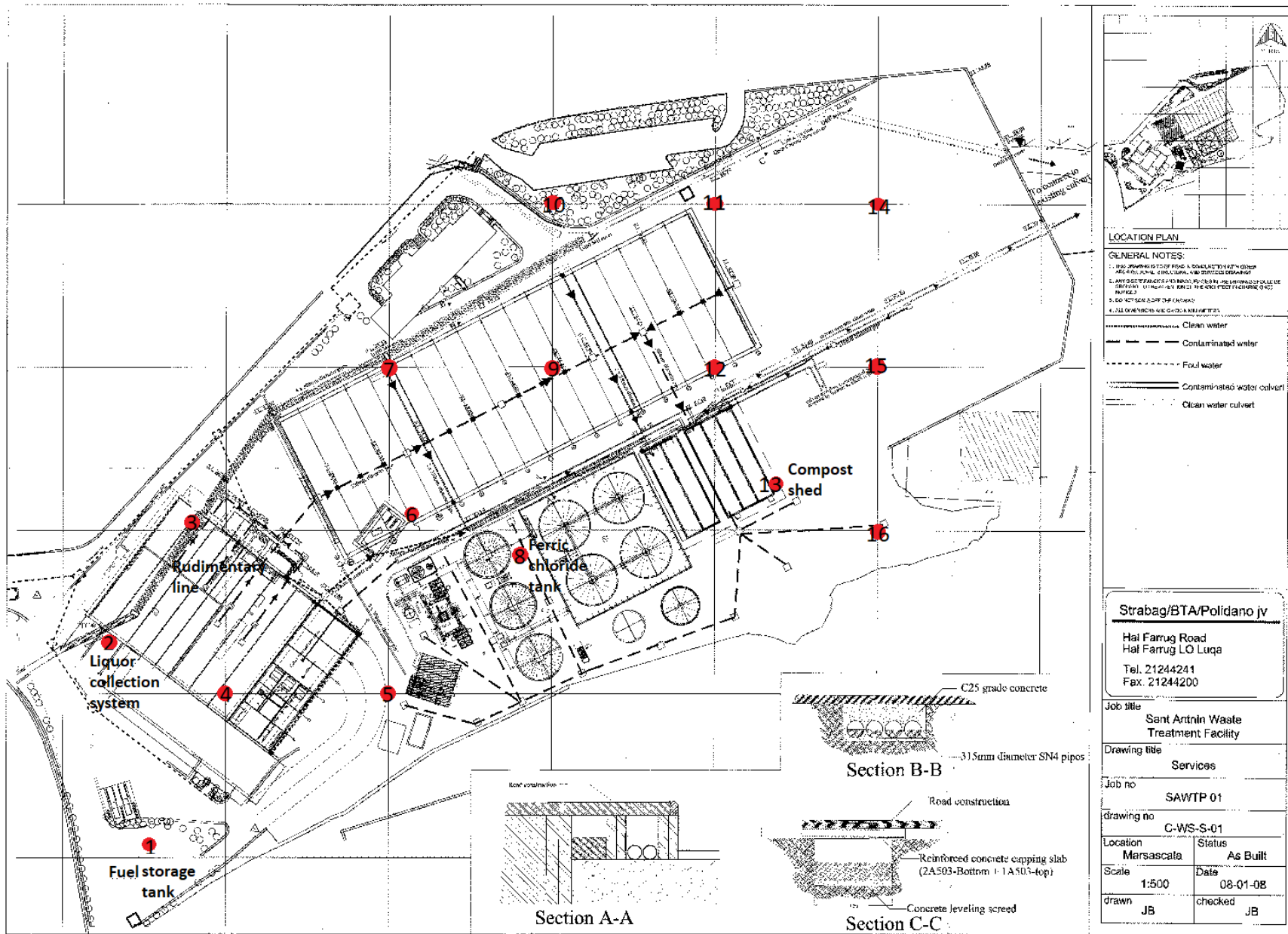


Figure 3: Site plan denoting proposed land sampling locations as red dots. Each point has been given a number.

Land Investigation

Soil and rock sampling will be carried out in accordance with BS 5930:2015 – Code of practice for ground investigations, using a Beretta T44 drilling rig, which is registered with MRA and conforming with L.N. 254 of 2008, in conjunction with a 100mm single tube core barrel to recover soil samples at 1 m intervals starting from ground level.

All samples shall be photographed, labelled, and logged. Sampling shall be performed following guiding standards of the ISO 18400 series, which are the revised versions of the ISO 10381 series. Samples shall be placed into appropriate bottles – amber glass bottles for analysis of organic parameters and PET bottles for metal analysis – tightly sealed stored and maintained in the dark at 4°C – 8°C upon immediate extraction from the ground to prevent any potential losses of volatile substances until delivery to the analysing laboratory.

Cores shall be collected from each of the 16 sampling locations identified and subjected to a depth profile analysis. The depth of each core at each location shall depend on a risk assessment of the potential percolation of contaminants into the ground, taking into consideration the topography of the site, the geology of the site, the extent of excavations carried out to construct structures, the stored material and operations taking place in the various areas, as well as any major incidents and their potential impact.

The topography of the site is such that the WAS at the western part is at 20 m above mean sea level (MSL), and is elevated compared to the remainder of the site by ~5 m, which stands at 15 m above MSL. This is shown in Figure 4. A ground investigation report (GIR) of two boreholes from SAWTP, issued by Terracore Ltd. in 2004, shows that solid rock commences at 1 – 2 m depth. A copy is attached in Appendix 1.

The sheds forming the WAS/MTP and also the MRF, which has since burned down and been removed, have been built directly on the ground since they are metal structures. Foundations of masonry buildings extend until bedrock, which stand at 1 – 2 m depth below ground level. The deepest structures present are the Digester Pit, whose base is at 6.6 m below ground level, the Fire Reservoir, at 6.47 m deep, and the Compost Shed, at 8 m.

A major fire incident engulfed the MRF shed and the RDF in the storage area found between it and the Family Park boundary. The incident would have produced hazardous compounds, in particular heavy organics such as Dioxins, Furans, PCBs and PAHs, which are not normally found on site, or at least not in such quantities. This was compounded by thousands of litres of water being added in a short time span by the Fire Fighters, which potentially aided in their percolation. Nevertheless, due to the natural topography of the site, any potential percolation would not have affected other areas.

Having considered the above rational, the sampling depths proposed are as follows:

- BH 1, 2, 3, 4, 5, 10, 15, 16: samples collected from [0m – 1m], [1m – 2m], [2m – 3m]
- BH 7, 9, 11, 12, 14: samples collected from [0m – 1m], [1m – 2m], [2m – 3m], [3m – 4m], [4m – 5m], [5m – 6m]
- BH 6, 8, 13: samples collected from [0m – 1m], [1m – 2m], [2m – 3m], [3m – 4m], [4m – 5m], [5m – 6m], [6m – 7m], [7m – 8m], [8m – 9m]

All samples shall be taken for laboratory analysis. Results shall be presented as concentrations on *dry weight* basis. The analysis to follow is listed in Table 2. The methods listed are in accordance with the said legislation. The LODs for each of the listed parameters will be provided once an analytical laboratory has been selected, however, these shall be lower than the limits stipulated in the Italian Decreto Legge 152 of 2006. However, these may be raised should dilutions be necessary in samples that are highly contaminated.

Table 2: Ground chemical analysis proposed in line with Italian D.L. 152 of 2006

Parameter	Method
TOC	DM 13/09/1999 GU n° 248 21/10/1999 SO n° 185 Met VII.2 DM 25/03/2002 GU n° 84 10/04/2002
Cyanide	EPA 9010B:1996 + EPA 9014:2014
Fluoride	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met IV.2 DM 25/03/2002 GU n° 84 10/04/2002
pH	CNR IRSA 1 Q 64 Vol 3 1985 + APAT CNR IRSA 2060 Man 29 2003
Residue at 105 °C (moisture content)	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met.II.2
Hydrocarbons C<12	EPA 5021A 2014 + EPA 8015D 2003
Hydrocarbons C>12	EPA 3550C 2007 + EPA 8015D 2003
MTBE	EPA 5021A:2014 + EPA 8015D:2003
BTEXS ¹	EPA 5021A 2014 + EPA 8260D 2018
Polycyclic Aromatic Hydrocarbons (PAHs) ²	EPA 3550C:2007 + EPA 8270E:2018
Chlorinated aliphatic hydrocarbons ³	EPA 5035A:2002 + EPA 8260D:2018
Chlorinated aromatic hydrocarbons	
1,3-Dichlorobenzene	EPA 3545A 2007 + EPA 8270E 2018
1,2-Dichlorobenzene	EPA 5035A 2002 + EPA 8260D 2018
1,4-Dichlorobenzene	EPA 3545A 2007 + EPA 8270E 2018
Monochlorobenzene	EPA 5035A 2002 + EPA 8260D 2018
Halogenated aliphatic hydrocarbons ⁴	EPA 5035A:2002 + EPA 8260D:2018
PCBs ⁵	EPA 3550C:2007 + EPA 8270E:2018
Dioxins & Furans ⁶	EPA 3545A:2007 + EPA 8280B:2007
Markers ⁷	EPA 5021A 2014 + EPA 8015D:2003 + EPA 8260D:2018
Metals	
Antimony	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Arsenic	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Beryllium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Cadmium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Cobalt	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Chromium total	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Chromium VI	CNR IRSA 16 Q 64 Vol 3 1986
Mercury	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Nickel	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Lead	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Copper	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Thallium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Vanadium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Zinc	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Barium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Molybdenum	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Boron	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Selenium	UNI EN 13657:2004 + UNI EN ISO 17294-2:2016
Asbestos	CNR IRSA Q 64 vol 3 1996 App III Fase A + DM 06/09/1994 GU n° 220 20/09/1994 All 1 A
Organotin compounds	
MBT	UNI EN ISO 23161:2011
DBT	UNI EN ISO 23161:2011
TBT	UNI EN ISO 23161:2011
Summation	UNI EN ISO 23161:2011

¹ BTEXS suite:

Benzene, Toluene, Ethylbenzene, o/p/m-Xylene isomers, Styrene

² PAHs suite (USEPA16):

Acenaphthene, Acenaphthylene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[e]pyrene, Benzo[b/j/k]fluoranthene, Benzo[g,h,i]perylene, Chrysene, Dibenzo[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-c,d]pyrene, Phenanthrene, Pyrene, Naphthalene

³ Chlorinated aliphatic hydrocarbons suite:

Chloromethane, dichloromethane, trichloromethane, vinyl chloride, 1,2-dichloroethane, 1,1-Dichloroethylene, trichloroethylene, tetrachloroethylene, 1,1,dichloroethane, cis 1,2-dichloroethylene, trans 1,2-dichloroethylene, 1,2-

dichloroethylene, 1,1,1-trichloroethane, 1,2-dichloropropane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, 1,1,2,2-tetrachloroethane, carbon tetrachloride, 1,1,1,2-tetrachloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, monochlorobenzene, hexachlorobutadiene

⁴ Halogenated aliphatic hydrocarbons suite:

Tribromomethane, 1,2-dibromoethane, dibromochloromethane, bromodichloromethane

⁵ PCBs suite (7 congeners):

28, 52, 101, 118, 138, 153, 180 + Total

⁶ Dioxin and Furan Compounds:

Dioxins:

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
1,2,3,7,8-pentachlorodibenzodioxin (PeCDD)
1,2,3,4,7,8-hexachlorodibenzodioxin (HxCDD)
1,2,3,6,7,8-hexachlorodibenzodioxin (HxCDD)
1,2,3,7,8,9-hexachlorodibenzodioxin (HxCDD)
1,2,3,4,6,7,8-heptachlorodibenzodioxin (HpCDD)
octachlorodibenzodioxin (OCDD)

Furans:

2,3,7,8-tetrachlorodibenzofuran (TCDF)
1,2,3,7,8-pentachlorodibenzofuran (PeCDF)
2,3,4,7,8-pentachloro-dibenzofuran (PeCDF)
1,2,3,4,7,8-hexachloro-dibenzofuran (HxCDF)
1,2,3,6,7,8-hexachloro-dibenzofuran (HxCDF)
2,3,4,6,7,8-hexachloro-dibenzofuran (HxCDF)
1,2,3,7,8,9-hexachloro-dibenzofuran (HxCDF)
1,2,3,4,6,7,8-heptachloro-dibenzofuran (HpCDF)
1,2,3,4,7,8,9-heptachloro-dibenzofuran (HpCDF)
octachlorodibenzofuran (OCDF)

⁷ Markers suite: Isopropyl benzene (Cumene), Dipentene, 4-Isopropyl toluene, 1,3-Butadiene, 1,2,4-Trimethylbenzene, 4-Isopropyl toluene

Groundwater Investigation

Any potential contamination of the groundwater will come through percolation. There are no boreholes within the site area, however, there are three identified registered boreholes in the immediate vicinity of the site. Drilling a borehole down to the aquifer within the site equates to the creation of a conduit for potential contaminants originating from within the plant to percolate down easily and rapidly to the groundwater body, and hence this scenario should be avoided.

Due to the possibility of seepage of water from site, particularly following instances of heavy rainfall, it is necessary to monitor the quality of groundwater within the surrounding boreholes to determine whether the operational activity of the site is contaminating the groundwater.

The ground water flow direction and gradient are towards the Marsascala creek in the East. Two of these boreholes, referred to as Dalli and Family Park, are situated downhill, and thus would serve as ideal indicators. Albeit the third borehole, known as Saliba, is situated uphill of the site, it is found merely across the road. The results reported from samples collected from these boreholes shall be assumed to be a close representation of onsite groundwater quality. Results dating from a few years back are available.

Sampling from boreholes situated further away is not recommended since samples obtained from such points would not reflect the environmental effects of the facility. Therefore, the sampling should be carried out from the sites identified in Table 3 and Figure 5.

Table 3: Offsite groundwater monitoring locations

Number	Location
1	Saliba (St. Anthony Quarry)
2	Dalli
3	Family Park

The water from the three boreholes should be collected and subjected to analysis of the parameters listed in Table 4. The LODs for each of the listed parameters will be provided once an analytical laboratory has been selected. Where a sampling point is fitted with a pump, this should be allowed to run for at least 2 minutes before collecting the sample to ensure that the water in the pipe is flushed out, and that a representative water sample is collected. Where a sampling point is not equipped with a pump, a bailer should be used instead. Adequate purging should take place before an aliquot is considered as being a suitable sample. This is necessary since stagnation and stratification may occur in the water body.



Figure 5: Site map denoting proposed groundwater monitoring locations

Table 4: Water quality analysis proposed

Parameter	Method
pH	APAT CNR IRSA 2060 Man 29 2003
Temperature	APAT CNR IRSA 2100 Man 29 2003
Settleable Solids (Total)	APAT CNR IRSA 2090 C Man 29 2003
Suspended Solids (Total)	APAT CNR IRSA 2090 B Man 29 2003
Nitrogen (Kjeldahl)	EN 25663:1993
Sulphide	APAT CNR IRSA 4160 Man 29 2003
Hydrocyanic Acid	<i>In situ meter</i>
Sulphate	EN ISO 10304-1:2009
Oil and Grease (free & emulsified)	APAT CNR IRSA 5160 A1 Man 29 2003
Chlorine (Free)	<i>In situ meter</i>
Chloride	EN ISO 10304-1:2009
Chromium (Dissolved)	EN ISO 17294-2:2016
Chromium (Total)	EN ISO 17294-2:2016
Silver (Dissolved)	EN ISO 17294-2:2016
Silver (Total)	EN ISO 17294-2:2016
Nickel (Dissolved)	EN ISO 17294-2:2016
Nickel (Total)	EN ISO 17294-2:2016
Copper (Dissolved)	EN ISO 17294-2:2016
Copper (Total)	EN ISO 17294-2:2016
Lead (Dissolved)	EN ISO 17294-2:2016
Lead (Total)	EN ISO 17294-2:2016
Zinc (Dissolved)	EN ISO 17294-2:2016
Zinc (Total)	EN ISO 17294-2:2016
Total non-ferrous metals – Calculation	Calculation
Total soluble non-ferrous metals – Calculation	Calculation
Arsenic (Dissolved)	EN ISO 17294-2:2016
Arsenic (Total)	EN ISO 17294-2:2016
Fluoride	EN ISO 10304-1:2009
Boron (Dissolved)	EN ISO 17294-2:2016
Boron (Total)	EN ISO 17294-2:2016
Chemical Oxygen Demand	ISO 15705:2002
Biological Oxygen Demand 5	APAT CNR IRSA 5120 Man 29 2003
Phosphorus (Total)	EPA 6020B:2014
Mercury (Dissolved)	EN ISO 17294-2:2016
Mercury (Total)	EN ISO 17294-2:2016
Cadmium (Dissolved)	EN ISO 17294-2:2016
Cadmium (Total)	EN ISO 17294-2:2016
PFOA	ASTM D7979-17
PFOS	ASTM D7979-17
Phenol Index	APAT CNR IRSA 5070 A2 Man 29 2003
Total Nitrogen	UNI 11658:2016
Total Organic Carbon (TOC)	EN 1484:1997
Hydrocarbons C<12	EPA 5021A 2014 + EPA 8015D 2003
Hydrocarbons C>12	EPA 3510C 1996 + EPA 8015D 2003
MTBE	EPA 5021A 2014 + EPA 8015D 2003

Total Hydrocarbons expressed as n-hexane	EPA 5030C 2003 + EPA 8015D 2003; EPA 3510C 1996 + EPA 8015D 2003
BTEXS ¹	EPA 5030C 2003 + EPA 8260D 2018
Polycyclic Aromatic Hydrocarbons (PAHs) ²	EPA 3510C 1996 + EPA 8270E 2018
Chlorinated aliphatic hydrocarbons ³	EPA 5030C 2003 + EPA 8260D 2018
Chlorinated aromatic hydrocarbons ⁴	EPA 5030C 2003 + EPA 8260D 2018
Halogenated aliphatic hydrocarbons ⁵	EPA 5030C 2003 + EPA 8260D 2018
PCBs ⁶	EPA 3510C 1996 + EPA 8270E 2018
Dioxins & Furans ⁷	EPA 3510C 1996 + EPA 8280B 2007
Markers ⁸	EPA 5030C 2003 + EPA 8260D 2018
Organotin compounds ⁹	UNI EN ISO 17353:2006

¹ BTEXS suite:

Benzene, Toluene, Ethylbenzene, o/p/m-Xylene isomers, Styrene

² PAHs suite (USEPA16):

Acenaphthene, Acenaphthylene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[e]pyrene, Benzo[b/j/k]fluoranthene, Benzo[g,h,i]perylene, Chrysene, Dibenzo[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-c,d]pyrene, Phenanthrene, Pyrene, Naphthalene

³ Chlorinated aliphatic hydrocarbons suite:

Chloromethane, dichloromethane, trichloromethane, vinyl chloride, 1,2-dichloroethane, 1,1-Dichloroethylene, trichloroethylene, tetrachloroethylene, 1,1,dichloroethane, cis 1,2-dichloroethylene, trans 1,2-dichloroethylene, 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,2-dichloropropane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, 1,1,2,2-tetrachloroethane, carbon tetrachloride, 1,1,1,2-tetrachloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, monochlorobenzene, hexachlorobutadiene

⁴ Chlorinated aromatic hydrocarbons:

Monochlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,3-Dichlorobenzene

⁵ Halogenated aliphatic hydrocarbons suite:

Tribromomethane, 1,2-dibromoethane, dibromochloromethane, bromodichloromethane

⁶ PCBs suite (7 congeners):

28, 52, 101, 118, 138, 153, 180 + Total

⁷ Dioxin and Furan Compounds:

Dioxins:

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
1,2,3,7,8-pentachlorodibenzodioxin (PeCDD)
1,2,3,4,7,8-hexachlorodibenzodioxin (HxCDD)
1,2,3,6,7,8-hexachlorodibenzodioxin (HxCDD)
1,2,3,7,8,9-hexachlorodibenzodioxin (HxCDD)
1,2,3,4,6,7,8-heptachlorodibenzodioxin (HpCDD)
octachlorodibenzodioxin (OCDD)

Furans:

2,3,7,8-tetrachlorodibenzofuran (TCDF)
1,2,3,7,8-pentachlorodibenzofuran (PeCDF)
2,3,4,7,8-pentachloro-dibenzofuran (PeCDF)
1,2,3,4,7,8-hexachloro-dibenzofuran (HxCDF)
1,2,3,6,7,8-hexachloro-dibenzofuran (HxCDF)
2,3,4,6,7,8-hexachloro-dibenzofuran (HxCDF)
1,2,3,7,8,9-hexachloro-dibenzofuran (HxCDF)
1,2,3,4,6,7,8-heptachloro-dibenzofuran (HpCDF)
1,2,3,4,7,8,9-heptachloro-dibenzofuran (HpCDF)
octachlorodibenzofuran (OCDF)

⁸ Markers suite:

Isopropyl benzene (Cumene), Dipentene, 4-Isopropyl toluene, 1,3,-Butadiene, 1,2,4-Trimethylbenzene

⁹ Organotin compounds:

Monobutyl tin (MBT), Dibutyltin (DBT), Tributyltin (TBT)

It has been confirmed that all boreholes are duly registered with the MRA. The owners of Saliba and Dalli boreholes have granted access for sampling purposes, providing they are informed beforehand of the proposed visit. Signed agreement letters with both Dalli and Saliba have been received and are attached.

With regards to the Family Park borehole, Wasteserv shall be the owner of the borehole and thus no authorisation is necessary. Wasteserv submitted an application with MRA to formalise this matter. The Notification number is 0848/08.

A WSC borehole named 'Sant Antnin 1' (WSC BH Number 10369) was previously available within the grounds of the Sant' Antnin facility. The WSC was consulted to determine its location. This was situated near the workshop, but its access is now concealed and no longer available.

Notwithstanding the recommendation to refrain from drilling a borehole on site, a monitoring borehole located within closer proximity of the key liquid collection facilities would be important to monitor groundwater in its direction of flow. Therefore, it is recommended that a new, small diameter monitoring well is installed in a practical location to the South of the site (along the perimeter in the vicinity of the South Fields). Given that this shall be an onsite monitoring borehole (and thus of Wasteserv Malta Ltd.'s ownership), this should be cased and grouted for the first 10 m below ground level and the wellhead should be elevated and protected to ensure no seepage of surface waters. The proposed monitoring well is to be installed prior to the implementation of the baseline study to allow for sample collection from this newly installed well. A procurement process for the installation of this monitoring well shall be launched as soon as possible.

Testing Laboratory

Samples shall be sent for analysis to an ISO 17025:2017 Accredited Laboratory. The actual laboratory that shall be used will be known once the Contractor is engaged.

Report issued on: 26 November 2020

Name of Consultant: Dr. Robert Cortis
B.Sc. (Hons.) M.Sc. Ph.D. MRSC

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Signed: _____

BIOCHEMIE LAB S.r.l. Via di Limite 27/G 50013 Campi Bisenzio FI	Numero di accreditamento: 0195 L Sede A	
	Revisione: 60	Data: 26/06/2020
	pag. 1 di 48	UNI CEI EN ISO/IEC 17025:2018

ELENCO PROVE ACCREDITATE - CATEGORIA: 0

Acqua a basso grado di contaminazione (acqua potabile, acqua non trattata o acqua di piscina)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cloriti	UNI EN ISO 10304-4:2001	IC	

Acque

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Clorofilla (metodo spettrofotometrico)	APAT CNR IRSA 9020 Man 29 2003	spettrofotometria	
Colore	UNI EN ISO 7887:2012		
Idrocarburi DROs espressi come n-esano	EPA 3510C 1996 + EPA 8015D 2003		
Idrocarburi GROs espressi come n-esano	EPA 5030C 2003 + EPA 8015D 2003		
Idrocarburi GROs espressi come n-esano	ISO 11423-1:1997	GC-MS	
Idrocarburi GROs espressi come n-esano	EPA 5021A 2014 + EPA 8015D 2003	GC	
Idrocarburi totali espressi come n-esano, idrocarburi GROs + DROs espressi come n-esano, Idrocarburi totali	EPA 5030C 2003 + EPA 8015D 2003; EPA 3510C 1996 + EPA 8015D 2003	GC	
Idrocarburi totali espressi come n-esano, idrocarburi GROs + DROs espressi come n-esano, Idrocarburi totali	EPA 5021A 2014 + EPA 8015D 2003; EPA 3510C 1996 + EPA 8015D 2003	GC	
PCDD e PCDF: Policlorodibenzodiossine (PCDD) sostituite in 2,3,7,8: 2,3,7,8-Tetraclorodibenzodiossina (TCDD); 1,2,3,7,8-Pentaclorodibenzodiossina (PeCDD); 1,2,3,4,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,6,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,7,8,9-Esaclorodibenzodiossina (HxCDD); 1,2,3,4,6,7,8-Eptaclorodibenzodiossina (HpCDD); Octaclorodibenzodiossina (OCDD); Policlorodibenzofurani (PCDF) sostituiti in 2,3,7,8: 2,3,7,8-Tetraclorodibenzofurano (TCDF); 1,2,3,7,8-Pentaclorodibenzofurano (PeCDF); 2,3,4,7,8-Pentaclorodibenzofurano (PeCDF); 1,2,3,4,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,7,8,9-Esaclorodibenzofurano (HxCDF); 2,3,4,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,4,6,7,8-Eptaclorodibenzofurano (HpCDF); 1,2,3,4,7,8,9-Eptaclorodibenzofurano (HpCDF); Octaclorodibenzofurano (OCDF); Equivalente di tossicità (I-TEQ); Equivalente di tossicità (WHO-TEQ)	EPA 3510C 1996 + EPA 8280B 2007		
Policlorobifenili (PCB): PCB 28 + PCB 31, PCB 52, PCB 77, PCB 81, PCB 95, PCB 99, PCB 101, PCB 105, PCB 110, PCB 114, PCB 118, PCB 123, PCB 126, PCB 128 + PCB 167, PCB 138, PCB 146, PCB 149, PCB 151, PCB 153, PCB 156, PCB 157, PCB 169, PCB 170, PCB 177, PCB 180, PCB 183, PCB 187, PCB 189; Esabromobifenili: PBB 155, PBB 153, Sommatoria Esabromobifenili (PBB 153 + PBB 155); Sommatoria Policlorobifenili (PCB), PCB Totali	EPA 3510C 1996 + EPA 8270E 2018	GC-MS	
Richiesta Chimica di Ossigeno (COD)	ISO 15705:2002	spettrofotometria	

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Semi Volatile Organic Compounds (SVOC) : nitrobenzeni: nitrobenzene; 1,2-dinitrobenzene; 1,3-dinitrobenzene; cloronitrobenzeni; 4-cloro-2-nitrotoluene; cloronitrotolueni; dicloronitrotolueni; clorobenzeni: 1,2-diclorobenzene; 1,4-diclorobenzene; 1,2,4-triclorobenzene; 1,2,4,5-tetraclorobenzene; pentaclorobenzene; esaclorobenzene; fenoli clorurati e non clorurati: metilfenolo (o-,m-,p-); fenolo; 2-clorofenolo, 3-clorofenolo, 4-clorofenolo; 4-cloro-3-metilfenolo; 2,4-diclorofenolo; 2,4,6-triclorofenolo; pentaclorofenolo; ammine aromatiche: anilina; difenilamina; o-anisidina; p-toluidina; Ftalati: Dimetilftalato, Dietilftalato, Dibutilftalato, Di-iso-ottilftalato, Di-n-ottilftalato

EPA 3510C 1996 + EPA 8270E 2018 GC-MS

Solventi organici aromatici: Benzene, Toluene, Etilbenzene, p-Xilene, m-Xilene, o-Xilene, Stirene, iso ed n-Propilbenzene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene;

EPA 5021A 2014 + EPA 8015D 2003 da calcolo

Acque con sostanze interferenti, Rifiuti acquosi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto ammoniacale, Ammoniaca (da calcolo)	APAT CNR IRSA 4030 C Man 29 2003		

Acque correnti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Indice Biotico Esteso (IBE)	APAT CNR IRSA 9010 Man 29 2003		

Acque destinate al consumo umano

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Bromati	UNI EN ISO 10304-1:2009	IC	
Conta Miceti: Lieviti e funghi filamentosi (UFC/"x"ml)	M.U. 961/1:01		
Conta Stafilococchi patogeni (UFC/"x"ml)	UNI 10678:1998		
Epicloridrina	EPA 5030C 2003 + EPA 8260D 2018	GC-MS	

Acque destinate al consumo umano e acque destinate alla produzione di acque per consumo umano

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Temperatura	UNI 10500:1996		

Acque destinate al consumo umano e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Idrocarburi frazione estraibile (C10-C40)	ISPRA Man 123 2015 Metodo B	GC-FID	

Acque destinate al consumo umano, acque confezionate, acque di piscina, Acque minerali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Pseudomonas aeruginosa (UFC/"x"ml)	UNI EN ISO 16266:2008		

Acque destinate al consumo umano, Acque minerali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Clostridium perfringens (spore comprese), Conta spore di Clostridium perfringens, Conta Clostridium perfringens (cellule vegetative) (UFC/"x"ml)	UNI EN ISO 14189:2016		

Acque destinate al consumo umano, Acque sotterranee, acque superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(b)fluorantene, benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, pirene, crisene, indeno(1,2,3-cd)pirene, sommatoria IPA (D.Lgs. 152/06 Parte IV Titolo V All.5 Tab.2)	ISO 17993:2002		

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Acque destinate al consumo umano, acque sotterranee, acque superficiali, acque di scarico, acque confezionate, acque di piscina, acque minerali naturali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta dei microrganismi vitali a 22°, Conta dei microrganismi vitali a 36°C (UFC/"x"ml)	UNI EN ISO 6222:2001		

Acque destinate al consumo umano, acque superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca Salmonella spp (presenza-assenza/"x"ml)	ISO 19250:2010		

Acque destinate al consumo umano, di piscina, Acque minerali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Coliformi totali, Escherichia coli (UFC/"x"ml)	UNI EN ISO 9308-1:2017		

Acque destinate al consumo umano, di scarico, sotterranee, superficiali; Rifiuti solidi, Terreni, Fanghi, Sedimenti, Suoli, Oli minerali e oli sintetici, Grassi utilizzati come bioindicatori ambientali, Compost

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
PCDD e PCDF (Policloro-dibenzo-diossine e policloro-dibenzo-furani): Sommatoria policlorodibenzodiossine/policlorodibenzofurani (PCDD/PCDF) come tossicità equivalente I-TEQ da conversione I-TEF (da calcolo)	EPA 3510C 1996 + EPA 8280B 2007 + NATO/CCMS I-TEF 1988; EPA 3545A 2007 + EPA 8280B 2007 + NATO/CCMS I-TEF 1988	calcolo	

Acque destinate al consumo umano, naturali, sotterranee, superficiali, di mare e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conducibilità elettrica	EPA 9050A 1996		

Acque destinate al consumo umano, potabili o da potabilizzare sia di superficie che sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ammoniaca (espressa come Ammonio), Azoto ammoniacale (da calcolo)	M.U. 941:95		

Acque destinate al consumo umano, potabili, di piscina, Acque minerali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Enterococchi intestinali, Conta Streptococchi fecali (UFC/"x"ml)	UNI EN ISO 7899-2:2003		

Acque destinate al consumo umano, potabili, sotterranee, superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Anidride carbonica libera	UNI 10507:1996		

Acque destinate al consumo umano, sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Pseudomonas spp (UFC/"x"ml)	M.U. 1038/2:02 Parte C		

Acque destinate al consumo umano, sotterranee, Acque di scarico (solo Acido p-ftalico)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acido p-ftalico, Acrilammide	EPA 8321B 2007	HPLC DAD (Acido p-ftalico); HPLC-MS-MS (acrilamide)	

Acque destinate al consumo umano, sotterranee, superficiali, industriali e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conducibilità elettrica	UNI EN 27888:1995		

Acque destinate al consumo umano, superficiali, sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Residuo fisso a 180°C	UNI 10506:1996		

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Acque di piscina

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Stafilococchi spp, Stafilococco aureo (UFC/"x"ml)	APHA Standard Methods for the Examination of Water and Wastewater, ed 23rd 2017, 9213 B p.to 6		

Acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Pesticidi clorurati: Aldrin, Dieldrin, alfa-Endosulfan, beta-Endosulfan, Endrin, Endrin aldeide, Eptacoloro, Eptacoloro epossido, alfa-HCH, beta-HCH, delta-HCH, gamma-HCH [Lindano], o,p-DDD, o,p-DDE, o,p-DDT, p,p-DDD, p,p-DDE, p,p-DDT, Esaclorobenzene	APAT CNR IRSA 5090 Man 29 2003		
Pesticidi fosforati: Azinfos-etile, Azinfos-metile, Bromofos etile, Bromofos metile, Diazinone, Dimetoato, Etion, Fenitroton, Fosalone, Malation, Paration-etile, Paration-metile, Pirimifos-metile	APAT CNR IRSA 5100 Man 29 2003		

Acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Solidi sospesi	UNI EN 872:2005		

Acque di scarico, acque dolci (superficiali o sotterranee), acque di mare, acque salmastre, acque interstiziali, eluati, percolati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Saggio di tossicità: effetto inibitorio di campioni acquosi sull'emissione di luce di vibrio fischeri	UNI EN ISO 11348-3:2019		

Acque di scarico, sotterranee e superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Tensioattivi anionici (LOQ 0,05 mg/l)	MP 287 rev 0 2019	spettrofotometria	
Tensioattivi non ionici (LOQ 0,2 mg/l)	MP 288 rev 0 2019	spettrofotometria	
Tensioattivi totali da calcolo (somma di cationici, anionici e non ionici)	MP 017 rev 3 2017 + MP 287 rev 0 2019 + MP 288 rev 0 2019	da calcolo (somma di parametri accreditati)	

Acque dolci e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Solidi sedimentabili	APAT CNR IRSA 2090 C Man 29 2003		
Solidi totali disciolti	APAT CNR IRSA 2090 A Man 29 2003		

Acque e tamponi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca di Legionella (LOD 1-10 copie DNA)	MP 259 rev 0 2019	PCR Real Time	

Acque interstiziali, sotterranee, superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Inibizione della crescita di alghe di acqua dolce per mezzo di alghe verdi unicellulari	UNI EN ISO 8692:2012		

Acque interstiziali, superficiali, di mare, di scarico, eluati e percolati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Saggio di inibizione della crescita di alghe marine con Skeletonema costatum e Phaeodactylum tricornutum	UNI EN ISO 10253:2017		

Acque interstiziali, superficiali, di mare, di scarico, estratti acquosi, elutriati, percolati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Valutazione della tossicità acuta con Rotifer Brachionus (B.calyciflorus ASTM E 1440-91:2012
e B. plicatilis)

Acque minerali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Carica microbica totale a 20-22°C e 37°C (UFC/"x"ml)	DM 10/02/2015 GU n° 50 02/03/2015 All.IV punto 2.1		
Conta Spore di Clostridi solfito riduttori (UFC/"x"ml)	DM 10/02/2015 GU n° 50 02/03/2015 All.IV punto 2.4		
Conta Staphylococcus aureus (UFC/"x"ml)	DM 10/02/2015 GU n° 50 02/03/2015 All.IV punto 2.5		

Acque naturali (superficiali, potabili, sotterranee), acque di scarico, dolci, salmastre o marine

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ammoniaca (espressa come Ammonio)	APAT CNR IRSA 4030 A1 Man 29 2003	spettrofotometria	

Acque naturali (superficiali, potabili, sotterranee), acque di scarico, percolati di discarica, acque di processo, acque di lavaggio e di spurgo

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Carbonio Organico Totale (TOC), Carbonio organico disciolto (DOC)	UNI EN 1484: 1999	IR	

Acque naturali e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acidità e Alcalinità	APAT CNR IRSA 2010 B Man 29 2003		
Aldeidi	APAT CNR IRSA 5010 A Man 29 2003		
Berillio	APAT CNR IRSA 3100 A Man 29 2003		
Cadmio	APAT CNR IRSA 3120 B Man 29 2003	GF-AAS	
Carbonati, Bicarbonati	APAT CNR IRSA 2010 B Man 29 2003		
Cromo	APAT CNR IRSA 3150 B1 Man 29 2003		
Cromo VI	APAT CNR IRSA 3150 C Man 29 2003		
Fenoli	APAT CNR IRSA 5070 A1/A2 Man 29 2003		
Ferro	APAT CNR IRSA 3160 B Man 29 2003		
Manganese	APAT CNR IRSA 3190 B Man 29 2003		
Nichel	APAT CNR IRSA 3220 B Man 29 2003		
Piombo	APAT CNR IRSA 3230 B Man 29 2003		
Rame	APAT CNR IRSA 3250 B Man 29 2003		
Richiesta Biochimica di Ossigeno (BOD5)	APAT CNR IRSA 5120 B1 Man 29 2003		

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Silice	APAT CNR IRSA 4130 Man 29 2003		
Solfiti	APAT CNR IRSA 4150 A Man 29 2003		
Acque naturali e di scarico poco inquinate			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Richiesta Biochimica di Ossigeno (BOD5)	APAT CNR IRSA 5120 A Man 29 2003		
Acque naturali e di scarico, Acqua di piscina			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Cloro attivo combinato	APAT CNR IRSA 4080 Man 29 2003	spettrofotometria	
Cloro attivo libero	APAT CNR IRSA 4080 Man 29 2003		
Solidi sospesi totali	APAT CNR IRSA 2090 B Man 29 2003		
Acque naturali, acque di scarico, acque superficiali, acque sotterranee, eluati			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Fluoruri	APAT CNR IRSA 4100 B Man 29 2003	potenziometria	
Acque naturali, acque potabili			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Alcalinità carbonatica	UNI EN ISO 9963-2:1998		
Acque naturali, acque trattate, acque di scarico			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Alcalinità totale e composita	UNI EN ISO 9963-1:1998		
Acque naturali, di mare e di scarico			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Azoto nitroso, Nitriti (da calcolo)	APAT CNR IRSA 4050 Man 29 2003		
Fosforo (fosfati)	APAT CNR IRSA 4110 A1 Man 29 2003		
Fosforo totale	APAT CNR IRSA 4110 A2 Man 29 2003		
Idrocarburi totali	APAT CNR IRSA 5160 A2 Man 29 2003		
Sostanze oleose totali	APAT CNR IRSA 5160 A1 Man 29 2003		
Acque naturali, di rifiuto e saline			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Ossigeno disciolto	UNI EN ISO 5814:2013		
Acque naturali, dolci, di mare, sotterranee e di scarico			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Ammoniaca (espressa come Ammonio), Azoto ammoniacale (da calcolo)	APAT CNR IRSA 4030 A2 Man 29 2003		
Acque naturali, sotterranee e di scarico			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>

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Cromo VI

APAT CNR IRSA 3150 B2 Man 29
2003

Acque naturali, sotterranee, potabili, destinate al consumo umano, minerali, di piscina e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
pH	APAT CNR IRSA 2060 Man 29 2003		

Acque potabile, acqua di falda, acqua superficiale, acqua di scarico, acqua di mare, eluati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto nitrico (da calcolo), Azoto nitroso (da calcolo), Fluoruri, Cloruri, Nitrati, Nitriti, Solfati, Bromuri, fosfati	UNI EN ISO 10304-1:2009	IC	

Acque potabili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acqua potabili Solventi clorurati: Cloroformio, Bromoformio, Dibromoclorometano, Bromodichlorometano, Trialometani totale, Tricloroetilene, Tetracloroetilene e Sommatoria Tricloroetilene-Tetracloroetilene	APAT CNR IRSA 5150 Man 29 2003	GC-MS / GC-ECD	

Acque potabili e da potabilizzare, sia superficiali che sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto nitroso, Nitriti	M.U. 939:94		

Acque potabili e destinate al consumo umano e consumo domestico, acque minerali naturali, acque di pozzo, acque di falda, acque di piscina

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Indice di permanganato (ossidabilità)	UNI EN ISO 8467:1997		

Acque potabili e minerali, reflue e sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto totale	UNI 11658:2016	Spettrofotometrico	

Acque potabili e sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Perfluorobutanoic acid (PFBA), Perfluoropentanoic acid (PFPeA), Perfluorohexanoic acid (PFHxA), Perfluoroheptanoic acid (PFHpA), Perfluorooctanoic acid (PFOA), Perfluorononanoic acid (PFNA), Perfluorodecanoic acid (PFDA), Perfluoroundecanoic acid (PFUnA), 2-Perfluorohexyl ethanoic acid (FHEA), 2-Perfluorooctyl ethanoic acid (FOEA), 4:2 Fluorotelomer sulfonate (4:2 FTS), 6:2 Fluorotelomer sulfonate (6:2 FTS), 8:2 Fluorotelomer sulfonate (8:2 FTS), 2H-perfluoro-2-octanoic acid (6:2 FTUA), 2H-perfluoro-2-decanoic acid (8:2 FTUA), Perfluorobutanesulfonic acid (PFBS), Perfluoropentanesulfonic acid (PFPeS), Perfluorohexanesulfonic acid (PFHxS), Perfluoroheptanesulfonic acid (PFHpS), Perfluorooctanesulfonic acid (PFOS), Perfluorononanesulfonic acid (PFNS), 4,8-dioxa-3H-perfluorononanoic acid (DONA), Hexafluoropropylene oxide dimer acid (HFPO-DA)	ASTM D7979-17	LC-MS-MS	

Acque potabili, acque di migrazioni di materiali a contatto con le acque

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Odore, Sapore	UNI EN 1622:2006		

Acque potabili, acque industriali, acque naturali e materiali associati come sedimenti depositi e fanghi, biofilm, incrostazioni da tubature e serbatoi, Filtri da impianti di climatizzazione, tamponi utilizzati per raccogliere biofilm e altro materiale adeso alle pareti di tubature, sbocco di rubinetti, filtri rompigitto, interno del bulbo delle docce, acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Conta di Legionella (UFC/"x"ml)

ISO 11731:2017

Acque potabili, acque naturali, acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto Organico	UNI EN 25663:1995 + ISO 7150-1:1984		
Boro	APAT CNR IRSA 3110 A1 Man 29 2003		

Acque potabili, acque naturali, acque industriali, acque sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Durezza	APAT CNR IRSA 2040 B Man 29 2003	titrimetria	

Acque potabili, acque sotterranee, acque superficiali, acque di scarico, acque di mare, soluzioni acquose

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Potenziale redox	UNI 10370:2010	potenziometria	

Acque potabili, superficiali e di scarico, Acqua di piscina

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Torbidità	APAT CNR IRSA 2110 Man 29 2003		

Acque potabili, superficiali, sotterranee e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Tensioattivi non ionici	UNI 10511-2:1996 + A1:2000	titrimetria	

Acque potabili, superficiali, sotterranee e di scarico, eluati da test di cessione di sedimenti, terreni

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici dello stagno: Monobutilstagno (MBT); Dibutilstagno (DBT); Tributilstagno (TBT); Tetrabutilstagno (TTBT); Trifenilstagno (TPHT); Tricicloesilstagno (TCyT)	UNI EN ISO 17353:2006	GC-MS	

Acque potabili, superficiali, sotterranee, scarico, eluati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Alluminio, Antimonio, Argento, Arsenico, Bario, Berillio, Boro, Cadmio, Calcio, Cobalto, Cromo, Ferro, Litio, Magnesio, Manganese, Mercurio, Molibdeno, Nichel, Piombo, Potassio, Rame, Selenio, Sodio, Stagno, Stronzio, Tallio, Vanadio, Zinco, Tellurio, Palladio, Titanio	UNI EN ISO 17294-2:2016	ICP-MS	

Acque reflue

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Materiali grossolani	MP 197 rev 1 2017	gravimetria	

Acque sotterranee, acque superficiali, acque di scarico;

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Tensioattivi cationici (0.2mg/l – 2.0 mg/l)	MP 017 rev 3 2017	spettrofotometria	

Acque sotterranee, acque superficiali, acque potabili, acque industriali, acque di mare e simili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Calcio	ISO 6058:1984	titrimetria	

Acque sotterranee, acque superficiali, acque potabili, acque industriali, acque di mare e simili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Calcio e Magnesio	ISO 6059:1984	titrimetria	
Magnesio	ISO 6058:1984 + ISO 6059:1984	titrimetria	

Acque sotterranee, acque superficiali, acque reflue, acque di piscina, acque di distribuzione, acque trattate

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Conta Carica Batteri aerobi eterotrofi (UFC/ml)

APHA Standard Methods for the
Examination of Water and
Wastewater, ed 23rd 2017 9215
A+B

Acque sotterranee, potabili, superficiali, di scarico, eluati, acque di serbatoi/caldaie

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
ammoniaca, azoto ammoniacale (da calcolo), cloruri, nitriti, azoto nitroso (da calcolo), ortofosfati, silicati	ISO 15923-1:2013	spettrofotometria	

Acque sotterranee, superficiali, Acque destinate al consumo umano, di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Idrocarburi totali, idrocarburi totali come n-esano, idrocarburi frazione volatile (C6-C10), idrocarburi frazione volatile (C6-C10) come n-esano, idrocarburi frazione estraibile, idrocarburi frazione estraibile (C10-C40) come n-esano	ISPRA Man 123 2015	GC-FID	

Acque superficiali e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acque superficiali e di scarico Solventi alogenati: Cloruro di vinile, Cloroformio; 1,1,1-Tricloroetano; Tricloroetilene; Tetracloroetilene; 1,1-Dicloroetilene; 1,2-Dicloroetano; 1,2-Dicloroetilene; 1,2-Dicloropropano; 1,1,2-Tricloroetano; 1,1,2,2-Tetracloroetano; 1,2,3-Tricloropropano; Esaclorobutadiene; 1,1-Dicloroetano; Dibromoclorometano; Bromodichlorometano; Tribromometano; 1,2-Dibromoetano, Solventi clorurati totali, trialometani totali, Sommatoria clorurati (DLgs. 152/06 Parte IV Titolo V All5 Tab2)	APAT CNR IRSA 5150 Man 29 2003	GC-MS / GC-ECD	

Acque superficiali, di fiume, di lago e acque di scarico anche sottoposte a trattamento, Acque sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Coliformi fecali (UFC/"x"ml)	APAT CNR IRSA 7020 B Man 29 2003		
Conta Coliformi totali (UFC/"x"ml)	APAT CNR IRSA 7010 C Man 29 2003		
Conta colonie a 36°C e 22°C (UFC/"x"ml)	APAT CNR IRSA 7050 Man 29 2003		
Conta Escherichia coli (UFC/"x"ml)	APAT CNR IRSA 7030 F Man 29 2003		
Conta Spore di Clostridi solfito riduttori (UFC/"x"ml)	APAT CNR IRSA 7060 B Man 29 2003		
Conta Streptococchi fecali ed Enterococchi (UFC/"x"ml)	APAT CNR IRSA 7040 C Man 29 2003		

Acque superficiali, di fiume, di lago, acque reflue anche sottoposte a trattamento, Acque destinate al consumo umano, Acque sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca Salmonella spp (presenza-assenza/"x"ml)	APAT CNR IRSA 7080 Man 29 2003		

Acque superficiali, di mare, sotterranee e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Solfuri	APAT CNR IRSA 4160 Man 29 2003		

Acque superficiali, reflue, sotterranee, acque da impianti di trattamento scarichi fognari

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Indice di idrocarburi Idrocarburi (C10-C40), idrocarburi pesanti C>12 (C12-C40), idrocarburi pesanti C>12 (come n-esano), Idrocarburi DROs espressi come n-esano (>35 ug/L)

UNI EN ISO 9377-2:2002 GC-FID

Acque superficiali, sotterranee e di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cianuri	APAT CNR IRSA 4070 Man 29 2003 escluso par. 7.3	spettrofotometria	
Solventi organici aromatici: Benzene, Toluene, Etilbenzene, p-Xilene, m-Xilene, o-Xilene, isopropilbenzene, n-Propilbenzene, Stirene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, Sommatoria composti organici aromatici totali, Sommatoria composti organici aromatici, naftalene, MTBE, ETBE, piombo tetraetile	APAT CNR IRSA 5140 Man 29 2003	GC	
Tensioattivi anionici	APAT CNR IRSA 5170 Man 29 2003		

Acque superficiali, sotterranee e di scarico, Acque potabili, Rifiuti liquidi acquosi, Terreni e Rifiuti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cianuri liberi e Cianuri Totali	M.U.2251:08 (escluso i punti 8.2.2 e 8.2.3)	spettrofotometria	

Acque, campioni liquidi miscibili con acqua, eluati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Etil ter-butyl etere (ETBE), piombo tetraetile	EPA 5030C 2003 + EPA 8015D 2003	GC	
Etil ter-butyl etere (ETBE), piombo tetraetile, iso propilBenzene (cumene), n-propilbenzene	EPA 5021A 2014 + EPA 8015D 2003	GC	

Acque, eluati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cianuri liberi	ISO 6703-2:1984 Sez.4	spettrofotometria	
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene, Sommatoria IPA (DLgs. 31/2001 Nota 9), Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab2)	EPA 3510C 1996 + EPA 8270E 2018	GC-MS	

Acque, Eluati, E-liquid

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Alluminio, Antimonio, Argento, Arsenico, Bario, Berillio, Boro, Cadmio, Calcio, Cobalto, Cromo, Ferro, Litio, Magnesio, Manganese, Mercurio, Molibdeno, Nichel, Piombo, Potassio, Rame, Selenio, Sodio, Stagno, Stronzio, Tallio, Vanadio, Zinco, Tellurio, Palladio, Titanio	EPA 6020B 2014	ICP-MS	

Acque, Liquidi miscibili con acqua

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici aromatici: Benzene, Etilbenzene, Stirene, Toluene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, MetilTerButilEtere (MTBE), Etilterbutiletere (ETBE), piombo tetraetile, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene); isopropilbenzene, n-propilbenzene, naftalene, solventi azotati: 2-nitropropano, acrilonitrile, metacrilonitrile	ISO 11423-1:1997	GC-MS	
Etil ter-butyl etere (ETBE), piombo tetraetile	EPA 5030C 2003 + EPA 8260D 2018		

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Solventi organici azotati: 2-nitropropano, acrilonitrile, metacrilonitrile, nitrobenzene, propionitrile EPA 5030C 2003 + EPA 8260D 2018

Acque, liquidi miscibili in acqua, E-liquid

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici volatili: Benzene, Etilbenzene, Stirene, Toluene, o-Xilene, m+p-Xilene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene), Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni), Naftalene, Isopropilbenzene, n-propilbenzene, butilbenzeni, Clorobenzene, 1,2-Diclorobenzene, 1,3-Diclorobenzene, 1,4-Diclorobenzene, Metilt-ButilEtere, Acetone, Metilacetato, Etilacetato, n-butilacetato, Isobutilacetato, Metiletilchetone, Metilisobutilchetone, Cicloesano, Metilcicloesano, clorometano, Diclorometano, Cloroformio, cloruro di vinile, 1,2-dicloroetano, 1,1-dicloroetilene, Tricloroetilene, Tetracloroetilene, 1,1-dicloroetano, 1,2-dicloroetilene, 1,1,1-tricloroetano, 1,2-dicloropropano, 1,1,2-tricloroetano, 1,2,3-tricloropropano, 1,1,2,2-tetracloroetano, Bromoformio, 1,2-dibromoetano, Dibromoclorometano, Bromodiclorometano, Tetracloruro di carbonio, esaclorobutadiene, Solventi clorurati totali, trialometani totali, 2-clorotoluene, 3-clorotoluene, 4-clorotoluene, 3-cloropropene, 2-cloroetanolo, 1,3-dicloro-2-propanolo, diclorodiisopropiletere, Sommatoria Organoalogenati (DLgs. 152/06 All5 Tab2), Composti organoalogenati totali; 1,2,4-triclorobenzene	EPA 5030C 2003 + EPA 8260D 2018	GC-MS	

Acque, liquidi miscibili in acqua, eluati, E-liquid

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici aromatici: Benzene, Etilbenzene, Stirene, Toluene, o-Xilene, m-Xilene, p-Xilene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, MetilTerButilEtere, naftalene, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene), Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni)	EPA 5030C 2003 + EPA 8015D 2003	GC	

Acque, Rifiuti liquidi acquosi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Pesticidi azotati: Ametrina, Atrazina, Metribuzin, Pendimetalin, Prometon, Prometryn, Propazine, Simazina, Simetrina, Terbutilazina, Terbutrina, Trifluralin	EPA 3510C 1996 + EPA 8270E 2018	GC-MS	
Pesticidi clorurati: Alaclor, Aldrin, alfa-endosulfan, alfa-HCH, beta-endosulfan, beta-HCH, Clordano (somma di cis- e trans-clordano), cis-clordano, trans-clordano, delta-HCH, Dieldrin, Endosulfan solfato, Endrin, Endrin aldeide, Eptacloro, Eptacloro epossido, Esaclorobenzene, gamma-HCH [Lindano], Metoxiclor, o,p-DDD, o,p-DDE, o,p-DDT, p,p-DDD, p,p-DDE, p,p-DDT, Sommatoria fitofarmaci (DLgs. 152/06 Parte IV Titolo V All5 Tab2)	EPA 3510C 1996 + EPA 8270E 2018	GC-MS	
Pesticidi Organofosforati: Azinfos etile, Azinfos metile, Bromofos etile, Bromofos metile, Cadusafos, Carbofenotion, Clorpirifos, Clorfenvifos, Diazinone, Diclorvos, Dimetoato, Ometoato, Somma di dimetoato e ometoato, Disulfoton, Ditalimfos, Etion, Etoprofos, Fenamifos, Fenitroton, Fention, Fentoato, Forate, Formotion, Fosalone, Iodofenfos, Malation, Mevinfos, Paration etile, Paration metile, Piridafention, Pirimifos etile, Pirimifos metile, Profenofos, Protoato, Protiofos, Quinalfos, Sulfotep, Terbufos, Tionazin, Triazofos, Triclorfon	EPA 3510C 1996 + EPA 8270E 2018	GC-MS	

Acque, Rifiuti, Sedimenti, Suoli, Fanghi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Composti organici aromatici: Benzene, Etilbenzene, Stirene, Toluene, o-Xilene, m-Xilene, p-Xilene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, naftalene, MetilTerButilEtere, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene), Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni), Sommatoria composti organici aromatici (secondo D.Lgs. 152/06 Parte IV Titolo V All5 Tab1)

EPA 5021A 2014 + EPA 8015D 2003 GC

Acque, Suoli

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Somma PCDD/PCDF I-TEQ (somma dei prodotti tra le concentrazioni dei 17 cogeneri PCDD/PCDF cloro sostituiti nelle posizioni 2,3,7,8 ed i NATO CCMS TEF 1988)	EPA 1613B 1994 + NATO CCMS Report n°176 1988	calcolo	
Somma PCDD/PCDF WHO-TEQ (somma dei prodotti tra le concentrazioni dei 17 cogeneri PCDD/PCDF cloro sostituiti nelle posizioni 2,3,7,8 ed i WHO-TEF - Rif. UNEP/POPS/COP.3/INF/27 del 11/04/2007)	EPA 1613B 1994 + UNEP/POPS/COP.3/INF/27 11/04/2007 (somma dei prodotti tra le concentrazioni dei 17 cogeneri PCDD/PCDF cloro sostituiti nelle posizioni 2,3,7,8 ed i WHO-TEF - Rif. UNEP/POPS/COP.3/INF/27 del 11/04/2007)	calcolo	

Acque, Suoli, Prodotti carnei

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
PCDD e PCDF: Policlorodibenzodiossine (PCDD) sostituite in 2,3,7,8: 2,3,7,8-Tetraclorodibenzodiossina (TCDD); 1,2,3,7,8-Pentaclorodibenzodiossina (PeCDD); 1,2,3,4,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,6,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,7,8,9-Esaclorodibenzodiossina (HxCDD); 1,2,3,4,6,7,8-Eptaclorodibenzodiossina (HpCDD); Octaclorodibenzodiossina (OCDD); Policlorodibenzofurani (PCDF) sostituiti in 2,3,7,8: 2,3,7,8-Tetraclorodibenzofurano (TCDF); 1,2,3,7,8-Pentaclorodibenzofurano (PeCDF); 2,3,4,7,8-Pentaclorodibenzofurano (PeCDF); 1,2,3,4,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,7,8,9-Esaclorodibenzofurano (HxCDF); 2,3,4,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,4,6,7,8-Eptaclorodibenzofurano (HpCDF); 1,2,3,4,7,8,9-Eptaclorodibenzofurano (HpCDF); Octaclorodibenzofurano (OCDF)	EPA 1613B 1994	GC-HRMS	

Alimenti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Carboidrati (da calcolo)	D.Lgs n° 77 16/02/1993 GU n° 69 24/03/1993 + Rapporti ISTISAN 1996/34 Pag 68 + Rapporti ISTISAN 1996/34 Pag 39 + Rapporti ISTISAN 1996/34 Pag 13 + Rapporti ISTISAN 1996/34 Pag 7 Metodo B, C, D + Rapporti ISTISAN 1996/34 pag 77	CALCOLO	
Cloruro di sodio, sale (da calcolo)	MP 006 rev 11 2020	ICP-MS	
Fibre alimentari	Rapporti ISTISAN 1996/34 Pag 68		

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Grassi	Rapporti ISTISAN 1996/34 Pag 39		
Proteine	Rapporti ISTISAN 1996/34 Pag 13		
Umidità, Residuo secco	Rapporti ISTISAN 1996/34 Pag 7 Metodo B, C, D	Gravimetria	
Valore energetico: kcalorie, kjoule (da calcolo)	D.Lgs n° 77 16/02/1993 GU n° 69 24/03/1993 + DM 18/03/2009 GU n°120 26/05/2009 + D.Lgs n° 77 16/02/1993 GU n° 69 24/03/1993 + Rapporti ISTISAN 1996/34 Pag 68 + Rapporti ISTISAN 1996/34 Pag 39 + Rapporti ISTISAN 1996/34 Pag 13 + Rapporti ISTISAN 1996/34 Pag 7 Metodo B, C, D + Rapporti ISTISAN 1996/34 pag 77	calcolo	
Alimenti ad uso umano, Mangimi (prodotti con aw maggiore di 0,95)			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Conta Lieviti e muffe (UFC/"x"g o "x"ml di campione)	ISO 21527-1:2008		
Alimenti ad uso umano, Mangimi			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Conta Listeria monocytogenes (UFC/"x"ml o "x"g di campione)	AFNOR AES 10/05-09/06		
Ricerca Listeria monocytogenes (presenza-assenza/"x"g o su "x" ml di campione)	AFNOR AES 10/03-09-00		
Alimenti ad uso umano, Mangimi (prodotti con attività dell'acqua inferiore o uguale a 0,95)			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Conta Lieviti e muffe (UFC/"x"g o "x"ml di campione)	ISO 21527-2:2008		
Alimenti ad uso zootecnico			
<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Contenuto di ceneri grezze	Reg CE 152/2009 27/01/2009 GU CE L54 26/02/2009 All III Met M		
Contenuto di oli e grassi greggi	Reg CE 152/2009 27/01/2009 GU CE L54 26/02/2009 All III Met H		
Contenuto di proteine gregge	Reg CE 152/2009 27/01/2009 GU CE L54 26/02/2009 All III Met C		

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Florfenicolo, Florfenicoloamina, Tiamfenicolo, Amoxicillina, Ampicillina, Clossacillina, Diclossacillina, Nafcillina, Ossacillina, Penicillina G, Penicillina V, Cefalexina, Cefalonio, Cefapirina, Cefazolina, Ceftiofur, Desacetilcefapirina, Cinoxacina, Ciproflossacina, Danoflossacina, Diltossacina, Enroflossacina, Marboflossacina, Norflossacina, Acido Ossolinico, Saraflossacina, Beclometasone, Cortisone, Flumetasone, 20-diidro-Prednisolone, Prednisone, Triamcinolone, Triamcinolone acetone, Carbadox, Furaltadone, Furazolidone, Olaquinox, 3-O-Acetiltilosina, Azitromicina, Claritromicina, Eritromicina, Gamitromicina, Josamicina, Midecamicina, Neospiramicina, Roxitromicina, Spiramicina, Tilmicosina, Tilosina, Dimetridazolo, HMMNI, Iprnidazolo, Idrossi-Iprnidazolo, Metronidazolo, Idrossi-Metronidazolo, Secnidazolo, Ternidazolo, Sulfaclopiridazina, Sulfadiazina, Sulfadimetossina, Sulfametossidiazina, Sulfametazina, Sulfametossazolo, Sulfametossipiridazina, Sulfamonometossina, Sulfapiridina, Sulfaquinossalina, Sulfatiazolo, Clortetraciclina+Epilortetraciclina, Demecociclina, Ossitetraciclina+Epissitetraciclina, Tetraciclina+Epitetraciclina, Dossiciclina, Levamisolo, Tiamuina, Trimetoprim, Lincomicina (LOQ 0,100 mg/Kg per tutti gli analiti)

MP 246 rev 0 2019

LC-MS-MS

Fosforo totale

Reg CE 152/2009 27/01/2009 GU
CE L54 26/02/2009 All III Met P

Policlorobifenili (PCB) (come screening): PCB 28 + PCB 31, PCB 52, PCB 77, PCB 81, PCB 101, PCB 105, PCB 114, PCB 118, PCB 123, PCB 126, PCB 138, PCB 153, PCB 156, PCB 157, PCB 128 + PCB 167, PCB 169, PCB 170, PCB 180, PCB 189

Reg CE 152/2009 27/01/2009 GU GC-MS
CE L54 26/02/2009 All V Met B II
+ Reg UE 277 2012 All

Umidità

Reg CE 152/2009 27/01/2009 GU
CE L54 26/02/2009 All III Met A

Vitamina A

Reg CE 152/2009 27/01/2009 GU
CE L54 26/02/2009 All IV Met A

Zearalenone (ZON)

UNI EN 15792:2009

Alimenti ad uso zootecnico, Cereali e derivati, Prodotti da forno

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Multiresiduale micotossine: Aflatossina B1, Aflatossina B2, Aflatossina G1, Aflatossina G2, Aflatossine Totali (B1+B2+G1+G2), Deossinivalenolo (DON), Diacetossiscirpenolo (DAS), Neosolaniolo (NEO), Ocratossina A (OTA), Tossina HT-2, Tossina T-2, Zearalenone (ZEA), Nivalenolo, Fusarenone-X (FUS-X), 3-acetildeossinivalenolo, 15-acetildeossinivalenolo, Fumonisin B1, Fumonisin B2, Fumonisin Totali (B1+B2); (Aflatossina B1, Aflatossina G1 >0.25ug/kg; Aflatossina B2, Aflatossina G2 >0.08ug/kg; Tossina HT-2, Tossina T-2, Somma delle Tossine T-2 + HT-2, Deossinivalenolo (DON), Zearalenone (ZEA) >8.0ug/kg; Ocratossina A (OTA) >0.25ug/kg; Diacetossiscirpenolo (DAS), Neosolaniolo (NEO), Fusarenone-X (FUS-X), 3-acetildeossinivalenolo, 15-acetildeossinivalenolo >20ug/kg; Nivalenolo <25ug/kg); Alimenti ad uso zootecnico: Aflatossina B1, Aflatossina B2, Aflatossina G1, Aflatossina G2, Aflatossine totali (B1, B2, G1, G2) >0.001 mg/kg; Ocratossina A (OTA) >0.005 mg/kg; Tossina	MP 213 rev 1 2018	LC-MS-MS	

Alimenti destinati ad uso umano - cacao e cioccolato

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Umidità	DM 06/01/1979 SO GU n° 67 08/03/1979 All B Par 1	Gravimetria	

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Alimenti destinati al consumo umano

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composizione acidica: Acido butirrico (C4:0), Acido capronico (C6:0), Acido enantico (C7:0), Acido caprilico (C8:0), Acido caprinico (C10:0), Acido undecanoico (C11:0), Acido laurico (C12:0), Acido tridecanoico (C13:0), Acido miristico (C14:0), Acido miristoleico (C14:1), Acido pentadecanoico (C15:0), Acido palmitico (C16:0), Acido palmitoleico (C16:1), Acido eptadecanoico (C17:0), Acido eptadecenoico (C17:1), Acido stearico (C18:0), Acido oleico (C18:1), Acido trans-oleico (C18:1), Acido linoleico (C18:2) (Omega-6), Acido trans-linoleico (C18:2), Acido linolenico (C18:3) (Omega-3), Acido trans-linolenico (C18:3), Acido gamma-linolenico (C18:3) (Omega-6), Acido arachico (C20:0), Acido eicosenoico (C20:1), Acido arachidonico (C20:4) (Omega-6), Acido eicosapentaenoico (C20:5) (Omega-3), Acido beenico (C22:0), Acido erucico (C22:1), Acido docosapentaenoico (C22:5) (Omega-3), Acido docosaesaenoico (C22:6) (Omega-3), Acido lignocericico (C24:0), Totale acidi grassi saturi, Totale acidi grassi monoinsaturi, Totale isomeri trans degli acidi grassi monoinsaturi, Totale acidi grassi poliinsaturi, Totale isomeri trans degli acidi grassi poliinsaturi	Rapporti ISTISAN 1996/34 pag. 47	GC-FID	
Zuccheri: lattosio, fruttosio, saccarosio, glucosio, maltosio, zuccheri totali come somma di lattosio, fruttosio, saccarosio, glucosio, maltosio	Rapporti ISTISAN 1996/34 pag. 66	HPLC-RID	

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Alimenti di origine vegetale ad alto contenuto di acqua o alto contenuto di acido e acqua freschi e loro trasformati (agrumi e cedri, pomacee, drupacee, bacche e piccola frutta, frutta varia, ortaggi a radice e tubero, ortaggi a bulbo, ortaggi a frutto, cavoli, ortaggi a foglia, erbe fresche e fiori commestibili, foglie, legumi freschi, ortaggi a stelo, funghi, foraggi).

LC-MS-MS &
GC-MS-MS

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Alimenti di origine vegetale ad alto contenuto di amido e/o proteine, a basso contenuto di acqua e grasso e loro trasformati (cereali, legumi secchi, mangimi, pane, pasta, prodotti da forno)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
<p>2-Fenilfenolo (somma di 2-fenilfenolo e relativi coniugati, espressi in 2-fenilfenolo); 3-Idrossi-carbofurano; 4,4' Metossicloro olefina; 6-Benziladenina; Acefato; Acetamidiprid; Acetocloro; Acibenzolar-s-metile; Acifluorfen; Aclofenfen; Alacloro; Aldicarb; Aldicarb (somma di aldicarb, aldicarb solfossido e aldicarb solfone, espressa in aldicarb); Aldicarb solfone; Aldicarb solfossido; Aldrin; Aldrin e dieldrin (aldrin e dieldrin combinati, espressi in dieldrin); Alloxidim; Alossifop; Alossifop etossietile; Ametrina; Aminocarb; Anthracinone; Asulam; Atrazina; Azaconazolo; Azinfos metile; Azossistrobina; Benalaxil, comprese altre miscele di costituenti isomeri come benalaxil-M (somma di isomeri); Bendiocarb; Benfluralin; Bentazone; Benzoilprop-etile; Benzossimato; Benzotiazuron; Bifenile; Bifentrin (somma di isomeri); Bitertanolo (somma degli isomeri); Boscalid; Bromacile; Bromobutide; Bromociclene; Bromofos etile; Bromofos metile; Bromuconazolo (somma di diastereoisomeri); Bupirimate; Buprofezin; Butafenacil; Butocarbossina; Butossicarbossina; Butralin; Cadusafos; Carbaril; Carbendazim e benomil (somma di benomil e carbendazim espressa in carbendazim); Carbetamide (somma di carbetamide e del suo isomero S); Carbofenotio; Carbofurano; Carbofurano (somma di carbofurano (incluso carbofurano generato da carbosulfan, benfuracar o furatiocarb) e 3-idrossi-carbofurano espressa in carbofurano); Carbossina; Carfentrazzone etile; Chinometionato; Cianazina; Cianofos; Ciazofamid; Ciclanilide; Cicloato; Cicloesimide; Cicluron; Ciflufenamid (somma di ciflufenamid (isomero Z) e del relativo isomero E, espressa come ciflufenamid); Ciflutrin (ciflutrin include altre miscele degli isomeri costituenti (somma degli isomeri)); Cimiazolo; Cimoxanil; Cipermetrina (cipermetrina, include altre miscele degli isomeri costituenti (somma degli isomeri)); Ciproconazolo; Ciprodinil; Ciromazina; Cletodim; Cletodim (somma di setossidim e cletodim inclusi prodotti di degradazione calcolati come setossidim); Climbazolo; Clodinafop propargile; Clofentezina; Clomazone; Cloquintocet methyl; Clorbenside; Clorbufam; Clordano (somma di cis- e trans-clordano); Clordano-cis; Clordano-trans; Clorfenprop metile; Clorfenson; Clorfenvinfos; Clorfluzazuron; Cloridazon; Clormefos; Cloroneb; Clortalonil; Clorotoluron; Cloroxuron; Clorpirifos; Clorpirifos metile; Clorprofam; Clortal-dimetile; Clortiamid; Clortion; Clotianidin; Clozolinato; Crimidine; Cromafenocide; Cumafos; DDT (somma di p,p'-DDT, o,p'-DDT, p,p'-DDE e p,p'-TDE (DDD), espressi in DDT); Deltametrina (cis-deltametrina); Demeton-S-metile; Demeton-S-metilsolfone; Desetilatrastina; Desmedifam; Desmetrina; Dialifos; Diallato; Diclobenil; Diclofentio; Diclofop-metile; Dicloran; Diclorvos; Dicrotofos; Dieldrin; Dietofencarb; Difenamite; Difenilammina; Diflubenzuron; Diflufenican; Dimepiperate; Dimetacolor; Dimetenamid, incluse altre miscele di isomeri costituenti comprendenti dimetenamid-p (somma di isomeri); Dimetilvinfos; Dimetoato; Dimetomorf (somma degli isomeri); Dimossistrobina; Dinitramina; Dinotefuran; Dioxacarb; Dioxation; Dipropetrin; Disulfoton; Disulfoton (somma di disulfoton, solfossido di disulfoton e solfene di disulfoton, espressa in disulfoton); Ditalimfos; Dithiopyr; Diuron; DMSA (Dimetilfenilsolfamide); Edifenfos; Emamectina benzoato B1a, espressa in emamectina; Endosulfan (somma degli isomeri alfa e beta e del solfato di endosulfan, espressi in endosulfan); Endosulfan alfa; Endosulfan beta; Endosulfan solfato; Endrin; Endrin chetone; EPN; Eposiconazolo; Eptacloro; Eptacloro (somma di eptacloro e di eptacloro epossido espressa in eptacloro); Eptacloro epossido isomero A; Eptacloro epossido isomero B; Eptenofos; Esaclorobenzene; Esaclorocicloesano (HCH), isomero alfa; Esaclorocicloesano (HCH), isomero beta; Esaclorocicloesano (HCH), isomero delta; Esaconazolo; Esaflumuron; Etaconazolo; Ethaboxam; Etiofencarb; Etiofencarb solfossido; Etiprola; Etririmo; Etofumesato; Etoprofos; Etossazolo; Etrifos; Exitiazox; Fenamidone; Fenamifos; Fenamifos solfone; Fenazaquin; Fenbuconazole; Fenclorfos; Fenclorfos (somma di fenclorfos e fenclorfosoxon, espressa in fenclorfos); Fenclorfos oxon; Fenitrotrion; Fenmedifam; Fenotrina; Fenoxicarb; Fenpirossimato; Fenpropatrin; Fenpropidin; Fenpropimorf (somma di isomeri); Fenson; Fensulfotio; Fention; Fention oxon; Fention sulfone; Fention solfossido; Fentoato; Fenuron; Ferimzone; Flamprop isopropile; Flonicamid; Fluazifop; Fluazinam; Flubenzimine; Flucitrinate; Fluclozalin; Flufenacet; Flufenoxuron; Flumioxazina; Fluopicolide; Fluopyram; Fluoxastrobil (somma di fluoxastrobil e del relativo isomero Z); Fluiconazolo; Fluossipir; Flurprimidolo; Flusilazolo; Flutolanil; Flutriafo; Fomesafen; Fonofos; Forate; Forate solfone; Forclorfenuron; Formetanato: somma di formetanato e relativi sali, espressa in (cloridrato di) formetanato; Formotion; Fosalone; Fosfamidonone; Fosmet; Fostiazato; Foxim; Furalaxil; Furatiocarb; Icaridina; Imazalil; Imazametabenz metile; Imazamox (somma di imazamox e suoi sali, espressa come imazamox); Imidacloprid; Indanofan; Indoxacarb (somma di indoxacarb e del suo enantiomero R) ; Ioxynil; Iprodione; Iprovalicarb; Isazofos; Isocarbofos; Isodrin; Isofenfos; Isofenfos metile; Isoprocarb; Isopropalin; Isoprotiolano; Isoproturon; Isoxaben; Isoxalutole; Isoxation; Kresoxim metile; Lambda-cialotrina (comprende la gamma-cialotrina) (somma di isomeri R,S e S,R); Lenacil; Lindano (isomero gamma di esaclorocicloesano (HCH)); Linuron; Malaoxon; Malation; Malation (somma di malation e malaaxon, espressa in malation); Mandipropamide (ogni rapporto di isomeri costituenti); MCPA; Mecarbam; Mefenacet; Mepanipirim; Mesotrione; Metabenzotiazuron; Metacrisofos; Metalaxil e metalaxil-M (metalaxil, include altre miscele degli isomeri costituenti, comprendenti metalaxil-M (somma degli isomeri)); Metamidofos; Metamifop; Metamitron; Metazacolor; Metconazolo (somma degli isomeri); Metidation; Metiocarb; Metiocarb (somma del metiocarb e del metiocarb solfossido e solfone, espressa in metiocarb); Metiocarb solfone; Metiocarb solfossido; Metobromuron; Metolacolor e S-metolacolor (metolacolor comprendente altre miscele di isomeri costituenti compreso S-metolacolor (somma di isomeri)); Metolacolor; Metomil; Metoprene; Metoprotina; Metossicloro; Metossifenozide; Metosulam; Metoxuron; Metrafenone; Metribuzin; Metsulfuron metile; Mevinfos (somma degli isomeri E e Z); Mirex; Molinate; Monocrotofos; Monolinuron; Monuron; Naled; Napropamide; Neburon; Nicotina; Nitempiram; Nitrofen; Nitrotrion isopropile; Nonachlor; Norflurazon; Nuairimol; o,p'-DDE; o,p'-DDT; o,p'-TDE (DDD); Ofurace; Ometoato; Ossicarbossina; Ossicloridano; Ossidemeton-metile; Ossidemeton-metile (somma di ossidemeton-metile e demeton-S-metilsolfone espressa in ossidemeton-metile); Oxadiazon; Oxadixil; Oxamil; p,p'-DDE; p,p'-DDT; p,p'-TDE (DDD); Paclobutrazol (somma degli isomeri costituenti); Paraaxon; Paraaxon metile; Paration; Paration metile; Paration metile (somma di paration metile e paraaxon metile, espressa in paration metile); Pebulato; Penconazolo (somma degli isomeri costituenti); Pendimetalin; Penoxsulam; Pentacloroanilina; Pentacloroanisolo; Pentaclorobenzene; Permetrina (somma degli isomeri); Pertano (etil-DDD); Petoxamide; Picolinafen; Picoxystrobin; Pimetozina; Piperofos; Piperonil Butossido; Piracarbolid; Piraclostrobin; Pirazofos; Pirazoxifen; Piridaben; Piridafention; Piridato; Pirifenox; Pirimetanil; Pirimicarb; Pirimicarb desmetil; Pirimicarb desmetil fomatid; Pirimifos etile; Pirimifos metile; Pirimifos metile N-desetile; Piriproxifen; Procimidone; Procloraz; Profam; Profenofos; Profluralin; Promecarb; Prometon; Prometrina; Propaclor; Propamocarb (somma di propamocarb e dei relativi sali espressa in propamocarb); Propanil; Propaquizafop; Propazina; Propetamfos; Propizamide; Propoxur; Prosulfocarb; Protiofos; Pyridalyl; Quinalfos; Quinmerac; Quinoxifen; Quintozene; Quintozene (somma di quintozene e di pentacloroanilina, espressa in quintozene); Quizalofop etile; Resmetrin (resmetrin, include altre miscele degli isomeri costituenti (somma degli isomeri)); Rotenone; Setossidim; Simazina; Simeconazolo; Simetrina; Solfone di disulfoton; Solfossido di disulfoton; Spinosad (spinosad, somma di spinosyn A e spinosyn D); Spinosyn A; Spinosyn D; Spirodiclofen; Spiromesifen; Sulcotrione; Sulfentrazzone; Sulfotep; Sulprofos; Tebuconazolo; Tebufenozide; Tebufenpirad; Tebupirimfos; Tebutiuron; Tecnazene; Teflubenzuron; Teflutrin; Telodrin; Temefos; Terbacil; Terbufos; Terbufos solfone; Terbufos solfossido; Terbumeton; Terbutilazina; Terbutrina; Tetraclorvinfos; Tetraconazolo; Tetraidroftalimide (THPI); Tetrametrina; Tetrasul; Thiamethoxam; Tiabendazolo; Tiadclorid; Tiobencarb (4-clorobenzil metil solfone); Tiodicarb; Tiofanato metile; Tiofanox solfone; Tiometon; Tionazina; Tolclofos metile; Tolilfluandide; Tralcoxidim (somma degli isomeri costituenti del tralcoxidim); Translutrin; Triadimefon; Triallato; Triazofos; Tribenuron metile; Triciclazolo; Triclorfon; Tricloronato; Triflissistrobina; Triflumizolo; Triflururon; Trifluralin; Trinexapac etile; Triticonazolo; Uniconazolo; Vamidotio; Vinclozolin; Zoxamide.</p>	UNI EN 15662:2018	LC-MS-MS & GC-MS-MS	

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Alimenti di origine vegetale ad alto contenuto di zucchero e a basso contenuto di acqua (frutta disidratata, marmellata di frutta, miele)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Residui di pesticidi: Tebuconazol, Fenpropidin, Diethofencarb, Neburon, Lufenuron, Hexythiazox, Methiocarb, Chlorpropham, Diuron, Pyrimethanil, Nuairimol, Demeton-S-methyl sulfone, Oxydemethon-methyl, Terbufos, Atrazine-desethyl, Desethylatrazine, Carbaryl, Heptenophos, Metoxuron, Fluomethuron, Kresoxim-methyl, Cyproconazole, Acetamiprid, Dimepiperate, Ethofumesate, Bupirimate, Azinphos-ethyl, Cyproconazole-2 Pyridate, Fenuron, Pirimiphos-methyl, Triadimenol, Cymoxanil, Lenacil, Flusilazole, Propazine, Metazachlor, Disulfoton-Sulfoxide, Phosphamidon, Dimethoate Phosmet, Tetramethrin, Simazine, Isofenphos, Propiconazole, Butachlor, Butocarboxim, Azinphos-methyl, Propyzamide, Bromacil, Trichlorfon, Carbofuran - 3 hydroxy, Malaoxon, Monocrotophos (Azodrin), Methomyl, Penconazol, Disulfoton-Sulfone, Paraaxon, Propachlor, Chlorpyrifos-methyl, Mevinphos (Phosdrin), Phosalone, Oxadixyl, Prochloraz, Thiabendazole, Metribuzin, Aldicarb sulfone, Methidathion Simetryn, Dicrotophos (Bidrin), Ethiofencarb, Chlortoluron, Prometryn, Epoxiconazole, Penoxsulam (Penoxalim), Metobromuron, Atrazine, Rotenone, Fenamidone, Quinoxifen, Bendiocarb, Boscalid (Nicobifen), Pymetrozine, Flufenoxuron, Fenarimol, Thiamethoxam, Alachlor, Chlorfluazuron, Metamitron, Hexaconazole, Chloroxuron, Trinexapac-ethyl, Thionazin, Methoxyfenozide, Chloridazon, Diflufenican, Dichlorvos, Fenpyroximate(E), Acetochlor, Ethiofencarb sulfoxide, Bitertanol, Pyrazophos, Promecarb, Paraaxon-methyl, Tebufenozide, Dimethomorph, Mepanipyrim, Acephate, Phenmedipham, Quinalphos, Chlorpyrifos, Mefenpyr-Diethyl, Tebufenpyrad, Aldicarb, Etrimfos, Methiocarb sulfone, Oxamyl, Picoxystrobin, Triflurumuron, Fonofos, Formothion, Myclobutanil, Propaquizafop, Tetrachlorvinphos, Spiroamine, Cyanazine, Dialifos, Monolinuron, Methoprottryne, Quizalofop-ethyl, Dioxathion, Triadimefon, Benzoylprop-Ethyl, Spiroamine-2, Pyraclostrobin, Triflumizole, Profenofos, Propoxur, Linuron, Carbophenothion, Cyprodinil, Allethrin, Spirodiclofen, Ethiofencarb sulfone, Propanil, Dimethomorph-2, Pendimethalin, Haloxyfop-methyl, Malathion, Fenoxycarb, Haloxyfop-2-Ethoxyethyl, Isoxaben, Tricyclazole, Tebupirimfos, Mecarbam, Sulfotep, Isoproturon, Ditalimfos, Thiodicarb, Phenthoate, Phorate, Zoxamide, Pyridaben, Dimethenamide, Pyracarbolid, Fenamiphos, Methamidophos, Metalaxyl, Flufenacet, Thiachlopid, Diazinon, Vamidothion, Metolachlor, Pyridafenthion, Clomazone, Ediphenphos, Carboxin, Furathiocarb, Azoxystrobin, Methiocarb sulfoxide, Pencycuron, Fenazaquin, Carbendazim, Terbutylazin, Pyriproxifen, Buprofezin, Furalaxyl, Triazophos	UNI EN 15662:2018	LC-MS-MS	

Alimenti per bambini a base di mais, farina di orzo, farina di mais, polenta, farina di frumento e alimenti a base di cereali destinati a lattanti e prima infanzia, cereali e prodotti derivati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Zearalenone (ZON)	UNI EN 15850:2010		

Alimenti sfusi o preconfezionati destinati ad essere consumati previa cottura (esclusi latte e derivati del latte)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Listeria monocytogenes (MPN/g o ml di campione)	OM 07/12/1993 GU n° 291 13/12/1993 All 3 (escluso mobilita' e test biologico p.to 15 All 3)		

Alimenti Vegetali, prodotti acidificati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
pH	AOAC 981.12 1982		

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Alimenti, Alimenti zootecnici

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Attività dell'acqua	ISO 18787:2017		

Alimenti, Cereali, legumi e prodotti derivati, Mangimi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta microrganismi a 30°C (UFC/"x" g o "x" ml di campione)	UNI EN ISO 4833-1:2013		
Conta microrganismi a 30°C (UFC/"x" g o "x" ml di campione)	EC 1 2014 UNI EN ISO 4833-2:2013		

Alimenti, conserve vegetali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Anidride solforosa, solfiti	DM 03/02/1989 GU n°168 20/07/1989 SO n°51 Met. 30 B	spettrofotometria	

Alimenti, Mangimi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ceneri	Rapporti ISTISAN 1996/34 pag 77		
Conta Batteri anaerobi solfito riduttori, Conta Clostridi solfito riduttori (UFC/"x" g o "x" ml di campione)	ISO 15213:2003		
Conta Coliformi termotolleranti a 44° C (UFC/"x" g o "x" ml di campione)	NF V08-060 2009		
Conta Escherichia coli beta glucuronidasi positivi (UFC/"x" g o "x" ml di campione)	ISO 16649-2:2001		
Conta Lattobacilli mesofili (UFC/"x" g o "x" ml di campione)	ISO 15214:1998		
Conta Listeria monocytogenes (UFC/"x" ml o "x" g di campione)	UNI EN ISO 11290-2:2017		
Conta Stafilococchi coagulasi positivi (Staphylococcus aureus e altre specie) (UFC/"x" g o "x" ml di campione)	UNI EN ISO 6888-1:2018 EC 1:2019		
Conta Streptococchi fecali, enterococchi (UFC/"x" g o "x" ml di campione)	NMKL n° 68 5th Ed. 2011		
Nitrati, Nitriti	Rapporti Istisan 1996/34 pag 176		
Ricerca Listeria monocytogenes (presenza-assenza/"x" g o su "x" ml di campione)	UNI EN ISO 11290-1:2017		
Ricerca Salmonella spp (presenza-assenza/"x" g o su "x" ml di campione)	AFNOR UNI 03/06-12/07		

Alimenti, Mangimi, Cosmetici

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cosmetici - LOQ 0,100 mg/Kg: Alluminio, Antimonio, Arsenico, Bario, Berillio, Cadmio, Cobalto, Cromo, Ferro, Manganese, Mercurio, Molibdeno, Nichel, Piombo, Rame, Selenio, Stagno, Tallio, Vanadio, Zinco, Calcio, Sodio, Magnesio, Potassio, Fosforo Alimenti & Mangimi - analiti con LOQ 0,100 mg/Kg: Alluminio, Antimonio, Bario, Berillio, Cobalto, Cromo, Ferro, Manganese, Molibdeno, Nichel, Rame, Selenio, Stagno, Tallio, Vanadio, Zinco, Calcio, Sodio, Magnesio, Potassio, Fosforo Alimenti & Mangimi - analiti con LOQ 0,010 mg/Kg: Arsenico, Cadmio, Mercurio, Piombo	MP 006 rev 11 2020	ICP-MS	

Ambienti di vita, ambienti di lavoro

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Carica batterica mesofila, Conta Carica batterica psicrofila, Conta Carica micetica totale (UFC/m3)	M.U. 1962-2:06		

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Ammendanti del suolo, compost, substrati di coltura

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Acidi umici e fulvici, Humus totale	UNI 10780:1998 App F		
Ammoniaca (da calcolo), Azoto ammoniacale	UNI EN 13652:2001 + ISO 7150-1:1984		
Arsenico, Cadmio, Cromo, Molibdeno, Nichel, Piombo, Rame, Selenio, Zinco	UNI EN 13650:2002 + EPA 6020B ICP-MS 2014		
Azoto nitroso, Azoto nitrico	UNI EN 13652:2001 + UNI EN ISO 10304-1:2009		
Azoto totale - Kjeldahl modificato	UNI EN 13654-1:2001 + ISO 7150-1:1984		
Boro	UNI 10780 :1998 App G		
Conducibilità e salinità	UNI 10780:1998 App D		
Contenuto di plastica e vetro	UNI 10780:1998 App A		
Fosforo, Fosfati	UNI EN 13652:2001 + APAT CNR IRSA 4110 A1 Man 29 2003		
Nitrati, Solfati, Cloruri, Fluoruri, Nitriti, Azoto nitroso, Azoto nitrico, fosfati	UNI EN 13652:2001 + UNI EN ISO 10304-1:2009	IC	
pH	UNI EN 13037:2012	potenziometria	
Potassio, Calcio, Magnesio, Sodio, Rame, Ferro, Manganese, Zinco	UNI EN 13652:2001 + EPA 6020B ICP-MS 2014		
Sostanza organica e ceneri	UNI EN 13039:2012	Gravimetria	
Umidità, Sostanza secca	UNI 10780:1998 App C		

Ammendanti del suolo, compost, substrati di coltura, SEDIMENTI

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Conta Streptococchi fecali (MPN/g)	APAT CNR IRSA 4 Man 20 2003		
Ricerca Salmonella spp (presenza-assenza/"x" g di campione)	UNI 10780:1998 App. H		

Aria in ambienti confinati, aria ambiente, aria negli ambienti di lavoro, Filtri da ambienti di lavoro

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Fibre di amianto aerodisperse (MOCF)	DM 06/09/1994 GU n° 220 20/09/1994 All 2A	MOCF	

Aria: Ambienti indoor e ambienti outdoor

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Fibre di amianto aerodisperse mediante microscopia elettronica a scansione (SEM). Fibre di amianto: Crisotilo, Crocidolite, Amosite, Tremolite, Fibre di amianto totali, Fibre organiche, Fibre inorganiche non di amianto.	DM 06/09/1994 GU n° 288 10/12/1994 All 2 Met B	SEM-EDS	

Aria: emissioni da sorgente fissa, flussi gassosi convogliati

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Composti organici volatili: esano, acetone, metilacetato, etilacetato, metiletilchetone, benzene, n-propilacetato, isopropilacetato, metilisobutilchetone, isobutilacetato, 1-butanolo, 2-butanolo, toluene, 1,2-dicloropropano, etilbenzene, xileni, stirene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, cicloesano, cicloesanone, Cloroformio, 1,1,1-tricloroetano, tetracloruro di carbonio, tricloroetilene, 1,1,2-tricloroetano, tetracloroetilene, 1,1,1,2-tetracloroetano, 1,1,2,2-tetracloroetano, esaclorobutadiene, idrocarburi non metanici (come sommatoria COV)	UNI CEN/TS 13649:2015	GC-MS	

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Burro

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
pH	ISO 7238:2004 (IDF 104:2004)	potenziometria	

Carne e prodotti a base di carne, incluso pollame

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Pseudomonas spp presunto (UFC/"x" g o "x" ml di campione)	ISO 13720:2010		

Carne fresca, preparazioni di carni, prodotti a base di carne

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca Campylobacter spp (presenza-assenza/"x" g o "x" ml di campione)	AFNOR BIO 12/30-05/10		

Carne, prodotti carnei

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
pH	ISO 2917:1999	potenziometria	

Carni e prodotti carnei, compresi salumi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca Inibenti (fino a 7 ceppi): Bacillus subtilis BGA, Bacillus cereus ATCC 11778, Bacillus cereus K250, Bacillus stearothermophilus ATCC 10149, Micrococcus luteus ATCC 10240, Kocuria rhizophila ATCC 9341, Escherichia coli ATCC 8739	DM 10/03/1997 GU n° 103 06/05/1997 All. IX		

Ceramica, Disciplina degli oggetti di ceramica destinati ad entrare in contatto con i prodotti alimentari

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cessione di Cadmio e Piombo	DM 04/04/1985 GU n°98 26/04/1985; DM 01/02/2007 GU n°66 20/03/2007	ICP-MS	

Cereali e derivati, Legumi secchi, Frutta secca a guscio, Semi Oleaginosi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Glifosato e AMPA (LOQ 0.010 mg/Kg)	MP 251 rev 1 2019	LC-MS-MS	

Cereali e derivati, Prodotti a base di soia

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca di organismi geneticamente modificati (OGM) tramite screening dei target: Promotore 35S, terminatore NOS, promotore FMV, NPTII, PAT, CTP2:CP4 EPSPS, BAR, Soia MON 87708, Soia CV127, Soia DP305423, Soia MON 87701, Soia MON 87769 (LOD: 0.01 mg/kg)	MP 253 rev 0 2019	PCR Real Time	

Cereali e derivati, Prodotti carnei compresi Salumi, Supporti da campionamento superfici ambienti del settore alimentare

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Glutine di frumento (Gliadina)	AOAC 991.19 2001	ELISA	

Cereali e legumi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Determinazione del contenuto di azoto e calcolo del contenuto di proteine grezze - Metodo Kjeldahl	UNI EN ISO 20483:2014	titrimetria	

Cereali, frutti in guscio e prodotti derivati, Alimenti ad uso zootecnico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Aflatossina B1, Aflatossina B2, Aflatossina G1, Aflatossina G2 e Aflatossine totali (B1, B2, G1, G2); Deossinivalenolo (DON); Ocratossina A; (>1,0 ug/Kg (B1, G1); >0,55 ug/Kg (B2, G2); >3,0 ug/Kg (somma B1, B2, G1, G2); > 50 ug/Kg (DON); >0,25 ug/Kg (OTA);)	MP 009 rev 10 2018	HPLC	

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Cereali, Mangimi, Pane, Paste alimentari, Sfarinati e derivati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Sostanza grassa	DM 23/07/1994 n° 4 SO 14 GU 10/08/94		
Umidità	DM 27/05/1985 GU n° 145 21/06/1985		

Cereali, Pane, Paste alimentari, Sfarinati e derivati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acidità	Rapporti ISTISAN 1996/34 Pag 227-228		

Combustibili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Fattore di emissione: Biossido di carbonio (da calcolo)	UNI EN 15936:2012 + Reg EU 601/2012 n° 71 del 21/06/2012 GU L 181 del 12/07/2012		

Combustibili solidi secondari (Rifiuti e matrici combustibili assimilabili)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cloro, zolfo, fluoro , bromo	UNI EN 15408:2011+UNI EN ISO 10304-1:2009	Calorimetria + cromatografia ionica	

Conserve vegetali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
pH	DM 03/02/1989 SO GU 168 20/07/1989 p.to 17		

Cosmetici

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta e ricerca batteri mesofili aerobi (UFC/"x" g o "x" ml di campione)	UNI EN ISO 21149:2017		
Conta Enterobatteriacee (UFC/"x" g o "x" ml di campione)	FDA-BAM 8th Ed Cap 23 2017		
Conta Lieviti e muffe (UFC/"x" g o "x" ml di campione)	UNI EN ISO 16212:2017		
Ricerca Candida albicans (presenza-assenza/"x" g o su "x" ml di campione)	EC-1 2017 UNI EN ISO 18416:2016		
Ricerca Escherichia coli (presenza-assenza/"x" g o su "x" ml di campione)	UNI EN ISO 21150:2016		
Ricerca Pseudomonas aeruginosa (presenza-assenza/"x" g o su "x" ml di campione)	UNI EN ISO 22717:2016		
Ricerca Staphylococcus aureus (presenza-assenza/"x" g o su "x" ml di campione)	UNI EN ISO 22718:2016		

Effluenti industriali o di scarico (trattati o non trattati), acque di superficie, acque interstiziali, acque freatiche, sostanze chimiche

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Inibizione della mobilità della Daphnia Magna Straus (Cladocera, Crustacea)	UNI EN ISO 6341:2013		

Fanghi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Fluoruri	CNR IRSA 14 Q 64 Vol 3 1996		

Fanghi per riutilizzo come fertilizzanti , fertilizzanti, concimi, ammendanti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto totale	DM 24/03/1986 GU n° 180 05/08/1986 Met 2.3	titrimetria	

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Carbonio organico	DM 17/09/1989 GU n° 196 23/08/1989 Parte II DM 21/12/2000 GU n° 21 26/01/2001 Suppl. n° 6	titrimetria
Fosforo	DM 24/03/1986 GU n° 180 05/08/1986 Met 3.1 + E	spettrofotometria
Grado di umificazione	DM 23/01/1991 GU n° 29 04/02/1991 DM 21/12/2000 GU n° 21 26/01/2001	titrimetria

Fanghi, compost

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Conta Enterobatteriacee (UFC/"x" g o "x" ml di campione)	APAT CNR IRSA 5 Man 20 2003		

Fanghi, Rifiuti

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Berillio	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3100 A Man 29 2003		
Cadmio	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3120 B Man 29 2003		
Cobalto	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3140 A Man 29 2003		
Conta Salmonella spp (MPN/gss)	CNR IRSA 1 Q 64 Vol 1 1983 + APHA Standard Methods for the Examination of Water and Wastewater, ed 23rd 2017 , 9260 D		
Cromo	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3150 B1 Man 29 2003		
Ferro	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3160 B Man 29 2003		
Manganese	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3190 B Man 29 2003		
Nichel	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3220 B Man 29 2003		
pH	CNR IRSA 1 Q 64 Vol 3 1985	potenziometria	
Piombo	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3230 B Man 29 2003		
Rame	CNR IRSA 10 Q 64 Vol 3 1985 + APAT CNR IRSA 3250 B Man 29 2003		

Fanghi, Rifiuti solidi, Sedimenti, Suoli

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
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Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene; Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab1)	EPA 3545A 2007 + EPA 8270E 2018	GC-MS
Idrocarburi: DROs, C>12	EPA 3545A 2007 + EPA 8015D 2003	
Idrocarburi: GROs + DROs, idrocarburi totali	EPA 5021A 2014 + EPA 8015D 2003; EPA 3545A 2007 + EPA 8015D 2003	GC
PCDD e PCDF: Policlorodibenzodiossine (PCDD) sostituite in 2,3,7,8: 2,3,7,8-Tetraclorodibenzodiossina (TCDD); 1,2,3,7,8-Pentaclorodibenzodiossina (PeCDD); 1,2,3,4,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,6,7,8-Esaclorodibenzodiossina (HxCDD); 1,2,3,7,8,9-Esaclorodibenzodiossina (HxCDD); 1,2,3,4,6,7,8-Eptaclorodibenzodiossina (HpCDD); Octaclorodibenzodiossina (OCDD); Policlorodibenzofurani (PCDF) sostituiti in 2,3,7,8: 2,3,7,8-Tetraclorodibenzofurano (TCDF); 1,2,3,7,8-Pentaclorodibenzofurano (PeCDF); 2,3,4,7,8-Pentaclorodibenzofurano (PeCDF); 1,2,3,4,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,7,8,9-Esaclorodibenzofurano (HxCDF); 2,3,4,6,7,8-Esaclorodibenzofurano (HxCDF); 1,2,3,4,6,7,8-Eptaclorodibenzofurano (HpCDF); 1,2,3,4,7,8,9-Eptaclorodibenzofurano (HpCDF); Octaclorodibenzofurano (OCDF);	EPA 3545A 2007 + EPA 8280B 2007	GC-MSQQQ
Pesticidi AZOTATI: Ametrina, Atrazina, Metribuzin, Pendimetalin, Prometon, Prometryn, Propazine, Simazina, Simetrina, Terbutilazina, Terbutrina, Trifluralin	EPA 3545A 2007 + EPA 8270E 2018	GC-MS
Pesticidi CARBAMMICI: carbaril, carbofuran	EPA 3545A 2007 + EPA 8270E 2018	GC-MS
PESTICIDI CLORURATI: alaclor, aldrin, alfa-HCH, beta-HCH, delta-HCH, gamma-HCH (lindano), dieldrin, endosulfan I, endosulfan II, endosulfan solfato, endrin, eptaclor, eptaclor epossido, p,p-DDD, p,p-DDE, p,p-DDT, o,p-DDD, o,p-DDE, o,p-DDT, clordano (somma di cis- e trans-clordano), cis-clordano, trans-clordano, Procimidone	EPA 3545A 2007 + EPA 8270E 2018	GC-MS
PESTICIDI CLORURATI: alaclor, aldrin, alfa-HCH, beta-HCH, delta-HCH, gamma-HCH (lindano), dieldrin, endosulfan I, endosulfan II, endosulfan solfato, endrin, eptaclor, eptaclor epossido, p,p-DDD, p,p-DDE, p,p-DDT, o,p-DDD, o,p-DDE, o,p-DDT, clordano (somma di cis- e trans-clordano), cis-clordano, trans-clordano	EPA 3550C 2007 + EPA 8270E 2018	GC-MS
Pesticidi FOSFORATI: Azinfos etile, Azinfos metile, Bromofos etile, Bromofos metile, Cadusafos, Carbofenotion, Clorpirifos, Clorfenvifos, Coumaphos, Diazinone, Diclorvos, Dimetoato, Disulfoton, Ditalimfos, Etion, Etoprofos, Fenamifos, Fenitrotrion, Fention, Fentoato, Forate, Formotion, Fosalone, Fosfamidone, Iodofenfos, Malation, Mevinfos, Paration etile, Paration metile, Piridafention, Pirimifos etile, Pirimifos metile, Phosmet, Profenofos, Protoato, Protiofos, Quinalfos, Sulfotep, Terbufos, Tetraclorvinfos, Tionazin, Triazofos;	EPA 3545A 2007 + EPA 8270E 2018	GC-MS

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Policlorobifenili (PCB): PCB 28 + PCB 31, PCB 52, PCB 77, PCB 81, PCB 95, PCB 99, PCB 101, PCB 105, PCB 110, PCB 114, PCB 118, PCB 123, PCB 126, PCB 128 + PCB 167, PCB 138, PCB 146, PCB 149, PCB 151, PCB 153, PCB 156, PCB 157, PCB 169, PCB 170, PCB 177, PCB 180, PCB 183, PCB 187, PCB 189; Esabromobifenili: PBB 155, PBB 153, Sommatoria Esabromobifenili (PBB 153 + PBB 155); Sommatoria Policlorobifenili (PCB), PCB Totali

EPA 3550C 2007 + EPA 8270E 2018 GC-MS

Policlorobifenili (PCB): PCB 28 + PCB 31, PCB 52, PCB 77, PCB 81, PCB 95, PCB 99, PCB 101, PCB 105, PCB 110, PCB 114, PCB 118, PCB 123, PCB 126, PCB 128 + PCB 167, PCB 138, PCB 146, PCB 149, PCB 151, PCB 153, PCB 156, PCB 157, PCB 169, PCB 170, PCB 177, PCB 180, PCB 183, PCB 187, PCB 189; Esabromobifenili: PBB 155, PBB 153, Sommatoria Esabromobifenili (PBB 153 + PBB 155); Sommatoria Policlorobifenili (PCB), PCB Totali

EPA 3545A 2007 + EPA 8270E 2018 GC-MS

Semi Volatile Organic Compounds: nitrobenzeni: nitrobenzene; 1,2-dinitrobenzene; 1,3-dinitrobenzene; cloronitrobenzeni-clorobenzoni: monoclorobenzene; 1,2-diclorobenzene; 1,4-diclorobenzene; 1,2,4-triclorobenzene; 1,2,4,5-tetraclorobenzene; pentaclorobenzene; esaclorobenzene- fenoli clorurati e non clorurati: metilfenolo(o-,m-,p-); fenolo; 2-clorofenolo; 2,4-diclorofenolo; 2,4,6-triclorofenolo; pentaclorofenolo- ammine aromatiche: anilina; difenilamina; o-anisidina; p-toluidina; Ftalati: Dimetilftalato, Dietilftalato, Dibutilftalato, Di-iso-ottilftalato, Di-n-ottilftalato

EPA 3545A 2007 + EPA 8270E 2018 GC-MS

Fanghi, Rifiuti solidi, Sedimenti, Suoli, Compost

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acido p-ftalico	EPA 3550C 2007 + EPA 8321B 2007	HPLC	
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene; Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab1)	EPA 3550C 2007 + EPA 8270E 2018	GC-MS	
Idrocarburi: DROs, C>12	EPA 3550C 2007 + EPA 8015D 2003	GC-FID	

Fanghi, Rifiuti, Compost, Sedimenti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Escherichia Coli (MPN/g)	Rapporti ISTISAN 14/18 Met ISS F 001D rev.00		
Microrganismi indicatori di inquinamento fecale: Conta Coliformi fecali, (MPN/g)	CNR IRSA 3.2 Q 64 Vol 1 1983 + APAT CNR IRSA 7020 A Man 29 2003		
Microrganismi indicatori di inquinamento fecale: Conta Coliformi totali (MPN/g)	CNR IRSA 3.1 Q 64 Vol 1 1983 + APAT CNR IRSA 7010 A Man 29 2003		
Microrganismi indicatori di inquinamento fecale: Conta Spore di anaerobi solfito riduttori (MPN/g)	CNR IRSA 3.4 Q 64 Vol 1 1983 + APAT CNR IRSA 7060 A Man 29 2003		

Fanghi, Rifiuti, Sedimenti, Suoli

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Alluminio, Antimonio, Argento, Arsenico, Bario, Berillio, Boro, Cadmio, Calcio, Cobalto, Cromo, Ferro, Litio, Magnesio, Manganese, Mercurio, Molibdeno, Nichel, Piombo, Potassio, Rame, Selenio, Sodio, Stagno, Stronzio, Tallio, Vanadio, Zinco, Titanio, Tellurio, Palladio	EPA 3051A 2007 + EPA 6020B 2014	ICP-MS	

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Benzene, Etilbenzene, Stirene, Toluene, Xileni, Sommatoria composti organici aromatici (DLgs. 152/06 Parte IV Titolo V All5 Tab1), 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, Isopropilbenzene, n-propilbenzene, Naftalene, butilbenzeni, Clorobenzene, 1,2-Diclorobenzene, 1,3-Diclorobenzene, 1,4-Diclorobenzene, Metilt-butiletere (MTBE), Clorometano, Diclorometano, Cloroformio, cloruro di vinile, 1,2-dicloroetano, 1,1-dicloroetilene, Tricloroetilene, Tetracloroetilene, 1,1-dicloroetano, 1,2-dicloroetilene, 1,1,1-tricloroetano, 1,2-dicloropropano, 1,1,2-tricloroetano, 1,2,3-tricloropropano, 1,1,2,2-tetracloroetano, Bromoformio, 1,2-dibromoetano, Dibromoclorometano, Bromodiclorometano, Esaclorobutadiene (0,001 ÷ 100 mg/kg); 1,2,4-triclorobenzene Etil ter-butyl etere (ETBE), piombo tetraetile

EPA 5035A 2002 + EPA 8260D 2018 GC-MS

Cianuri liberi

EPA 9010B 1996 + EPA 9014 2014

Etil ter-butyl etere (ETBE), piombo tetraetile, iso propilBenzene (cumene), n-propilbenzene

EPA 5021A 2014 + EPA 8015D 2003 GC

Grado di reazione (pH)

DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met III.1
DM 25/03/2002 GU n° 84 10/04/2002 potenziometria

Idrocarburi C<12

UNI EN ISO 16558-1:2015 GC-FID

Idrocarburi: GROs, C<12

EPA 5021A 2014 + EPA 8015D 2003 GC

Residuo secco a 105°C, Umidità

DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met II.2

Solidi sospesi fissi, Residuo a 550°C, Solidi sospesi totali (SST), Solidi sospesi volatili (SSV)

CNR IRSA 1.4 Q 64 vol 2 1984

Gravimetria

Fanghi, Rifiuti, Sedimenti, Suoli, Ammendanti del suolo, compost, substrati di coltura

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Cromo VI

CNR IRSA 16 Q 64 vol 3 1983

spettrofotometria

Fanghi, Rifiuti, Sedimenti, Suoli, Compost

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Composti organici dello stagno: Monobutilstagno (MBT); Dibutilstagno (DBT); Tributilstagno (TBT); Tetrabutilstagno (TTBT)

UNI EN ISO 23161:2019

GC-MS

Idrocarburi alogenati: Vinilcloruro; monoclorobenzene, Cloroformio; 1,1,1-Tricloroetano; Tetraclorometano; Tricloroetilene; Tetracloroetilene; 1,1-Dicloroetilene; 1,2-Dicloroetano; 1,2-Dicloroetilene; 1,2-Dicloropropano; 1,1,2-Tricloroetano; 1,1,2,2-Tetracloroetano; Clorometano; 1,2,3-Tricloropropano; Esaclorobutadiene; 1,1-Dicloroetano; Dibromoclorometano; Bromodiclorometano; Tribromometano; 1,2-Dibromoetano, Solventi clorurati totali, trialometani totali, Sommatoria clorurati; Solventi organici aromatici: Benzene, Toluene, Etilbenzene, Xileni, iso e n-Propilbenzene, Stirene, Sommatoria composti organici aromatici totali, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene), Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni); Metil t-butiletere (MTBE), Etil t-butiletere (ETBE);

UNI EN ISO 22155:2016

GC

Peso specifico

APHA Standard Methods for the Examination of Water and Wastewater, ed 23rd 2017, 2710 F

gravimetria

Fanghi, rifiuti, terreni, sedimenti

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

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Amianto (Polveri e fibre libere), Amianto

CNR IRSA Q 64 vol 3 1996 App FT-IR
III Fase A + DM 06/09/1994 GU
n° 220 20/09/1994 All 1 A
(escluso campionamento)

Conta di lieviti e ifomiceti (muffe)

CNR IRSA 5 Q 64 Vol 1 1983

METALLI: Alluminio, Antimonio, Arsenico, Boro, Bario, Calcio, Berillio, Cadmio, Cobalto, Cromo, Rame, Manganese, Nichel, Piombo, Zinco, Mercurio, Molibdeno, Vanadio, Magnesio, Potassio, Selenio, Sodio, Tellurio, Tallio, Stagno

UNI EN 13657:2004 + UNI EN ICP-MS
ISO 17294-2:2016

Fanghi, Terreni, Suoli, Rifiuti

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Residuo Secco a 105°C

UNI EN 14346:2007

gravimetria

Fiale provenienti da campionamento di emissioni, supporti di captazione aria

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Composti organici volatili: esano, acetone, metilacetato, etilacetato, metiletilchetone, benzene, n-propilacetato, isopropilacetato, metilisobutilchetone, isobutilacetato, 1-butanolo, 2-butanolo, toluene, 1,2-dicloropropano, etilbenzene, xileni, stirene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, cicloesano, cicloesanone, Cloroformio, 1,1,1-tricloroetano, tetracloruro di carbonio, tricloroetilene, 1,1,2-tricloroetano, tetracloroetilene, 1,1,1,2-tetracloroetano, 1,1,2,2-tetracloroetano, esaclorobutadiene, idrocarburi non metanici (come sommatoria COV)

UNI CEN/TS 13649:2015 (escluso campionamento)

Filtri provenienti da campionamento di ambienti di lavoro

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Frazione respirabile delle particelle aerodisperse

M.U. 2010:11 (escluso campionamento)

Filtri provenienti da campionamento di aria

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Particolato in sospensione PM10

MP 150 rev 2 2014

Gravimetria

Filtri provenienti da campionamento di emissioni (polveri)

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Antimonio, Argento, Arsenico, Bario, Berillio, Cadmio, Cobalto, Cromo, Ferro, Manganese, Mercurio, Nichel, Piombo, Rame, Selenio, Tallio, Vanadio, Zinco

M.U. 723 1986 Man 122 1989 III ICP-MS
+ EPA 6020B 2014 (escluso campionamento)

Filtri provenienti da campionamento di emissioni, supporti di captazione aria

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Polveri totali

UNI EN 13284-1:2017 (escluso campionamento)

Filtri provenienti da campionamento in ambienti di lavoro

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Frazione inalabile delle particelle aerodisperse (Polveri)

M.U. 1998:13 (escluso campionamento)

Filtri, fiale e soluzioni provenienti da campionamento di emissioni, flussi gassosi convogliati

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

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Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene, IPA totali

M.U. 825:89 + DM 25/08/2000
GU n° 223 23/09/2000 All 3
(escluso campionamento)

Policlorobifenili (PCB): Aroclor 1254, Aroclor 1260, Aroclor 1248, Aroclor 1242, Aroclor 1232, Aroclor 1221, Aroclor 1016; Policlorobifenili (PCB) totali

M.U. 825:89 (escluso campionamento)

Fluidi biologici (urina e bile)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Analiti con LOQ 0,2 µg/L: Clenbuterolo, Clenpenterolo, Isossisuprina, Mapenterolo, 16-idrossi-stanozololo	MP 217 rev 0 2019	LC-MS-MS	
Analiti con LOQ 1,0 µg/L: Beclometasone, Betametasona, Desametasona, Flumetasone, Prednisone, Triamcinolone acetone, alfa-Trenbolone, beta-Trenbolone, alfa-Boldenone, beta-Boldenone, Androstenedione, 17-alfa-Metiltestosterone, Boldione, Stanozololo, alfa-Estradiolo, beta-Estradiolo, Etinilestradiolo, alfa-Zeranolone, beta-Zeranolone, alfa-Zearalenone, beta-Zearalenone, Zearalenone, Esetrolo, Dienestrolone, Dietilstilbestrolo			

Formaggi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Sostanza grassa	DM 21/04/1986 GU n° 229 02/10/1986 pag 9-12 SO n° 88		
Umidità	DM 21/04/1986 GU n 229 02/10/1986 pag 8-9 SO n° 88		

Frutta secca a guscio (allergene mandorla); Prodotti Carnei compresi Salumi (allergeni pistacchio, sedano, arachide e soia); Cereali e derivati (allergene soia, arachide, mandorla e pistacchio); Paste alimentari (allergeni soia, arachide, mandorla, pistacchio e crostacei); Prodotti da forno e/o di pasticceria (allergeni soia, arachide, mandorla e pistacchio)
Conservare e semiconservare (allergene arachide, senape, sedano); Prodotti Gastronomici (allergene senape e sedano); Supporti da campionamento superfici ambienti del settore alimentare (allergeni pistacchio, sedano, arachide, sesamo anacardo, soia, pesce, molluschi, crostacei e mandorla)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Identificazione qualitativa di specie allergeniche: Allergeni mandorla, pistacchio, sedano, arachide, sesamo, anacardo, soia, pesce, molluschi e crostacei, senape Allergene mandorla in Frutta secca a guscio (LOD 0.5 mg/kg - 1-10 copie genomiche); Allergeni pistacchio, sedano, arachide e soia in Prodotti Carnei compresi Salumi (LOD 0.5 mg/Kg - 1-10 copie genomiche); Allergeni senape e sedano in Conservare e semiconservare e Prodotti Gastronomici (LOD 0.5 mg/Kg - 1-10 copie genomiche); Allergeni soia, arachide, mandorla e pistacchio in Cereali e derivati, Paste alimentari e Prodotti da forno e/o di pasticceria (LOD 0.5 mg/Kg - 1-10 copie genomiche); Allergene crostacei in Paste alimentari (LOD 1.0 mg/Kg - 1-10 copie genomiche); Allergene Arachide in Conservare e semiconservare (LOD 1.0 mg/Kg - 1-10 copie genomiche) Allergeni pistacchio, sedano, arachide, sesamo, anacardo, soia, pesce e mandorla in supporti da campionamento superfici ambienti del settore alimentare (LOD 0.3 µg/tampone - 1-10 copie genomiche); Allergene molluschi in supporti da campionamento superfici ambienti del settore alimentare (LOD 3.0 µg/tampone - 1-10 copie genomiche); Allergene crostacei in supporti da campionamento superfici ambienti del settore alimentare (LOD 1.0 µg/tampone - 1-10 copie genomiche);	MP 252 rev 5 2020	PCR Real Time	

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Frutta secca; Conserve e semiconserve; Prodotti ittici; Supporti da campionamento superfici ambienti del settore alimentare

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Anidride solforosa, solfiti (LOQ come SO ₂ : Frutta secca, Conserve e semiconserve; Prodotti ittici 10 mg/Kg; Supporti da campionamento superfici ambienti del settore alimentare 0,05 mg/tampone)	MP 277 Rev 0 2019	titrimetria	

Frutta, prodotti vegetali

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
pH	ISO 1842:1991	potenziometria	

Latte

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Aflatossina M1	UNI EN ISO 14501:2008		

Mangimi

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Composizione e contenuto di steroli	NGD C 71 1989		

Materiali d'imballaggio flessibili

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Solventi residui mediante gascromatografia dello spazio di testa statico	UNI EN 13628-2:2004		

Materiali ed articoli (imballaggi, recipienti, utensili di materia plastica, gomme e materiali simili) in contatto con gli alimenti

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Migrazione globale nei simulanti alimentari: determinazione del residuo totale e degli estraibili in cloroformio	FDA 21 CFR 174/175/177:2004		

Materiali ed articoli (in acciaio inox) in contatto con gli alimenti

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Migrazione specifica di Cromo, Nichel, Manganese	DM 21/3/1973 GU SO n.104 20/04/1973 All.IV Sez.2 p.ti 3, 5 e 10 + DM 11/11/2013 n.140 GU n° 294 16/12/2013 + DM 06/08/15 n. 195 GU n° 288 del 11/12/2015	ICP-MS	

Materiali massivi (da costruzione ed altri)

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Amianto (solo Crisotilo)	M.U. 1978:06	FT-IR	

Materiali solidi

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Contenuto di amianto	DM 06/09/1994 GU n° 288 10/12/1994 All 3	Microscopio ottico a luce polarizzata	
Contenuto di amianto (SEM), Amianto	DM 06/09/1994 GU n° 288 10/12/1994 All 1 Met B	SEM-EDS	

Materie plastiche, imballaggi e oggetti a contatto con alimenti

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
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Migrazione globale con simulanti oleosi per immersione totale

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I) +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
1186-1:2003 + UNI EN
1186-2:2003

Migrazione globale con simulanti oleosi per riempimento

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I) +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
1186-1:2003 + UNI EN
1186-8:2003

Migrazione globale in simulante acqua, Migrazione globale in
simulante soluzione acquosa di acido acetico al 3%, Migrazione
globale in simulante soluzioni acquose di etanolo per immersione
totale

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I) +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
1186-1:2003 + UNI EN
1186-3:2003

Migrazione globale in simulante acqua, Migrazione globale in
simulante soluzione acquosa di acido acetico al 3%, Migrazione
globale in simulante soluzioni acquose di etanolo per riempimento

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I) +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
1186-1:2003 + UNI EN
1186-9:2003

Migrazione specifica di cloruro di vinile monomero

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV, SEZ. II,
Metodo 6) + Reg. (EU) n.
10/2011 GUUE L 12 del
15/01/2011 (All V) + Reg. (UE)
2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017

Migrazione specifica di formaldeide

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I), +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
13130-1:2005 + UNI CEN/TS
13130-23:2006

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Migrazioni specifiche di acido tereftalico

DM 21/03/1973 SO GU n° 104 HPLC
del 20/04/1973 (All IV SEZ. I), +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
13130-1:2005 + UNI EN
13130-2:2005

Migrazioni specifiche di glicoli etilenico e dietilenico

DM 21/03/1973 SO GU n° 104
del 20/04/1973 (All IV SEZ. I), +
Reg. (EU) n. 10/2011 GUUE L 12
del 15/01/2011 (All V) + Reg.
(UE) 2016/1416 GUUE L 230 del
22/08/2016 + Reg. (UE)
2017/752 GUUE L 113 del
29/04/2017 + UNI EN
13130-1:2005 + UNI EN
13130-7:2005

Rivelazione della migrazione di coloranti

DM 21/03/1973 GU n° 104
20/04/73 All IV SEZ. VII

Oli d'oliva

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Biofenoli (polifenoli totali)	NGD C89 -2010, COI/T.20/DOC. 29/Rev 1 - 2017	HPLC con detector DAD	
Cere, Alchilesteri degli acidi grassi: Esteri metilici, Esteri etilici, Rapporto esteri etilici e metilici	Reg. CEE 2568/1991 11/07/1991 GU CEE L248 05/09/1991 All XX Reg CE 61/2011 24/01/2011 GU CE L23/1 27/01/2011	GC	
Solventi alogenati	Reg CEE 2568/1991 11/07/1991 GU CEE L 248 05/09/1991 All XI		
Triacilgliceroli con ECN 42	Reg CEE 2568/1991 11/07/1991 GU CEE L248 05/09/1991 All XVIII Reg UE 299/2013 26/03/2013 GU UE L90/52 28/03/2013	HPLC	

Oli d'oliva e oli di sansa

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acidità	Reg CEE 2568/1991 11/07/1991 GU CEE L248 05/09/1991 All II Reg UE 1227/2016 27/07/2016 GU UE L202/7 28/07/2016	titrimetria	
Esteri metilici degli acidi grassi	Reg CEE 2568/1991 11/07/1991 GU CEE L 248 05/09/1991 All X Reg UE 1833/2015 12/10/2015 GU UE L266/29 13/10/2015	GC	

Oli d'oliva, oli di sansa, sostanze grasse

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Analisi spettrofotometrica nell'ultravioletto	Reg CEE 2568/1991 11/07/1991 GU CEE L248 05/09/1991 All IX Reg UE 1833/2015 12/10/2015 GU UE L266/29 13/10/2015	spettrofotometria	

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Cere

Reg CEE 2568/1991 11/07/1991
GU CEE L 248 05/09/1991 All IV
Reg CE 702/2007 21/06/2007 GU
CE L 161 22/06/2007

Dialcoli triterpenici: Eritrodiolo e uvaolo

Reg CEE 2568/1991 11/07/1991 GC
GU CEE L248 05/09/1991 All V
Reg UE 1348/2013 16/12/2013
GU CE L338 17/12/2013 All IV
Reg UE 1833/2015 12/10/2015
GU UE L266/29 13/10/2015

Steroli: Colesterolo, Brassicasterolo, 24-MetilenColesterolo, Campesterolo, Campestanolo, Stigmasterolo, D7-Campesterolo, D5,23-Stigmasterolo, Clerosterolo, Sitosterolo, Sitostanol, D5-Avenasterolo, D5,24-Stigmasterolo, D7-Stigmastenolo, D7-Avenasterolo, Steroli totali, Betasitosterolo totale

Reg CEE 2568/1991 11/07/1991 GC
GU CEE L248 05/09/1991 All V
Reg UE 1348/2013 16/12/2013
GU CE L338 17/12/2013 All IV
Reg UE 1833/2015 12/10/2015
GU UE L266/29 13/10/2015

Oli e grassi

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Percentuale di 2-Gliceril monopalmitato

Reg CEE 2568/1991 11/07/1991
GU CEE L 248 05/09/1991 All VII
Reg CE 702/2007 21/06/2007 GU
CE L 161 22/06/2007

Oli e grassi animali e vegetali

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Acidità

UNI EN ISO 660:2009

Numero di perossidi

Reg CEE 2568/1991 11/07/1991 titrimetria
GU CEE L 248 05/09/1991 All III
Reg UE 1784/2016 30/09/2016
GU CEE L 273/5 08/10/2016

Tocoferoli

UNI EN ISO 9936:2016 HPLC

Oli e grassi animali e vegetali e loro trasformati

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Indice di rifrazione

NGD C 31 - 1976 rifrattometria

Oli e grassi animali e vegetali e loro trasformati, Sostanze grasse.

Denominazione della prova / Campi di prova

Metodo di prova

Tecnica di prova

O&I

Saggio di kreis

NGD C 56 - 1979 colorimetria

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Oli e grassi di origine vegetale

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
<p>3-Idrossi-carbofurano; 4,4' Metossicloro olefina; 6-Benziladenina; Acefato; Acetamidiprid; Acetocloro; Acibenzolar-s-metile; Acifluorfen; Aclonifen; Alacloro; Aldicarb; Aldicarb (somma di aldicarb, aldicarb solfosso e aldicarb solfone, espressa in aldicarb); Aldicarb solfone; Aldicarb solfosso; Alletrina; Alloxidim; Alossifop; Alossifop etossietile; Alossifop metile; Ametrina; Aminocarb; Anilofos; Antrachinone; Asulam; Atrazina; Azaconazolo; Azinfos etile; Azinfos metile; Azossistrobina; Benalaxil, comprese altre miscele di costituenti isomeri come benalaxyl-M (somma di isomeri); Bendiocarb; Benfluralin; Bentazone; Bentiaivalcarb (Bentiaivalcarb-isopropile (KIF-230 R-L) e relativi enantiomero (KIF-230 S-D) e diastereomeri (KIF-230 S-L e KIF-230 R-D), espressi in bentiaivalcarb-isopropile); Benzoilprop-etile; Benzossimato; Bentiazuron; Bifenile; Bifenox; Bioresmetrin; Bitteranolo (somma degli isomeri); Boscalid; Bromacile; Bromobutide; Bromociclene; Bromofos etile; Bromofos metile; Bromopropilato; Bromuconazolo (somma di diastereoisomeri); Bupirimato; Buprofezin; Butacloro; Butafenacil; Butossicarbossina; Butralin; Cadusafos; Carbaril; Carbendazim e benomil (somma di benomil e carbendazim espressa in carbendazim); Carbetamide (somma di carbetamide e del suo isomero S); Carbofenotion; Carbofurano; Carbofurano (somma di carbofurano (incluso carbofurano generato da carbosulfan, benfuracarb o furatiocarb) e 3-idrossi-carbofurano espressa in carbofurano); Carbossina; Carbosulfan; Carfentazone etile; Chinometionato; Cialofop butile; Cianazina; Ciazofamid; Ciclanilide; Cicloato; Cicluron; Ciflufenamid (somma di ciflufenamid (isomero Z) e del relativo isomero E, espressa come ciflufenamid); Ciflutrin (ciflutrin incluse altre miscele degli isomeri costituenti (somma degli isomeri)); Cimiazolo; Cimoxanil; Cipermetrina (cipermetrina, incluse altre miscele degli isomeri costituenti (somma degli isomeri)); Ciproconazolo; Ciprodinil; Cirmozina; Cletodim; Cletodim (somma di setossidim e cletodim inclusi prodotti di degradazione calcolati come setossidim); Climbazolo; Clodinafop propargile; Clofentezina; Clomazone; Cloquintocet meyl; Cloranttrilipirolo (DPX E-2Y45); Clorbenside; Clordano-cis; Clorfenapir; Clorfenon; Clorfeninfos; Clorfluzuron; Cloridazon; Clormefos; Clorobenzilato; Cloroneb; Cloropropilato; Clortalonil; Clorotoluron; Cloroxuron; Clorpirfos; Clorpirfos metile; Clortal-dimetile; Clortiofos; Clortion; Clotianidin; Crimidine; Cromafenocide; Cumafos; Cumatetrailil; DEET (Dietiltoluamide); Deltametrina (cis-deltametrina); Demeton-S-metile; Demeton-S-metilsolfone; Desetilazina; Desmedifam; Desmetrina; Dialifos; Diallyto; Diazinon; Diclobutrazolo; Didofention; Diclofluamide; Diclofop-metile; Dicloran; Dicrotofos; Dietofencarb; Difenamide; Difenoconazole; Diflubenzuron; Diflufenican; Dimepiperate; Dimetacolor; Dimetenamid, incluse altre miscele di isomeri costituenti comprendenti dimetenamid-p (somma di isomeri); Dimetilvinfos; Dimetoato; Dimetomorf (somma degli isomeri); Dimossistrobina; Diniconazole (somma degli isomeri); Dintramina; Dinotefuran; Dioxacarb; Dioxation; Dipropetrin; Disulfoton; Disulfoton (somma di disulfoton, solfosso di disulfoton e solfone di disulfoton, espressa in disulfoton); Ditalimfos; Dithiopyr; Diuron; DMSA (Dimetilfenilsolfamide); Edifenfos; Emamectina benzoato B1a, espressa in emamectina; Endosulfan (somma degli isomeri alfa e beta e del solfato di endosulfan, espressi in endosulfan); Endosulfan alfa; Endosulfan beta; Endosulfan solfato; Endrin chetone; EPN; Eposiconazolo; Eptacloro epossido isomero A; Eptacloro epossido isomero B; EPTC (etil-dipropiltiocarbammato); Eptenofos; Esaclorocicloesano (HCH), isomero alfa; Esaclorocicloesano (HCH), isomero beta; Esaclorocicloesano (HCH), isomero delta; Esaconazolo; Esazinone; Esprocarb; Etaconazolo; Ethaboxam; Etiofencarb; Etiofencarb solfosso; Etiprol; Etrirrol; Etofumesato; Etoprofos; Etossazolo; Etridiazolo; Etrinfos; Etiliazox; Famoxadone; Famphur; Fenamidone; Fenamifos; Fenamifos (somma di fenamifos e del relativo solfosso e solfone espressa in fenamifos); Fenamifos solfone; Fenamifos solfosso; Fenarimol; Fenbuconazole; Fenclorfos oxon; Fenexamide; Fenitrotion; Fenmedifam; Fenoxanil; Fenoxicarb; Fenprossimato; Fenpropatrin; Fenpropidin; Fenpropimorf (somma di isomeri); Fenson; Fensulfotion; Fention; Fention oxon; Fention sulfone; Fention solfosso; Fentoato; Fenuron; Fipronil; Flampprop isopropile; Flonicamid; Fluacrypyrim; Fluazifop; Fluazifop butile; Fluazinam; Flubenzimine; Flucicloxuron; Flucitrinate; Fluidioxonil; Flufenacet; Flufenoxuron; Fluopicolide; Fluopyram; Fluotrimazolo; Fluoxastrobin (somma di fluoxastrobin e del relativo isomero Z); Fluquiconazolo; Flurossipir; Flurprimidolo; Flusilazolo; Flutolanil; Flutriafol; Folpet; Fonofos; Forate; Forate solfone; Forclorfenuron; Formetanato; somma di formetanato e relativi sali, espressa in (cloridrato di) formetanato; Formotion; Fosalone; Fosamidone; Fosmet; Fostiazato; Foxim; Ftalimide; Furalaxil; Furatiocarb; Icaridina; Imazalil; Imazametabenz metile; Imazamox (somma di imazamox e suoi sali, espressa come imazamox); Imibenconazolo; Imidacloprid; Indoxacarb (somma di indoxacarb e del suo enantiomero R); Ioxynil; Iprobenfos; Iprodione; Iprovalicarb; Isazofos; Isocarbofos; Isodrin; Isofenfos metile; Isoprocarb; Isopropalin; Isoprotiolano; Isoproturon; Isoxaben; Isoxalutole; Isoxation; Kresoxim metile; Lambda-cialotrina (comprende la gamma-cialotrina (somma di isomeri R,S e S,R); Lenacil; Lindano (isomero gamma di esaclorocicloesano (HCH)); Linuron; Lufenurone (qualsiasi percentuale di isomeri costituenti); Malaaxon; Malation; Malation (somma di malation e malaaxon, espressa in malation); Mandipropamide (ogni rapporto di isomeri costituenti); MCPA; Mecarbam; Mefenacet; Mefenpir dietile; Mepanipirim; Mesotrione; Metabenziazuron; Metalaxil e metalaxil-M (metalaxil, incluse altre miscele degli isomeri costituenti, comprendenti metalaxil-M (somma degli isomeri)); Metamidofos; Metamifop; Metamitron; Metazacolor; Metconazolo (somma degli isomeri); Metidation; Metiocarb; Metiocarb (somma del metiocarb e del metiocarb solfosso e solfone, espressa in metiocarb); Metiocarb solfone; Metiocarb solfosso; Metobromuron; Metolacolor e S-metolacolor (metolacolor comprendente altre miscele di isomeri costituenti compreso S-metolacolor (somma di isomeri)); Metolcarb; Metomil; Metoprene; Metoprotina; Metossicloro; Metossifenozide; Metosulam; Metoxuron; Metrafenone; Metribuzin; Metsulfuron metile; Miclobutanil; Monocrotofos; Monolinuron; Monuron; Naled; Napropamide; Naptalam; Neburon; Nitril; Nitrapirin; Nitrofen; Nonachlor; Norflurazon; Nuairmol; Ofurace; Omatoato; Ossicarbossina; Ossicordano; Ossidemeton-metile; Ossidemeton-metile (somma di ossidemeton-metile e demeton-S-metilsolfone espressa in ossidemeton-metile); Oxadiazon; Oxadixil; Oxamil; Oxifluorfen; p,p'-Dicofol; Paclobutrazol (somma degli isomeri costituenti); Paraaxon; Paraaxon metile; Paration; Paration metile; Paration metile (somma di paration metile e paraaxon metile, espressa in paration metile); Pebulato; Pencicuron; Penconazolo (somma degli isomeri costituenti); Pendimetalin; Penoxsulam; Pentoxazone; Permetrina (somma degli isomeri); Petoxamide; Picolinafen; Picoxystrobin; Piperofos; Piperonil Butossido; Piracarbolid; Piraclostrobin; Pirazofos; Pirazoxifen; Piretrine; Piridaben; Piridafention; Pirifenox; Pirimetanil; Pirimicarb; Pirimicarb desmetil; Pirimicarb desmetil fomamido; Pirimifos etile; Pirimifos etile; Pirimifos metile N-desetile; Piriproxifen; Probenazole; Procidimone; Procloraz; Profenofos; Profuralin; Profoxidim; Promecarb; Prometon; Prometrina; Propaclor; Propamocarb (somma di propamocarb e dei relativi sali espressa in propamocarb); Propanil; Propaquizafop; Propargite; Propazina; Propetamfos; Propiconazolo (somma di isomeri); Propizamide; Propoxur; Proquinazid; Prosulfocarb; Protiofos; Protoato; Pyrimidifen; Quinalfos; Quinclorac; Quinmerac; Quintozene; Quizafof etile; Resmetrin (resmetrin, incluse altre miscele degli isomeri costituenti (somma degli isomeri)); Rotenone; Setossidim; Silafluofen; Simazina; Simeconazolo; Simetrina; Solfone di disulfoton; Solfosso di disulfoton; Somma di folpet e ftalimide espressa in folpet; Spinosad (spinosad, somma di spinosyn A e spinosyn D); Spinosyn A; Spinosyn D; Spirodiclofen; Spiromesifen; Spirotetrammato; Sulcotrione; Sulfentrazzone; Sulfote; Sulprofos; tau-Fluvalinolo; Tebuconazolo; Tebufenozide; Tebufenpirad; Tebupirimfos; Tebutiuron; Tecnazene; Teflubenzuron; Teflutrin; Telodrin; Temefos; Terbacil; Terbufos; Terbufos solfone; Terbufos solfosso; Terbumeton; Terbutilazina; Terbutrina; Tetracolorinfos; Tetraconazolo; Tetradifon; Tetrametrina; Thiamethoxam; Tifluzamide; Tiabendazolo; Tiacloprid; Tiadinil; Tiobencarb (4-clorobenzil metil solfone); Tiodicarb; Tiofanato metile; Tiofanox; Tiofanox solfone; Tionazina; Tolclofos metile; Tolilfluamide; Tralcoxidim (somma degli isomeri costituenti del tralcoxidim); Transflutrin; Triadimefon; Triadimenol (qualsiasi percentuale di isomeri costituenti); Triallato; Triazofos; Tricicazolo; Triclorfon; Tricloronato; Triflossistrobina; Triflumizolo; Triflururon; Trifluralin; Trinexapac etile; Triticonazolo; Uniconazolo; Vamidotion; Vinclozolin; Zoxamide.</p>	UNI EN 15662:2018	LC-MS-MS & GC-MS-MS	

Oli e grassi vegetali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Contenuto di cere	NGD C80 - 2002		

Oli e grassi vegetali (liquidi)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Idrocarburi Policiclici Aromatici (IPA): benzo(a)antracene, benzo(a)Pirene, benzo(b)Fluorantene, benzo(g,h,i)perilene, benzo(k)fluorantene, Crisene, dibenzo(a,h)antracene, indeno(1,2,3-cd)pirene, pirene			
MP 004 rev 8 2015		GC-MS	
Oli vegetali			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Stigmastadieni	Reg CEE 2568/1991 11/07/1991 GU CEE L 248 05/09/1991 All XVII Reg CE 656/1995 28/03/1995 GU CE L 069 29/03/1995		
Orzo, caffè tostato			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ocratossina A	UNI EN 14132:2009		
Pesce fresco e conservato, Prodotti di gastronomia a base di pesce, prodotti ittici			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Istamina (HPLC) LOQ 2,5 mg/Kg	MP 015 rev 5 2019	HPLC	
Prodotti alimentari			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Vitamina A: trans-retinolo totale, 13-cis-retinolo, b-carotene	UNI EN 12823-1:2014; UNI EN 12823-2:2000	HPLC	
Vitamina E: a-, b-, g-, d-Tocoferoli	EC 1-2014 UNI EN 12822:2014	HPLC	
Prodotti alimentari, mangimi			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Vitamina C: Acido ascorbico, Acido citrico	Rapporti ISTISAN 1996/34 pag. 157	HPLC	
Prodotti carnei			
Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Sommatoria di policlorodibenzodiossine/policlorodibenzofurani (PCDD/PCDF) come tossicità equivalente (TEQ) con HRGC/HRMS: Equivalente di tossicità WHO-TEQ (2006)	EPA 1613B 1994 + Reg UE 644/2017 05/04/2017 GU L92/9 06/04/2017 (escluso allegato II e par. 7 allegato III)	calcolo	

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Prodotti Carnei (compresi Salumi)

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
2-Aminoflubenidazolo, Albendazolo, Solfossido di albendazolo, Sulfone di albendazolo, Albendazolo 2-amino solfone, Cambendazolo, Fenbendazolo, Sulfone di Fenbendazolo, Flubendazolo, Levamisolo, Mebendazolo, Ossibendazolo, Parbendazolo, Praziquantel, Tiabendazolo, Solfossido di triclabendazolo, Ampicillina (tranne per la sotto-matrice frattaglie), Clossacillina, Ossacillina, Cefalexina, Cafapirina, Cefazolina, Ceftiofur, Desacetilcefapirina, Cinoxacina, Ciproflossacina, Diflossacina, Enroflossacina, Flumechina, Marboflossacina, Acido Nalidixico, Norfloxacin, Acido Ossolinico, Saraflossacina, Azitromicina, Claritromicina, Eritromicina, Gamitromicina, Roxitromicina, Tildipirosina, Tilmicosina, Dimetridazolo, HMMNI, Iprnidazolo, Iprnidazolo-OH, Metronidazolo, Ronidazolo, Secnidazolo, Ternidazolo, Sulfaclopiridazina, Sulfadiazina, Sulfadimetossina, Sulfamerazina, Sulfametossidiazina, Sulfametazina, Sulfametossazolo, Sulfametossipiridazina, Sulfamonometossina, Sulfapiridina, Sulfachinossalina, Sulfatiazolo, Tiamulina, Trimetoprim, Lincomicina. (Analiti con LOQ 2 µg/Kg: 2-Aminoflubenidazolo, Albendazolo, Solfossido di albendazolo, Sulfone di albendazolo, Albendazolo 2-aminosolfone, Cambendazolo, Fenbendazolo, Flubendazolo, Levamisolo, Mebendazolo, Ossibendazolo, Parbendazolo, Praziquantel, Tiabendazolo, Solfossido di triclabendazolo, Ampicillina, Clossacillina, Desacetilcefapirina, Cinoxacina, Ciproflossacina, Diflossacina, Enroflossacina, Flumechina, Marboflossacina, Acido Nalidixico, Saraflossacina, Claritromicina, Eritromicina, Roxitromicina, Tildipirosina, Tilmicosina, Dimetridazolo, HMMNI, Iprnidazolo, Iprnidazolo-OH, Metronidazolo, Ronidazolo, Secnidazolo, Ternidazolo, Sulfaclopiridazina, Sulfadiazina, Sulfadimetossina, Sulfamerazina, Sulfametossidiazina, Sulfametazina, Sulfametossazolo, Sulfametossipiridazina, Sulfamonometossina, Sulfapiridina, Sulfachinossalina, Sulfatiazolo, Trimetoprim; Analiti con LOQ 4 µg/Kg: Sulfone di Fenbendazolo; Analiti con LOQ 10 µg/Kg: Gamitromicina, Azitromicina, Ossacillina, Cefalexina, Cafapirina, Cefazolina, Ceftiofur, Norfloxacin, Acido Ossolinico, Tiamulina, Lincomicina; per la matrice frattaglie tutti gli analiti hanno un LOQ a 10 µg/Kg, tranne la molecola ampicillina NON accreditata)	MP 216 rev 1 2020	LC-MS-MS	
Clenbuterolo, Clenpenterolo, Isoxisuprina, Mapenterolo, Zilpaterolo, Ractopamina, 20-beta-diidroprednisolone, Betametasona, Desametasona, Flumetasona, Metilprednisolone, Prednisolone, Prednisone, Triamcinolone acetone (LOQ 0,2 µg/Kg)	MP 258 rev 0 2019	LC-MS-MS	
Nitrati (espressi come NaNO ₃), Nitriti (espressi come NaNO ₂)	UNI EN 12014-4:2005	Conducimetria	

Prodotti Carnei (compresi Salumi), Prodotti Ittici

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Benzo(a)pirene, Crisene, Benzo(a)antracene, Benzo(b)fluorantene (0,5 µg/Kg)	MP 291 Rev 0 2019	GC-MS-MS	

Prodotti Carnei (compresi Salumi): Salmonella Spp, Listeria Spp e Listeria Monocytogenes; Lattiero-caseari e Supporti da campionamento superfici ambienti del settore alimentare: Listeria Spp e Listeria Monocytogenes

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Salmonella Spp, Listeria Spp, Listeria Monocytogenes (LOD 1-10 copie DNA)	MP 279 rev 1 2019	PCR Real Time	

Prodotti Carnei compresi Salumi, Lattiero-caseari

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Ricerca di Escherichia Coli produttori di Shiga-tossine (STEC) (LOD 1-10 copie DNA) MP 272 rev 0 2019 PCR Real Time

Prodotti carnei compresi Salumi; Lattiero-caseari; Supporti da campionamento superfici ambienti del settore alimentare

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Lattosio (LOQ: Prodotti carnei compresi Salumi 10 mg/Kg; Lattiero-caseari 20 mg/Kg; Supporti da campionamento superfici ambienti del settore alimentare 0,5 µg/tampone)	MP 300 Rev 1 2020	LC-MS-MS	

Prodotti Carnei compresi Salumi; Supporti da campionamento superfici ambienti del settore alimentare

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Allergeni: beta-Lattoglobulina e Caseina Prodotti Carnei compresi Salumi (allergeni beta-Lattoglobulina LOQ 0.16 mg/Kg; Caseina e Proteine dell'uovo LOQ 0.5 mg/Kg, glutine 5mg/kg); Supporti da campionamento superfici ambienti del settore alimentare (allergeni beta-Lattoglobulina LOQ 0.004 µg/tampone; Caseina e Proteine dell'uovo LOQ 0.3 µg/tampone; glutine 1.25 µg/tampone)	MP 285 rev 3 2020	Elisa	

Prodotti carnei, Cereali e derivati, Mangimi, Uova ed ovoprodotti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca di Salmonella spp	AOAC Performance Testd No. 081803 2018	PCR Real Time	

Prodotti Carnei, Prodotti Ittici

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
1-aminohydantoin (AHD) 3-amino-2-oxazolidinone (AOZ) 3-Amino-5-morpholinomethyl-2-oxazolidinone (AMOZ) Semicarbazide (SEC) (LOQ 0.5 µg/Kg)	MP 220 rev 1 2020	LC-MS-MS	

Prodotti da forno, patate fritte e verdure fritte, caffè

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acrilammide	UNI EN 16618:2015	LC-MS-MS	

Prodotti destinati al consumo umano oppure all'alimentazione degli animali, campioni derivanti dalla fase di produzione primaria come feci animali, polvere.

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Ricerca Salmonella spp (presenza-assenza/"x" g o "x" ml di campione)	ISO 6579-1:2017		

Prodotti ortofrutticoli, Cereali e derivati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Nitriti, Nitrati	UNI EN 12014-2:2018	Conducimetria	

Prodotti per l'alimentazione umana ed animale

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Clostridium perfringens (UFC/"x" g o "x" ml di campione)	UNI EN ISO 7937:2005		
Conta Coliformi (UFC/"x" g o "x" ml di campione)	ISO 4832:2006		
Conta Enterobacteriaceae (UFC/"x" g o "x" ml di campione)	UNI EN ISO 21528-2:2017 EC 1:2018		
Ricerca Yersinia enterocolitica patogena (presenza-assenza/"x" g o "x" ml di campione)	UNI EN ISO 10273:2017		

Prodotti per l'alimentazione umana ed animale

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Bacillus cereus presunto (UFC/"x" g o "x" ml di campione)	UNI EN ISO 7932:2005		

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Rifiuti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Carbonio organico totale (TOC)	UNI 10780:1998 App E (escluso E.6.1 e E.6.2)	spettrofotometria	
Idrocarburi (C10 - C40)	UNI EN 14039:2005		
pH su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + ISO 10523:2008	potenziometria	

Rifiuti liquidi acquosi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene; Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab1) (>1 mg/Kg)	EPA 3510C 1996 + EPA 8100 1986	GC	

Rifiuti, Combustibili solidi secondari

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Potere calorifico superiore (PCS)	UNI EN 15400:2011	calorimetria	

Rifiuti, fanghi, terreni, materiali da recupero

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Argento, Alluminio, Antimonio, Arsenico, Bario, Berillio, Cadmio, Cobalto, Cromo, Ferro, Manganese, Molibdeno, Mercurio, Nichel, Piombo, Rame, Selenio, Tallio, Vanadio, Zinco, Titanio, Tellurio su eluati da test di cessione in acido acetico a 0,5M	CNR IRSA App IIa Q64 Vol 3 1986 + EPA 6020B 2014	ICP-MS	
Argento, Alluminio, Antimonio, Arsenico, Bario, Berillio, Cadmio, Cobalto, Cromo, Ferro, Manganese, Molibdeno, Mercurio, Nichel, Piombo, Rame, Selenio, Tallio, Vanadio, Zinco, Titanio, Tellurio su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 6020B 2014	ICP-MS	
Argento, Alluminio, Antimonio, Arsenico, Bario, Berillio, Cadmio, Cobalto, Cromo, Ferro, Manganese, Molibdeno, Mercurio, Nichel, Piombo, Rame, Selenio, Tallio, Vanadio, Zinco, Titanio, Tellurio su eluati da test di cessione in acqua deionizzata (1)	UNI EN 12457-2:2004 + UNI EN ISO 17294-2:2016	ICP-MS	
Carbonio organico disciolto (DOC) su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + UNI EN 1484:1999	IR	
Cianuri su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + ISO 6703-2:1984 Sez.4	spettrofotometria	
Composti organici volatili: Benzene, Etilbenzene, Stirene, Toluene, o-Xilene, m+p-Xilene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, Isopropilbenzene, n-propilbenzene, Naftalene, butilbenzeni, Clorobenzene, 1,2-Diclorobenzene, 1,3-Diclorobenzene, 1,4-Diclorobenzene, Metilt-ButilEtere, Acetone, Metilacetato, Etilacetato, n-butilacetato, Isobutilacetato, Metiletilchetone, Metilisobutilchetone, Cicloesano, Metilcicloesano, clorometano, Diclorometano, Cloroformio, cloruro di vinile, 1,2-dicloroetano, 1,1-dicloroetilene, Tricloroetilene, Tetracloroetilene, 1,1-dicloroetano, 1,2-dicloroetilene, 1,1,1-tricloroetano, 1,2-dicloropropano, 1,1,2-tricloroetano, 1,2,3-tricloropropano, 1,1,2,2-tetracloroetano, Bromoformio, 1,2-dibromoetano, Dibromoclorometano, Bromodiclorometano, Tetracloruro di carbonio, esaclorobutadiene; 1,2,4-triclorobenzene su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 5030C 2003 + EPA 8260D 2018	GC-MS	

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Conducibilità elettrica su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + UNI EN 27888:1995	conduttimetria
Cromo VI su eluati da test di cessione in acido acetico a 0,5M	CNR IRSA App IIa Q 64 Vol 3 1986 + APAT CNR IRSA 3150 B2 Man 29 2003	GF-AAS
Cromo VI su eluati da test di cessione in acido acetico a 0,5M	CNR IRSA App IIa Q 64 Vol 3 1986 + APAT CNR IRSA 3150 C Man 29 2003	spettrofotometria
Cromo VI su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + APAT CNR IRSA 3150 B2 Man 29 2003	GF-AAS
Fluoruri, Cloruri, Nitrati, Nitriti, Solfati, Bromuri, Azoto nitrico (da calcolo), Azoto nitroso (da calcolo), fosfati su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + UNI EN ISO 10304-1:2009	IC
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 3510C 1996 + EPA 8270E 2018	GC-MS
Idrocarburi totali espressi come n-esano, Idrocarburi GROs + DROs espressi come n-esano	UNI EN 12457-2:2004 + EPA 5030C 2003 + EPA 3510C 1996 +EPA 8015D 2003	GC
Indice di Fenolo su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + APAT CNR IRSA 5070 A1/A2 Man 29 2003	spettrofotometria
Pesticidi fosforati: Azinfos etile, Azinfos metile, Bromofos etile, Bromofos metile, Cadusafos, Carbofenotion, Clorpirifos, Diazinone, Diclorvos, Dimetoato, Disulfoton, Ditalimfos, Etion, Etoprofos, Fenamifos, Fenitrothion, Fention, Fentoato, Forate, Formotion, Fosalone, Iodofenfos, Malation, Mevinfos, Paration etile, Paration metile, Piridafention, Pirimifos etile, Pirimifos metile, Profenofos, Protoato, Protiofos, Quinalfos, Sulfotep, Terbufos, Tionazin, Triazofos su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 3510C 1996 + EPA 8270E 2018	GC-MS
Pesticidi non fosforati: Ametrina, Atrazina, Metribuzin, Pendimetalin, Prometon, Prometryn, Propazine, Simazina, Simetrina, Terbutilazina, Terbutrina, Trifluralin, Alaclor, Aldrin, alfa-endosulfan, alfa-HCH, beta-endosulfan, beta-HCH, Chlordano, delta-HCH, Dieldrin, Endosulfan solfato, Endrin, Endrin aldeide, Eptacloro, Eptacloro epossido, Esaclorobenzene, gamma-HCH [Lindano], Metoxiclor, o,p-DDD, o,p-DDE, o,p-DDT, p,p-DDD, p,p-DDE, p,p-DDT, Procimidone su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 3510C 1996 + EPA 8270E 2018	GC-MS
pH su eluati da test di cessione in acido acetico a 0,5M	CNR IRSA App IIa Q 64 Vol 3 1986 + APAT CNR IRSA 2060 Man 29 2003	potenziometria
pH su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + APAT CNR IRSA 2060 Man 29 2003	potenziometria
Policlorobifenili (PCB): PCB 28 + PCB 31, PCB 52, PCB 77, PCB 81, PCB 95, PCB 99, PCB 101, PCB 105, PCB 110, PCB 114, PCB 118, PCB 123, PCB 126, PCB 128 + PCB 167, PCB 138, PCB 146, PCB 149, PCB 151, PCB 153, PCB 156, PCB 157, PCB 169, PCB 170, PCB 177, PCB 180, PCB 183, PCB 187, PCB 189, Sommatoria Policlorobifenili (PCB), PCB Totali, su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + EPA 3510C 1996 + EPA 8270E 2018	GC-MS
Richiesta Chimica di Ossigeno (COD) su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + ISO 15705:2002	spettrofotometria

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Semi Volatile Organic Compounds: nitrobenzeni: nitrobenzene;
1,2-dinitrobenzene; 1,3-dinitrobenzene; cloronitrobenzeni-
clorobenzeni: 1,2-diclorobenzene; 1,4-diclorobenzene;
1,2,4-triclorobenzene; 1,2,4,5-tetraclorobenzene; pentaclorobenzene;
esaclorobenzene
fenoli clorurati e non clorurati: metilfenolo (o-,m-,p-); fenolo;
2-clorofenolo; 2,4-diclorofenolo; 2,4,6-triclorofenolo; pentaclorofenolo
ammine aromatiche: anilina; difenilamina; o-anisidina; p-toluidina su
eluati da test di cessione in acqua deionizzata

UNI EN 12457-2:2004 + EPA
3510C 1996 + EPA 8270E 2018 GC-MS

Solidi totali disciolti (TDS) su eluati da test di cessione in acqua
deionizzata

UNI EN 12457-2:2004 + APAT
CNR IRSA 2090 A Man 29 2003 Gravimetria

Solventi organici alogenati: Cloruro di vinile; Cloroformio;
1,1,1-Tricloroetano; Tricloroetilene; Tetracloroetilene;
1,1-Dicloroetilene; 1,2-Dicloroetano; 1,2-Dicloroetilene;
1,2-Dicloropropano; 1,1,2-Tricloroetano; 1,1,2,2-Tetracloroetano;
1,2,3-Tricloropropano; Esaclorobutadiene; 1,1-Dicloroetano;
Dibromoclorometano; Bromodiclorometano; Tribromometano;
1,2-Dibromoetano, Solventi clorurati totali, trialometani totali,
Sommatoria clorurati (DLgs. 152/06 Parte IV Titolo V All5 Tab2) su
eluati da test di cessione in acqua deionizzata

UNI EN 12457-2:2004 + APAT
CNR IRSA 5150 Man 29 2003 GC

Solventi organici aromatici: Benzene, Etilbenzene, Stirene, Toluene,
p-Xilene, m-Xilene, o-Xilene, Xileni, Naftalene, Metil ter-butyl etere
(MTBE) e Etil ter-butyl etere (ETBE) + Piombo tetraetile su eluati da
test di cessione in acqua deionizzata

UNI EN 12457-2:2004 + EPA
5030C 2003 + EPA 8015D 2003 GC

Solventi organici aromatici: Benzene, Toluene, Etilbenzene, p-Xilene,
m-Xilene, o-Xilene, iso ed n-Propilbenzene, Stirene, Sommatoria
composti organici aromatici totali, Sommatoria composti organici
aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene),
Sommatoria composti organici aromatici (Benzene, Toluene,
Etilbenzene, Xileni) su eluati da test di cessione in acqua deionizzata

UNI EN 12457-2:2004 + APAT
CNR IRSA 5140 Man 29 2003 GC

Solventi organici azotati: 2-nitropropano, acrilonitrile, metacrilonitrile,
nitrobenzene, propionitrile su eluati da test di cessione in acqua
deionizzata

UNI EN 12457-2:2004 + EPA
5030C 2003 + EPA 8260D 2018 GC-MS

Solventi organici clorurati: clorometano, Diclorometano, Cloroformio,
cloruro di vinile, 1,2-dicloroetano, 1,1-dicloroetilene, Tricloroetilene,
Tetracloroetilene, 1,1-dicloroetano, 1,2-dicloroetilene,
1,1,1-tricloroetano, 1,2-dicloropropano, 1,1,2-tricloroetano,
1,2,3-tricloropropano, 1,1,2,2-tetracloroetano, Bromoformio,
1,2-dibromoetano, Dibromoclorometano, Bromodiclorometano,
Tetracloruro di carbonio, esaclorobutadiene; 1,2,4-triclorobenzene,
Naftalene, Etil ter-butyl etere (ETBE), piombo tetraetile su eluati da
test di cessione in acqua deionizzata

UNI EN 12457-2:2004 + EPA
5030C 2003 + EPA 8260D 2018 GC-MS

Rifiuti, fanghi, terreni, rifiuti da recupero

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Azoto ammoniacale, Ammoniaca (da calcolo) su test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + APAT CNR IRSA 4030 A2 Man 29 2003	spettrofotometria	
Azoto ammoniacale, Ammoniaca (da calcolo) su test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + APAT CNR IRSA 4030 C Man 29 2003	spettrofotometria	
Inibizione della crescita di alghe di acqua dolce per mezzo di alghe verdi unicellulari su eluati da test di cessione in acqua deionizzata	EC 1-2008 UNI EN 14735:2005 + UNI EN ISO 8692:2012		
Inibizione della mobilità della Daphnia Magna Straus (Cladocera, Crustacea) su eluati da test di cessione in acqua deionizzata	EC 1-2008 UNI EN 14735:2005 + UNI EN ISO 6341:2013		
Saggio di tossicità: effetto inibitorio di campioni acquosi sull'emissione di luce di vibrio fischeri su eluati da test di cessione in acqua deionizzata	EC 1-2008 UNI EN 14735:2005 + UNI EN ISO 11348-3:2019		

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Rifiuti, Suoli, Fanghi e Sedimenti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Carbonio Organico Totale (TOC)	UNI EN 15936:2012	IR	

Sedimenti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Tossicità acuta con <i>Vibrio fischeri</i> in fase solida	UNI EN ISO 11348-3:2019 + ICRAM Metodologie analitiche di riferimento (2001) Scheda 11, App 2		

Sedimenti marini

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Granulometria	ICRAM metodologie analitiche di riferimento SEDIIMENTII – scheda 3 – analisi e caratteristiche granulometriche triennio 2001-2003		

Sedimenti marini; Acque marine e salmastre

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Test di embriotossicità con <i>Paracentrotus lividus</i> (riccio di mare)	ISPRA QUADERNI- RICERCA MARINA 11/2017		
Test di sviluppo larvale con <i>Crassostrea gigas</i> e <i>Mytilus edulis</i> or <i>Mytilus galloprovincialis</i>	ISO 17244:2015		

Sfarinati e prodotti di trasformazione

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Impurità solide (Filth test)	DM 12/01/1999 GU n° 64 18/03/1999 Suppl 5		

Smalto porcellanato, Vetro, Vetroceramica

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cessione di Cadmio, Piombo da superfici silicate diverse dal materiale ceramico	UNI EN 1388-2:1997	GF-AAS	

Soluzioni provenienti da campionamento di flussi gassosi convogliati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti inorganici del Cloro e del Fluoro	DM 25/08/2000 GU n° 223 23/09/2000 All 2 (escluso campionamento)		
Ossidi di azoto e Ossidi di zolfo	DM 25/08/2000 GU n° 223 23/09/2000 All 1 (escluso campionamento)		

Sostanze grasse

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Alcoli alifatici	Reg CEE 2568/1991 11/07/1991 GU CEE L 248 05/09/1991 All XIX Reg CE 796/2002 06/05/2002 GU CE L128 15/05/2002 Reg UE 1833/2015 12/10/2015 GU UE L266 13/10/2015 All VI	GC	

Substrato di captazione aria, fanghi, rifiuti solidi, terreni, compost, sedimenti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Fingerprint idrocarburi (madep): GROs, DROs, C<12, C>12, Benzene, Toluene, Etilbenzene, Xileni, Stirene, Metil ter-butyl etere (MTBE), Etil ter-butyl etere (ETBE), 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, Isopropilbenzene, Idrocarburi alifatici da C5 a C8, Idrocarburi alifatici da C9 a C18, Idrocarburi alifatici da C19 a C36, idrocarburi aromatici da C9 a C10, idrocarburi aromatici da C11 a C22

EPA 3550C 2007 + EPA 8015D calcolo
2003 + EPA 8270E 2018

Suoli

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
Adsorbimento fosfatico	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met XV.7 DM 25/03/2002 GU n° 84 10/04/2002		
Azoto totale mediante Kjeldahl	DM 13/09/1999 SO n° 185 GU n° 48 21/10/1999 Met XIV.2 + Met XIV. 3 DM 25/03/2002 GU n° 84 10/04/2002		
Boro solubile con il metodo dell'azometina-H	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met XVI.1 DM 25/03/2002 GU n° 84 10/04/2002		
Calcio carbonato attivo	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met V.2 DM 25/03/2002 GU n° 84 10/04/2002		
Capacità di scambio cationico con ammonio acetato	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met XIII.1 DM 25/03/2002 GU n° 84 10/04/2002		
Capacità di scambio cationico con bario cloruro e trietanolammina	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met XIII.2 DM 25/03/2002 GU n° 84 10/04/2002		
Carbonio organico (Metodo Walkley-Black)	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met VII.3 DM 25/03/2002 GU n° 84 10/04/2002		
Conduttività elettrica	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met IV.1 DM 25/03/2002 GU n° 84 10/04/2002		
Conta Carica microbica (UFC/g)	DM 08/07/2002 SO n° 156 GU n° 179 01/08/2002 Met II.1		
Contenuto dei Sali solubili in acqua: Fluoruri, Cloruri, Nitrati, Solfati, Fosfati	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met IV.2 DM 25/03/2002 GU n° 84 10/04/2002		
Fosforo assimilabile	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met XV.3 DM 25/03/2002 GU n° 84 10/04/2002		
Idrocarburi (C10 - C40), Idrocarburi C > 12 (C12 - C40) (>5 mg/kg)	ISO 16703:2004	GC	

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Scheletro

DM 13/09/1999 SO n° 185 GU
n° 248 21/10/1999 Met II.1, Met.
II.3

Suoli, Fanghi, Rifiuti e Compost

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Analisi della fitotossicità della sostanza organica in decomposizione mediante bioassaggio <i>Lepidium sativum</i>	CNR IRSA 8 Q 64 Vol 1 1983		

Suoli, Sedimenti, fanghi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Granulometria per setacciatura ad umido e sedimentazione	DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met II.5		

Suoli, terreni, sedimenti, fanghi, rifiuti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Determinazione del potenziale redox	ISO 11271:2002	potenziometria	

Superfici ambienti del settore alimentare

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta <i>Bacillus cereus</i> presunto (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + UNI EN ISO 7932:2005		
Conta Batteri anaerobi solfito riduttori, Conta clostridi solfito riduttori (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + ISO 15213:2003		
Conta Coliformi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018+ ISO 4832 2006		
Conta Enterobacteriacee (UFC/cm2 o dm2 o supporto)	ISO 18593:2018+ UNI EN ISO 21528-2:2017 EC 1:2018		
Conta <i>Escherichia coli</i> beta glucuronidasi positivi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + ISO 16649-2 2001		
Conta Lieviti e Muffe (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + ISO 21527-1:2008		
Conta microrganismi a 30°C (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + UNI EN ISO 4833-1:2013		
Conta <i>Pseudomonas</i> spp presunto (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + ISO 13720:2010		
Conta Stafilococchi coagulasi positivi (<i>Staphylococcus aureus</i> e altre specie) (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + UNI EN ISO 6888-1:2018 EC 1:2019		
Conta Streptococchi fecali, Conta enterococchi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 + NMKL n° 68 5th Ed. 2011		
Ricerca <i>Campylobacter</i> spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 + AFNOR BIO 12/30-05/10		
Ricerca <i>Listeria monocytogenes</i> (presenza-assenza/supporto o dm2)	ISO 18593:2018 + AFNOR AES 10/03-09-00		
Ricerca <i>Listeria monocytogenes</i> (presenza-assenza/supporto o dm2)	ISO 18593:2018 + UNI EN ISO 11290-1:2017		
Ricerca <i>Salmonella</i> spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 + AFNOR UNI 03/06-12/07		
Ricerca <i>Salmonella</i> spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 + ISO 6579-1:2017		

Supporti da campionamento superfici ambienti del settore alimentare

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
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Conta Bacillus cereus presunto (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + UNI EN ISO 7932:2005
Conta Batteri anaerobi solfito riduttori, Conta clostridi solfito riduttori (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + ISO 15213:2003
Conta Coliformi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + ISO 4832 2006
Conta Enterobacteriacee (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + UNI EN ISO 21528-2:2017 EC 1:2018
Conta Escherichia coli beta glucuronidasi positivi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + ISO 16649-2 2001
Conta Lieviti e Muffe (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto)+ ISO 21527-1:2008
Conta microrganismi a 30°C (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + UNI EN ISO 4833-1:2013
Conta Stafilococchi coagulanti positivi (Staphylococcus aureus e altre specie) (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + UNI EN ISO 6888-1:2018 EC 1:2019
Conta Streptococchi fecali, Conta enterococchi (UFC/cm2 o dm2 o supporto)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + NMKL n° 68 5th Ed. 2011
Ricerca Campylobacter spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + AFNOR BIO 12/30-05/10
Ricerca Listeria monocytogenes (presenza-assenza/supporto o dm2)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + AFNOR AES 10/03-09-00
Ricerca Listeria monocytogenes (presenza-assenza/supporto o dm2)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + UNI EN ISO 11290-1:2017
Ricerca Salmonella spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + AFNOR UNI 03/06-12/07
Ricerca Salmonella spp (presenza-assenza/supporto o dm2)	ISO 18593:2018 (esclusi cap. 7 e 8 solo trasporto) + ISO 6579-1:2017

Supporti da campionamento superficie carcasse

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conta Bacillus cereus presunto (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + UNI EN ISO 7932:2005		
Conta Batteri anaerobi solfito riduttori, Conta clostridi solfito riduttori (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + ISO 15213:2003		
Conta Coliformi (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + ISO 4832 2006		
Conta Enterobacteriacee (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + UNI EN ISO 21528-2:2017 EC 1:2018		

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Conta Escherichia coli beta glucuronidasi positivi (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + ISO 16649-2 2001	
Conta Lieviti e Muffe (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + ISO 21527-1:2008	
Conta microrganismi a 30°C (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + UNI EN ISO 4833-1:2013	
Conta Stafilococchi coagulasi positivi (Staphylococcus aureus e altre specie) (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + UNI EN ISO 6888-1:2018 EC 1:2019	
Conta Streptococchi fecali, Conta enterococchi (UFC/cm2 o dm2 o supporto)	ISO 17604 (solo cap 10) + NMKL n° 68 5th Ed. 2011	
Ricerca Campylobacter spp (presenza-assenza/supporto o dm2)	ISO 17604 (solo cap 10) + AFNOR BIO 12/30-05/10	
Ricerca Listeria monocytogenes (presenza-assenza/supporto o dm2)	ISO 17604 (solo cap 10) + AFNOR AES 10/03-09-00	
Ricerca Listeria monocytogenes (presenza-assenza/supporto o dm2)	ISO 17604 (solo cap 10) + UNI EN ISO 11290-1:2017	
Ricerca Salmonella spp (presenza-assenza/supporto o dm2)	ISO 17604 (solo cap 10) + ISO 6579-1:2017	
Ricerca Salmonella spp (presenza-assenza/supporto o dm2)	ISO 17604 (solo cap 10) + AFNOR UNI 03/06-12/07	

Supporti di captazione aria

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Acido Solfidrico	M.U. 634:84 (escluso campionamento)	titrimetria	
Ammoniaca	M.U. 632:84 (escluso campionamento)	spettrofotometria	
Metano, Etano, Etilene	MP 050 rev 1 2017	GC-FID	

Terreni e Rifiuti

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Cianuri liberi e Cianuri Totali su eluati da test di cessione in acqua deionizzata	UNI EN 12457-2:2004 + M.U.2251:08 (escluso i punti 8.2.2 e 8.2.3)"	spettrofotometria	

Terreni e Rifiuti solidi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Clorobenzeni: 1,2-diclorobenzene; 1,4-diclorobenzene; 1,2,4-triclorobenzene; 1,2,4,5-tetraclorobenzene; pentaclorobenzene; esaclorobenzene	EPA 3550C 2007 + EPA 8270E 2018	GC-MS-MS	

Terreni e Suoli

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Tensioattivi anionici su eluati da test di cessione in acqua deionizzata (LOQ 0,05 mg/l)	UNI EN 12457-2:2004 + APAT CNR IRSA 5170 Man 29 2003	spettrofotometria	

Tisane, spezie, erbe aromatiche e prodotti erboristici assimilabili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Aflatossina B1, Aflatossina B2, Aflatossina G1, Aflatossina G2 e Aflatossine totali (B1, B2, G1, G2); >1,0 ug/Kg (B1, G1); >0,55 ug/Kg (B2, G2); >3,0 ug/Kg (somma B1, B2, G1, G2)	MP 009 rev 10 2018	HPLC	

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ELENCO PROVE ACCREDITATE - CATEGORIA: II

Acque sotterranee e superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici aromatici: Benzene, Etilbenzene, Stirene, Toluene, Xileni, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, MetilTerButilEtere (MTBE), Etilterbutiletere (ETBE), piombo tetraetile, Sommatoria composti organici aromatici (Benzene, Toluene, Etilbenzene, Xileni, Stirene)	ISO 11423-1:1997	GC-FID	
Idrocarburi DROs espressi come n-esano	EPA 3510C 1996 + EPA 8015D 2003	GC-FID	
Idrocarburi GROs espressi come n-esano	ISO 11423-1:1997	GC-FID	

Acque sotterranee, superficiali

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Idrocarburi totali, idrocarburi totali come n-esano, idrocarburi frazione volatile (C6-C10), idrocarburi frazione volatile (C6-C10) come n-esano, idrocarburi frazione estraibile, idrocarburi frazione estraibile (C10-C40) come n-esano	ISPRA Man 123 2015	GC-FID	

Acque superficiali, reflue, sotterranee, acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Indice di idrocarburi, Idrocarburi (C10-C40), idrocarburi pesanti C>12 (C12-C40), idrocarburi pesanti C>12 (come n-esano)	UNI EN ISO 9377-2:2002	GC-FID	

Suoli e Rifiuti assimilabili a terreni

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Composti organici aromatici: Benzene, Etilbenzene, m+p-xilene, Stirene+o-xilene, Toluene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene, 1,2,3-Trimetilbenzene, MetilTerButilEtere, Etilterbutiletere (ETBE), piombo tetraetile, naftalene, Sommatoria composti organici aromatici (secondo D.Lgs. 152/06 Parte IV Titolo V All5 Tab1)	EPA 5021A 2014 + EPA 8015D 2003	GC-FID	
Idrocarburi (C10 - C40), Idrocarburi C > 12 (C12 - C40)	ISO 16703:2004	GC-FID	
Idrocarburi C<12, Benzene, m+p-xilene, o-xilene+stirene, toluene, etilbenzene, ETBE, MTBE, isopropilbenzene, propilbenzene, 1,2,3-trimetilbenzene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene (Suoli: Idrocarburi C<12 1,0 mg/kg, Benzene 0,01 mg/kg, m+p-xilene 0,10 mg/kg, o-xilene+stirene 0,10 mg/kg, toluene, etilbenzene, ETBE, MTBE, isopropilbenzene, propilbenzene, 1,2,3-trimetilbenzene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene 0,05mg/kg;	MP 267 rev 2 2020	HS-GC-FID	
Rifiuti: Idrocarburi C<12 1,0 mg/kg, Benzene, m+p-xilene, o-xilene+stirene, toluene, etilbenzene, ETBE, MTBE, isopropilbenzene, propilbenzene, 1,2,3-trimetilbenzene, 1,2,4-trimetilbenzene, 1,3,5-trimetilbenzene 0,5mg/kg;)			
Idrocarburi C10-C40, Idrocarburi C>12 (Suoli: Idrocarburi C>12 (LOQ 12,5 mg/Kg)	MP 266 rev 1 2019	GC-FID	
Rifiuti ass.li a terreni: Idrocarburi C10-C40 (LOQ 50 mg/Kg))			
Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(b)fluorantene; benzo(k)fluorantene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene; Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab1)	EPA 3550C 2007 + EPA 8270E 2018	GC-MS	

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Idrocarburi Policiclici Aromatici (IPA): naftalene, acenaftilene, acenaftene, fluorene, fenantrene, antracene, fluorantene, benzo(a)antracene; benzo(a)pirene, benzo(e)pirene, benzo(g,h,i,)perilene, dibenzo(a,h)antracene, crisene, indeno(1,2,3)-c,d)pirene, dibenzo(a,e)pirene, dibenzo(a,l)pirene, dibenzo(a,i)pirene, dibenzo(a,h)pirene, pirene, perilene, benzo(b+k)fluorantene; Sommatoria IPA (DLgs. 152/06 Parte IV Titolo V All5 Tab1)

EPA 3550C 2007 + EPA 8100 1986 GC-FID

Idrocarburi: C>12

EPA 3550C 2007 + EPA 8015D 2003 GC-FID

Idrocarburi: GROs, C<12

EPA 5021A 2014 + EPA 8015D 2003 GC-FID

Residuo secco a 105°C, Umidità

DM 13/09/1999 SO n° 185 GU n° 248 21/10/1999 Met II.2 gravimetria

Semi Volatile Organic Compounds: Clorobenzeni: monoclorobenzene; 1,2-diclorobenzene; 1,4-diclorobenzene; 1,2,4-triclorobenzene; 1,2,4,5-tetraclorobenzene; pentaclorobenzene; esaclorobenzene - fenoli clorurati e non clorurati: metilfenolo(o-,m-,p-); fenolo; 2-clorofenolo; 2,4-diclorofenolo; 2,4,6-triclorofenolo; pentaclorofenolo

EPA 3550C 2007 + EPA 8270E 2018 GC-MS

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ELENCO PROVE ACCREDITATE - CATEGORIA: III

Acque

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Campionamento (per analisi microbiologiche)	UNI EN ISO 19458:2006		

Acque destinate a consumo umano, minerali, potabili o da potabilizzare, superficiali, sotterranee, di scarico, acque di piscina

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
campionamento per analisi chimiche	APAT CNR IRSA 1030 Man 29 2003		

Acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Campionamento	ISO 5667-10:1992		

Acque naturali, acque destinate al consumo umano, Acque di scarico

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Conducibilità elettrica specifica a 25 °C	APAT CNR IRSA 2030 Man 29 2003	conducimetrica	
Ossigeno disciolto (% di saturazione)	UNI EN ISO 5814:2013		
pH	APAT CNR IRSA 2060 Man 29 2003		
Potenziale redox	UNI 10370:2010		
temperatura	APAT CNR IRSA 2100 Man 29 2003		

Acque potabili

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
campionamento	ISO 5667-5:2006		

Acque sotterranee

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
campionamento	ISO 5667-11:2009		

Aria: emissioni da sorgente fissa, flussi gassosi convogliati

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Carbonio organico totale in forma gassosa	UNI EN 12619:2013	GC-FID	
Metalli: Antimonio, Arsenico, Cadmio, Cromo, Cobalto, Manganese, Nichel, Piombo, Rame, Tallio, Vanadio	UNI EN 14385:2004	gravimetria + ICP-MS	
Ossigeno	UNI EN 14789:2017	Paramagnetico	
Polveri in basse concentrazioni	UNI EN 13284-1: 2017	gravimetria	
Vapore acqueo nei condotti	UNI EN 14790:2017	gravimetria	
Velocità e portata di flussi in condotti	UNI EN ISO 16911-1:2013 Annex A	Manometro differenziale	

Rifiuti liquidi, granulari, pastosi e fanghi

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Campionamento	UNI 10802:2013		

Suoli, terreni

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
campionamento	M.U. 196/2 2004 (p.to 5 e 6)		

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Superfici ambienti del settore alimentare

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&I</i>
campionamento	UNI EN ISO 18593:2018		

Legenda

Il QRcode consente di accedere direttamente al sito www.accredia.it per verificare la validità dell'elenco prove e del certificato di accreditamento rilasciato al laboratorio.

L'eventuale simbolo "X" riportato nella colonna "O&I" indica che il laboratorio è accreditato anche per fornire opinioni e interpretazioni basate sui risultati delle specifiche prove contrassegnate.

L'eventuale simbolo (*) indica che è attiva una sospensione dell'accREDITAMENTO per la specifica attività riportata a fianco



**TERRACORE****Rotary Borehole Log**

P2 of 2

BH 1Location: Sant Antnin Recycling Plant
Orientation: VerticalDate Started: /07/04
Date Completed:

Client: SLR - WasteServe

Bit type/diameter: T2 86CB

Coords. _____

Drill type AAN 1- rotary

Drilling Fluid: Water

Ground Level: +??m OD (approx)

Water level: NA

Description	Lithology	Depth m	Run m	C R %	SCR%	RQD%	f/m	Returns
Lower Coralline Limestone Attard \Member White fragmental algal limestone composed of algal fragments and scatered up to 3cm diameter rhodoliths in a light brown matrix, massive, moderately weak LIMESTONE as above: moderately weak to weak one sub-vertical fracture 4 sub-horizonrtal fracrtures with red clay coating, one oblique one subvertical with red staining Attard Mb as above moderately weak to weak One irregular fracture coated with red clay		11						Full
		12						
		13	3	66	25	66	0.3	Full
		14						
		15						
		16	3	66	53	66	0.3	Full
		17						
		18						
From 18.1m BGL, LCLs Wied Maghlaq Mb ?? LIMESTONE, white to light brown, fine, at times chalky, massive, moderately weak (algae are absent) 4 fractures present sub-horizontal faces coated with soft red clay BH Terminated at 20.8m BGL		19	3	100	90	100	1.3	
		20						

Legend

BGL: Below ground level

f: Fracture frequency/m

CR: Core recovery%

SCR: Solid core recovery

----- End of core run

Depths are measured in metres from ground level

Lithology

Lower Globigerina Limestone Mb: Medium to fine yellow,soft foraminiferal limestone, Moderately weak to moderately strong

LCLs - Il-Mara Mb: Very thick interbeds of calcirudite, brown, bioclastic, Moderately strong and cream to light brown fine limestone moderately weak

LCLs - Attard Mb: Calcirudite, fragmental algal limestone, massive weak to moderately weak: white algal fragments and scattered algal rhodoliths in a light brown matrix

LCLs - Wied Maghlaq Mb: White to light brown massive fine calcarenite, moderately weak

Location: Sant Antnin Recycling Plant
Orientation: Vertical

Date Started: _____
Date Completed: _____

Client: SLR - WasteServe

Bit type/diameter: T2 86CB

Coords. _____

Drill type B40L 22 - rotary

Drilling Fluid: Water

Ground Level: +??m OD (approx)

Water level: NA

Description	Lithology	Depth m	Run m	C R %	SCR%	RQD%	f/m	Returns
			O/H					Full
Lower Coralline Limestone - Il-Mara Member LIMESTONE, Brown, massive, calcirudite, fossiliferous, weathered, moderately strong, with cream, fine, massive, moderately weak to moderately strong interbeds. 0.9-1.65m LIMESTONE massive cream fine moderately weak. 1.65m -3.2m:LIMESTONE: Brown calcirudite with faint cross laminations. Moderately weak/moderately strong, mainly composed of fossils up to 4mm dia. With two 25cm to 30cm of re-crystallised core		1						Full
		2	2.2	62	59	62	0	
		3						Full
Attard Mb LIMESTONE, white, large (up to 15mm) algal fragments in a light brown medium calcarenitic matrix, moderately weak to moderately strong. LIMESTONE, as above moderately weak to moderately strong. from 8.1 with scattered algal rhodoliths up to 4cm dia.		4	3	100	97	100	0	
		5						
		6						Full
LIMESTONE as above moderately weak to moderately strong with scattered algal rhodoliths from 9.43 grades to moderately weak		7	3	94	94	94	0	
		8						
		9	3	100	90	100	2	
		10						

Legend

BGL: Below ground level

f: Fracture frequency/m

CR: Core recovery%

SCR: Solid core recovery

----- End of core run

Depths are measured in metres from ground level

Lithology

Lower Globigerina Limestone Mb: Medium to fine yellow, soft foraminiferal limestone, Moderately weak to moderately strong

LCLs - Il-Mara Mb: Very thick interbeds of calcirudite, brown, bioclastic, Moderately strong and cream to light brown fine limestone moderately weak

LCLs - Attard Mb: Calcirudite, fragmental algal limestone, massive weak to moderately weak: white algal fragments and scattered algal rhodoliths in a light brown matrix

LCLs - Wied Maghlaq Mb: White to light brown massive fine calcarenite, moderately weak



Building and Civil Engineering Department
University of Malta

Laboratory Report

Location: St. Antnin Recycling Plant Bore holes 1-2
Commissioned by: Mr. Alfred Xerri
Test requested: Aggregate Impact Value (AIV)
Standard: BS 812 Part 112, 1990
Date: 11/08/2004
Specimen condition: dry

Specimen ID:
Bore hole : 1
Bed: 1
Depth: 0.00 - 8.90

			Test no.	1	2		Average
Mass of test specimen			g	284.3	284.3		
Mass of the material passing the 2.36 mm sieve			g	103.2	97.8		
Aggregate Impact Value			%	36.3	34.4		35

Specimen ID:
Bore hole : 1
Bed: 2
Depth: 8.90 - 20.80

			Test no.	1	2		Average
Mass of test specimen			g	271.7	271.7		
Mass of the material passing the 2.36 mm sieve			g	129.6	120.2		
Aggregate Impact Value			%	47.7	44.2		46

Specimen ID:
Bore hole : 2
Bed: 1
Depth: 0.00 - 9.10

			Test no.	1	2		Average
Mass of test specimen			g	272.9	272.9		
Mass of the material passing the 2.36 mm sieve			g	87.8	89.7		
Aggregate Impact Value			%	32.2	32.9		33

Specimen ID:
Bore hole : 2
Bed: 2
Depth: 9.10 - 20.85

			Test no.	1	2		Average
Mass of test specimen			g	273.7	273.7		
Mass of the material passing the 2.36 mm sieve			g	110.8	102.0		
Aggregate Impact Value			%	40.5	37.3		39

Note: Since the aggregate impact values obtained are all higher than 30% the results should be treated with caution.

Operator : _____
Nicholas Azzopardi
Lab Officer 2

Approved : _____
Franco E. Montesin B.Sc. (Eng) Hons. B.A. (Arch) MICT, A.&C.E
Architect and Civil Engineer



Building and Civil Engineering Department
University of Malta

Laboratory Report

Location: St. Antnin Recycling Plant Bore holes 1-2
Commissioned by: Mr. Alfred Xerri
Test requested: Bulk specific gravity of natural rock
Standard: ASTM C170-90 1999
Date: 11/08/2004

Specimen condition: saturated and surface dry (ssd)

Sample I.D.	Diameter /mm	Height /mm	Area /mm ²	Failure Load / Kn	Compressive Strength / N/mm ²
BH 1 Run 1	71.7	140.6	4038.2	43	10.6
BH 1 Run 4	70.7	140.7	3926.3	32.5	8.3
BH 1 Run 4	71.3	141.3	3993.2	48.3	12.1
BH 1 Run 5	71.3	140.2	3993.2	18.5	4.6
BH 1 Run 7	71.7	139.6	4038.2	26.7	6.6
BH 1 Run 7	71.7	139.8	4038.2	17.7	4.4
BH 2 Run 1	71.7	140.8	4038.2	55.3	13.7
BH 2 Run 2	71.6	136.6	4026.9	83	20.6
BH 2 Run 2	71.3	139.9	3993.2	85.8	21.5
BH 2 Run 5	71.3	140.1	3993.2	67.9	17.0
BH 2 Run 6	71.3	137.7	3993.2	70.4	17.6
BH 2 Run 6	71.8	137.5	4049.4	81.4	20.1

Operator : _____
 Nicholas Azzopardi
 Lab Officer 2

Approved : _____
 Franco E. Montesin B.Sc. (Eng) Hons. B.A. (Arch)
 Architect and Civil Engineer



Building and Civil Engineering Department
University of Malta

Laboratory Report

Location: St. Antnin Recycling Plant Bore holes 1-2
Commissioned by: Mr. Alfred Xerri
Test requested: 10% fines value (TFV)
Standard: BS 812 Part 111, 1990
Date: 11/08/2004

Specimen ID: **Bore hole :** 1
 Bed: 1
 Depth: 0.00 - 8.90

	Test no.	1	2	Average
Initial Mass	g	2089.9	2089.9	
Mass of the material passing the 2.36 mm sieve	g	214.8	174.5	
Percentage of material passing the 2.36 mm sieve	%	10.28	8.35	
Maximum Force	kN	60	60	
Ten per cent fines value	kN	58.8	68.0	63

Specimen ID: **Bore hole :** 1
 Bed: 2
 Depth: 8.90 - 20.80

	Test no.	1	2	Average
Initial Mass	g	1937.9	1937.6	
Mass of the material passing the 2.36 mm sieve	g	234.3	188.1	
Percentage of material passing the 2.36 mm sieve	%	12.09	9.71	
Maximum Force	kN	60.0	50	
Ten per cent fines value	kN	52.2	51.1	52

Specimen ID: **Bore hole :** 2
 Bed: 1
 Depth: 0.00 - 9.10

	Test no.	1	2	Average
Initial Mass	g	2068.9	2068.9	
Mass of the material passing the 2.36 mm sieve	g	159.3	158.2	
Percentage of material passing the 2.36 mm sieve	%	7.70	7.65	
Maximum Force	kN	65	65	
Ten per cent fines value	kN	77.8	78.1	78

Specimen ID: **Bore hole :** 2
 Bed: 2
 Depth: 9.10 - 20.85

	Test no.	1	2	Average
Initial Mass	g	2113.7	/	
Mass of the material passing the 2.36 mm sieve	g	224.8	/	
Percentage of material passing the 2.36 mm sieve	%	10.64	/	
Maximum Force	kN	75	/	
Ten per cent fines value	kN	71.7	/	71



Building and Civil Engineering Department
University of Malta

Laboratory Report

Location: St. Antnin Recycling Plant Bore holes 1-2
Commissioned by: Mr. Alfred Xerri
Test requested: Bulk specific gravity of natural rock
Standard: ASTM C97-02
Date: 11/08/2004

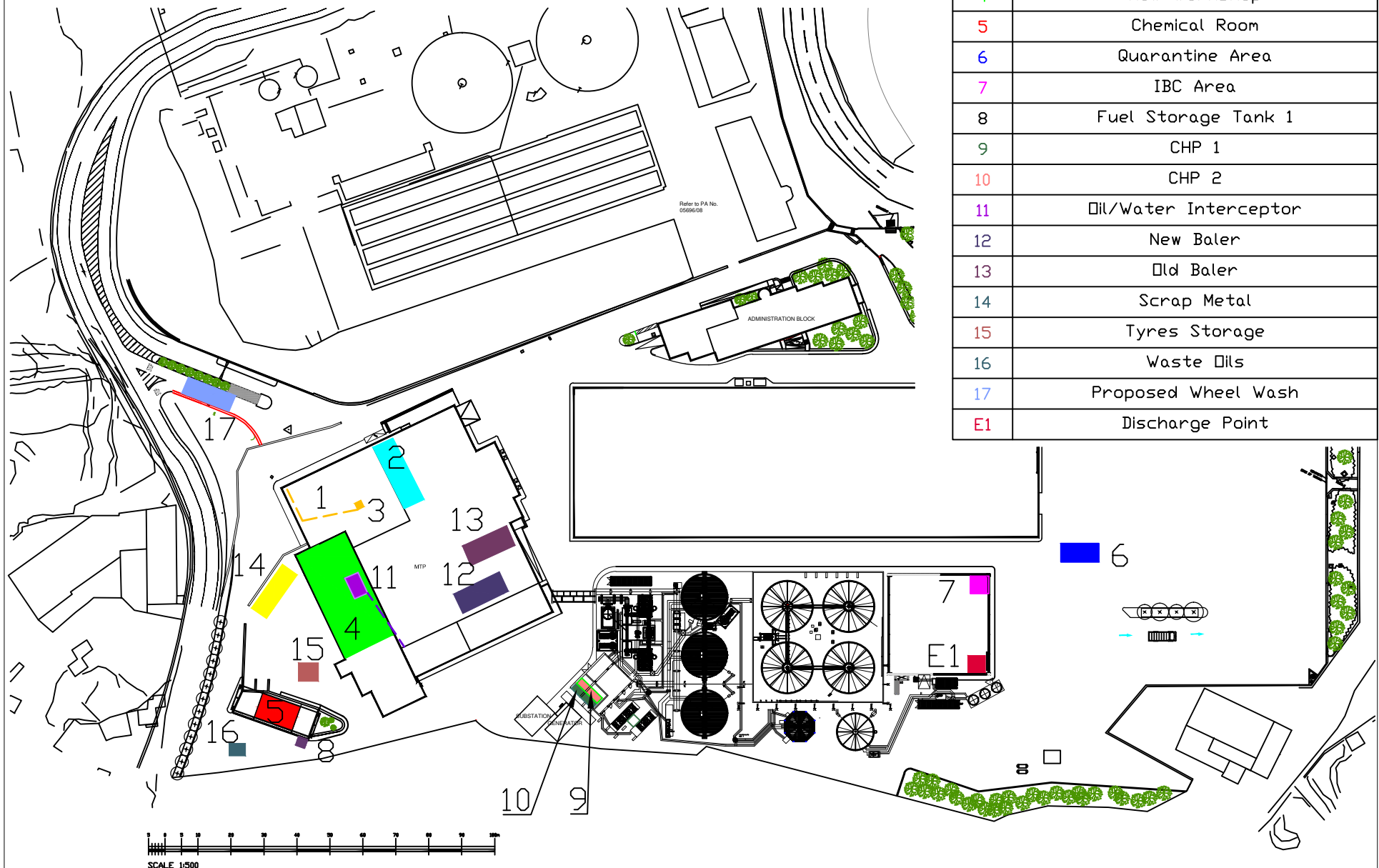
Sample I.D.	Diameter /mm	Height /mm	Volume /mm ³	Dry Weight /g	SSD Weight /g	Weight in Water /g	Relative Density SSD	Relative Density Dry
BH 1 Run 1	71.7	140.6	554.1	1102.5	1203.7	557.4	1.9	2.0
BH 1 Run 4	70.7	140.7	563.1	1089.0	1205.0	555.8	1.9	1.9
BH 1 Run 4	71.3	141.3	579.7	1152.5	1241.2	591.2	1.9	2.0
BH 1 Run 5	71.3	140.2	554.8	988.8	1113.1	572.8	2.1	1.8
BH 1 Run 7	71.7	139.6	567.6	994.6	1112.4	568.8	2.0	1.8
BH 1 Run 7	71.7	139.8	541.2	979.3	1094.4	570.4	2.1	1.8
BH 2 Run 1	71.7	140.8	553.7	1168.0	1249.0	700.6	2.3	2.1
BH 2 Run 2	71.6	136.6	563.1	1192.7	1270.1	731.2	2.4	2.1
BH 2 Run 2	71.3	139.9	570.7	1131.9	1232.8	685.2	2.3	2.0
BH 2 Run 5	71.3	140.1	551.0	1077.8	1169.8	626.8	2.2	2.0
BH 2 Run 6	71.3	137.7	561.5	1148.2	1219.3	678.6	2.3	2.0
BH 2 Run 6	71.8	137.5	557.2	1206.9	1265.4	633.2	2.0	2.2

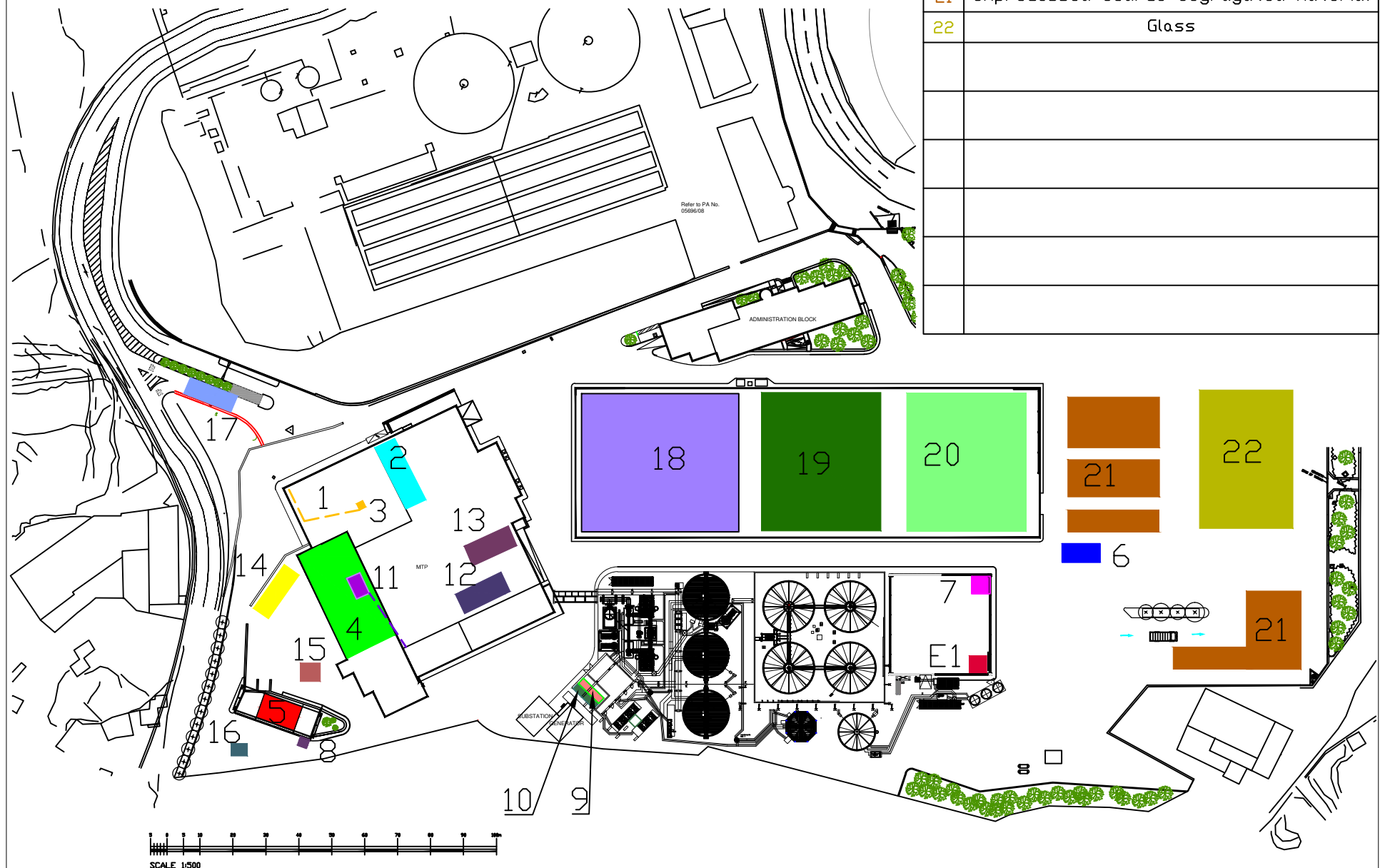
Operator : _____
 Nicholas Azzopardi
 Lab Officer 2

Approved : _____
 Franco E. Montesin B.Sc. (Eng) Hons. B.A. (Arch) MICT, A.&C.E
 Architect and Civil Engineer

Water
Absorption
%
9.2
10.7
7.7
12.6
11.8
11.8
6.9
6.5
8.9
8.5
6.2
4.8

1	Liquor Collection System
2	Rudimentary Line
3	Reception Area
4	New Workshop
5	Chemical Room
6	Quarantine Area
7	IBC Area
8	Fuel Storage Tank 1
9	CHP 1
10	CHP 2
11	Oil/Water Interceptor
12	New Baler
13	Old Baler
14	Scrap Metal
15	Tyres Storage
16	Waste Oils
17	Proposed Wheel Wash
E1	Discharge Point





8th May 2020

With reference to the application for the renewal and variation of an IPPC permit for Sant' Antnin Waste Treatment Plant in Marsascula, Application reference number IP0005/13/A. Kindly find the Civil Protection Department comments to add.

The main role of the company is to organise, manage and operate integrated systems for waste management, including for minimisation, collection, transport, sorting, reuse, recycling treatment and disposal of solid and hazardous waste.

Fire in waste facilities around the world continue to be a huge challenge to the fire services around the world. We have experienced it probably it was the largest incident we have ever tackled. Commonly used fuels include waste streams such as municipal solid waste from kerb-side collections, used tyres, waste wood, dried sewage sludge and probably organic biomass. The risks from waste fuel streams can include dust, spontaneous combustion, poor housekeeping, the delivery of already smouldering loads, ignition in bulk storage bins of conveying systems, the hydraulic actuated processing equipment, flue gas filtration systems and the use of combustion loading shovels.

Therefore, good housekeeping is of great importance and the hierarchy for control of the fire risk should be:

- ⇒ Fire separation
- ⇒ Fire prevention
- ⇒ Fire detection
- ⇒ Fire extinguishing

It is important that these risk control measures are built into design and management procedures adopted by such plants.

I went through the two fire safety reports prepared by Ing Fabio Stivala 2017 and the last Risk Assessment Improvement Plan Recommendations made by Ing Claude Farrugia 2018. I hope that all the recommendation made in 2018 by this RAIPR was not just written report but the shortcomings noted have been tackled and implemented. I also read, the maintenance plan schedule and how it executed in weeks, months and/or hours.

The emergency plan, which is well constructed, I cannot stop from envisaging the importance of the rehearsing of emergency response plan so that everyone knows his/her role in an emergency and the importance of on-going training to all employees that are suitable trained in firefighting, spillage/pollution control and first aid. The handling of their machinery safely and this is reordered.

In-hose training on emergency procedures especially to new employees and refresher courses to existing Wasteserv personnel should be continued. Plant and equipment is all maintained in good operational condition and all the maintenance is recorded.

In general, the plant overall design and layout should be based on the processing system that will prevent inadvertent ignition in the fuel feed train. Thus includes physical separation and use of non-combustible construction materials that will prevent the spread of fire. The installation of fixed automatic fire detection and protection systems to detect, control and extinguish a fire is an essential element of the day-to-day operation.

The layout of the building, plant and process equipment should always allow unimpeded access by fire and rescue service emergency response vehicles to all areas.

One of the drawbacks during firefighting operation is water. The water supplies for the fire protection system supply should be provided from a reliable source. Without making an allowance for reservoir filling, the water supply should be able to provide a minimum of two hours of operation. If this interrupted we will lose the battle against it.

The fire hydrants should be well visible and should never be blocked or covered by RDF's stockpiles and machinery left laying in front of it. They should be made visible and marked with suitable signage. It is important to have the fire service couplings matching those of the fire service and they all work.

Fire pumps should be made to meet the demand, if they are not diesel driven, power should be provided from a secured source that is designed to site emergency services. The installation should also include provisions for routine flow testing of each pump.

Internal hoses are tested at least once a year and should meet the requirements they are made for.

Portable fire extinguishers should be provided in accordance with EN3 or BS 5306 part 8 Code of practice for the selection and installation of portable fire extinguishers.

Fire detection all rooms within all buildings should be fitted with an automatic fire detection and alarm system meeting the specifications given in BS 5839 Part 1.

Conveyor belt areas should be kept clean if possible conveyor belts should be made from fire retardant material. As much as possible hose reels if not sprinkler installation system should be made near a conveyor belt but not far off than i.e. 45 metres.

Electrical room as far as possible all the electrical room should be protected by a total gas flooding system.

Warehouses and workshops should be kept clean from any unnecessary items.

Vehicles and plant operators should be trained in their operation and hold appropriate certificates of training for the vehicles that are allowed to operate.

The engine bay of vehicles and mobile plant, both owned or hired in used for handling materials should be fitted with a fire extinguishers if possible fixed with the operator trained how to use it.

Before starting work, vehicle and plant operators should complete a prestart check on their vehicle in accordance with the manufacturers' instructions

Vehicle repairs and maintenance should be complete in a designated area separated by at least 15 metres from combustible or flammable material.

To prevent the accumulation of combustible material on vehicles, a daily wash-down and cleaning programme should be established. This should include the engine compartment.

Outdoor stockpiles of combustible material should be separated from buildings and plant by a minimum distance of 15 metres with a minimum of 5 metres clear separation from the site

perimeter fence line. Where 5 metre separation is not possible, a two hour rated fire barrier is required to protect adjacent plant and buildings.

A regime should be established to monitor the core temperature and emissions from stockpiles. Stockpiles should be regularly turned and damped down to prevent spontaneous combustion. Allowing longstanding stockpiles to develop should be avoided.

At all times, fire and rescue service vehicles should have unobstructed access and no portion of stockpile should be more than 45 m from an access road.

At least a fire main hydrant point should be provided within 90 metre of the stockpile perimeter. An oscillating monitor nozzle should be considered.

Site security should be provided to restrict access by intruders who intend to commit theft, arson or malicious damage. Perimeter fence lines should at least be 3 metres high with intruder control fixtures on the top.

The site main entrance should be controlled at a manned gatehouse and authorised personnel should be allowed access to the facility. All visitors should be accompanied by an authorised person at all times.

Intruder detection should be installed on all buildings and an intruder and fire detection system/s should be linked to a remote monitoring location.

Site security should include a permanent security presence with intermittent patrols or a remote monitoring service using CCTV.

Housekeeping to avoid the accumulation of combustible materials, dust and debris, good site housekeeping should be an ongoing process throughout the site.

There should be a programme in place to regularly clear dust and debris accumulations from beneath and on top of all process equipment, conveyors, hoppers, hydraulic packages and ledges at all levels. Mobile plant should also be checked and cleared of debris accumulations, particularly around tracks, engine compartments and suspension components. Daily, weekly, monthly and annual checklists as present by WasteServ should be provided to monitor and confirm that the cleaning schedule is being followed.

The site should develop a fire action incident plan in coordination with the Civil Protection Department. The plan should consider full range of potential fire scenarios and the type and level of response required.

An onsite incident controller should be designated to manage a fire incidents from the start to finish. A dedicated radio communication system or channel should be allocated so that the incident controller can receive information and give directions. He place himself next to the CPD incident commander as assist him as required.

Civil Protection fire and rescue vehicle should meet at a designated rendezvous point and escorted to the incident site. It is important to give the correct gate where they should proceed from and keep envisaging it as fire service vehicle can turn out from different station from different areas and they do not know the area well.

The plan should include the names of responsible persons, their responsibilities and contact phone numbers for people and services that may be required during an incident.

The fire incident plan document should be held in the control room and at the main gate. It should include drawings showing site layout, locations of key equipment and the location of fire protection equipment and systems. Ideally and as far as possible they should be made laminated.

A procedure should be established to immediately notify the facility's insurers of any impairment of fire protection or detection system.

Permit to work system, the site should operate a documented permit to work system including the lock-out-tag-out of all electrical and mechanical systems before work is permitted on any process plant item.

Control of hot work, the site should operate a permit system for the control of hot work, such as flame cutting, welding and grinding. The fire prevention requirements for any hot work should include the following:

A suitable portable fire extinguisher available at the point of work;

A fire watcher, trained in firefighting, to be stationed at the point of work;

The work area should be cleared of combustion materials before work commences;

Fire retardant sheets or blankets should be used to prevent sparks and hot materials falling on equipment below;

Hot work should be carried at least 20 metres from any combustible materials;

Hoses and bottles sets should be examined and be in good working condition before work begins;

Flammable gas bottles and torches should be fitted with flashback arrestors;

The work area should be examined periodically during the hour immediately after the work has been completed to ensure there are not soldering or incipient fires.

Smoking should be banned within any building in accordance with legal requirements.

Ideally, there should be a ban on smoking anywhere on site but if this cannot be imposed, a limited number of designated outdoor smoking shelters may be provided which should be sited at least 15 metres away from buildings and any combustible materials

Smoking within sites vehicles and mobile plant should be prohibited.

Maintenance and inspection. The site should establish a maintenance and inspection regime that covers all installed plant and equipment.

Maintenance and inspection should be of a type and frequency recommended by the equipment supplier or manufacturer as a minimum requirement.

Regular thermal imaging inspections of motors, bearings, transformers and electrical equipment should be carried out to detect possible overheating as a cause of fires.

Electrical installations and portable equipment should be routinely checked to confirm the continued safety of the equipment, installation of system.

The use and storage of chemicals in variable amounts must be stored in a controlled manner therefore storing of chemical waste before disposal should be made the same as when acting as a warehouse, taking care of the protection of the personnel and the environment from the effects of a spill, or an aerosol or gas emission. When designing a chemical storage facility, regardless of its size, it is important and essential to take into account all hazardous properties of chemicals, intrinsic or arising from interactions.

Before building a chemical storage room the following consideration should be taken into consideration for hazards and associated risks with chemical storage facilities

Chemical emissions

Toxicological, chemical and physical properties define the hazards of a chemical. However, in a chemical storage facility further factors added is on the quantity, the storage form, proximity of various chemicals, activities carried out in the facility, etc.

The first hazard materialises, when chemicals are spilt, e.g. out of containers. Among numerous causes for a chemical leak are:

- mechanical damage of the container (bumped during transportation, tilted over after it was placed on an unstable ground or rack...);
- container ageing (plastic becoming brittle with time or under the effect of light or low temperatures, plastic softening through heat, metal corrosion, interaction between the container and its filling);
- expansion of the filling (vapour pressure build-up with heat, crystallisation at low temperature, chemical decomposition with time or induced by light exposure);
- sampling and transfer of chemicals.

This chemical dispersion can have serious consequences.

Damage to health

A leaked chemical, especially when it is volatile or a gas at room temperature, can cause intoxication. The risk of intoxication is particularly insidious, when the spilt chemical on its own does not have any severe toxicological property but releases a toxic substance when it reacts with the environment or other chemicals stored in the same room.

Damage to the environment and facilities

Apart from the hazards they represent for workers' health, stored chemicals may induce hazards for facilities, fauna and flora, and the general public off site.

When they are spilled, chemicals can irreversibly alter soils, streams and ground waters, thus affecting surrounding communities. The nature of the environmental damage caused by a chemical spill depends on its toxicological, physical and chemical properties and those of the polluted site pollution risk increases with the amount of stored chemicals.

Stored chemicals can also cause accidental fire or explosions. We barely hear of fire and explosions as very few occupational accidents happen each year. However, when they happen, they often claim lives and have dramatic environmental and economic consequences.

Hostile fire is an uncontrolled oxidation reaction between combustible matter and an oxidant. Large amounts of both elements can often be found in a storage facility. Oxygen is the usual oxidant involved in fire, while stored goods (organic chemicals like solvents or polymer pellets), packaging materials (plastic bags or containers) or pallets act as combustible matter. Various sources of energy can start a fire, e.g. a spark, heat, an explosion.

Accidental explosions can be either “physical” or “chemical”. A physical explosion can happen when, for example, pressure builds up inside a chemical container. Chemical explosions result from chemical reactions: a decomposition (storage of explosive materials) or the inflammation of an explosive atmosphere (storage of flammable chemicals, of oxidising metal dust, etc.). In some cases, the chemical reaction is essentially combustion.

Designing a chemical storage facility

In order to prevent the risks outlined beforehand, the set-up of a storage facility requires careful planning. Among others the storage facility must:

- prevent exposure to hazardous chemicals, and
- not generate additional risks through its design.

Requirement analysis

As a first step, the planner needs to compile all requirements:

- volumes to be stored, the volume of chemical waste, is to be treated as new chemicals;
- diversity of chemicals in term of shelf-life, storage conditions and compatibility;
- organisation’s activities (chemical sampling or transfer activities within the storage facility, for instance: they will require a separated dedicated area with local exhaust and specific spill containment system);
- accessibility (reachability and number/dimensions/operation of apertures) and access control (for instance, access to toxic chemicals or chemicals with narcotic properties is restricted to properly trained and authorised persons);
- legal requirements concerning the storage location and the stored goods (for instance, specific national construction regulations may apply for the storage of environmentally hazardous chemicals).

Concerning legal requirements, chemical storage falls within the scope of three legislative and regulatory frameworks:

- workers’ health and safety;
- protection of the general public;
- environmental protection.

Risk assessment

A risk assessment supplements the requirement analysis. Preventive measures are derived from its results. The planner is to define building and operating specifications for the storage facility.

The risk assessment should identify all personnel and environmental risks linked to storage. Beside hazardous properties of chemicals, the assessment should also take into account:

- chemical interactions;
- storage systems;
- delivery and removal;
- traffic and transport of chemicals inside the facility;
- any other activities carried out in or close to the facility;
- emergency response.

A major information source for the risk assessment is the material safety data sheet (MSDS) in its up-to-date version.

Further information can be collected from where the chemical is collected and/or prevention institutes or organisations.

It is important to note that both requirement analysis and risk assessment need to be repeated on a regular basis and whenever a change is introduced in the storage facility or following any abnormal occurrence (incident, accident health issue). As a result, new preventive measures may have to be defined.

Setting and provision of safety signs



Examples of prohibitive, warning and mandatory signs relative to chemicals from European Directive 92/58/EEC, annex II

The chosen location should sit on stabilised ground and be protected from floodwaters. As far as possible it should be located on ground level.

The chosen location must be solely dedicated to chemical storage. For the set-up of this protected area, a risk assessment must be carried out.

Furthermore, the chemical storage must be visibly indicated. Associated hazards must be clearly identified, for instance through appropriate warning signs. The personnel must also be informed about safety requirements before entering the storage location.

Building materials

All building materials must display chemical resistance, especially towards the stored chemicals. In particular flooring must be damp- and chemical-proof. Moreover, in order to avoid contact with hazardous substances all surfaces should be easy to clean. At the same time a skid-proof flooring will prevent occupational accidents due to falls. Storage facilities should also preferably be constructed of non-combustible materials as far as possible to avoid dissemination of hazardous chemicals, should a fire threaten the storage facility.

Access, alleyways, escape routes

Access to the chemical storage facility is allowed only to authorised personnel. Therefore, constructive arrangements should be made in order to control access.

Furthermore, access to the facility and its alleyways must be large enough and designed according to the activities carried out (use of handling equipment, for instance). In case of emergency, the rescue teams must also be able to access the storage facility quickly. Thus, stairs and steps close to the entrance of the facility should be avoided.

The number of emergency exits depends on the facility size and configuration. Escape doors must be designed in such a way that they open outwards and that they can be opened easily from the inside without the use of any key (installation of panic bars, for instance). All windows and doors should be designed in louvered form to act as a pressure relief in case of overpressure keeping in mind the intrusion of water

In addition, both alleyways and escape routes must be clearly signaled.

Containing accidental emissions

Any leakage or spill must be contained, so that it does not mix with other chemicals or reach the sewers. The type and capacity of the spillage receiver will depend on the nature and volume of the stored chemicals. Suitable absorbents (neutralising or incombustible) should be readily available in case of small leakages; information on such absorbents can be found under 'Accidental release measures' of the material safety data sheet (MSDS).

In the event of a fire, quenching water must not be allowed to reach the sewers. The installation of a specific drain system is therefore recommended such as a blind tank.

Ventilation, air-conditioning, lighting

To prevent the accumulation of hazardous vapours, the storage facility must be well ventilated, with the air renewal rate adapted to the stored chemicals and the activities carried out in the facility. Air inlet and outlet should be placed so as to avoid any 'dead' zone.

Moreover, if coldness or heat can damage products and packaging, air conditioning must be foreseen in the facility. Information on temperature sensitivity can be found in the chemicals material safety data sheet (MSDS).

Aside from these requirements, the whole facility must be sufficiently illuminated, so that labelling can be easily read, and damaged packaging or abnormal occurrences can be detected in time. Ex-proof electrical installation should be considered.

Storage systems

Storage racks or cabinets must display chemical resistance. They should also be made from incombustible material so as to prevent the escalation of an incident and the spread of a fire.

Particular attention must be paid to the maximum load of racks and cabinets (to be clearly indicated on these). The mechanical resistance of the storage systems must be adapted to the stored goods. In addition, the storage system configuration must prevent any tilting of the containers.

Furthermore, it must be easy to place and remove the chemicals from storage. Therefore, suitable handling equipment must be made available, as necessary.

Prevention of fire and explosions

In order to limit the impact of a fire, preventive measures must be taken, especially when the storage facility contains combustible or toxic material. Those include building and fire-fighting elements such as:

- incombustible and heat-resistant building material;
- fire-proof doors and windows;
- avoidance of ignition sources in the facility (lightning protection, heat sources like light bulbs or air heater away from combustible goods...);
- air-conditioning in order to stay below the flammable substances ignition points;
- fire and smoke detectors, and alarms;
- (fixed or mobile) fire extinguishers.

Moreover, combustible gases, combustible dust or flammable liquids can form an explosive atmosphere when they are released from their packaging. When such chemicals are stored, further measures must be taken such as:

- efficient ventilation in order to stay under the lower explosive limits of the substances;
- encapsulated lighting bulbs;
- use of electrical equipment allowed for areas, where an explosive atmosphere can appear;
- use of explosion-proof tools;
- avoidance of electrostatic loading through use of antistatic flooring and equipment;
- earthing.

Operation

Structural preventive measures are of prime importance for a secure chemical storage. For the protection of workers, the public off site and the environment, however, they need to be supplemented by organisational preventive measures, while operating the chemical storage facility. The objective is to avoid hazardous situations and, in particular, to limit exposure by optimising chemical handling.

Roles, procedures, rules of conduct

The employer has a legal responsibility to protect the health and safety of his/her staff and the environment. He/she must thus assess the risks associated with the chemical storage facility, implement the appropriate preventive measures, control their effectiveness on a regular basis and ensure their maintenance.

In this context the employer must inform his/her staff about the risks and preventive measures and provide them with relevant training, including, among others, the following rules of conduct, the respect of which is essential in a chemical storage facility:

- access for authorised personnel only;
- no smoking;
- prohibition of food and like products (beverages, chewing-gum, medicine, tobacco...);
- wearing of prescribed work clothes and personal protective equipment;
- separation of work and street clothes and obligation to change and wear street clothes to enter canteens, for instance;
- changing of work clothes and personal protective equipment, as soon as they are contaminated;
- hand washing before breaks and at the end of workday;
- use of prescribed handling equipment and tools;
- respect of handling (no storage out of specified spaces), cleaning and emergency procedures;
- information about and guidance for any abnormal occurrence
- maintenance and functionality checks (for example, checking the proper functioning of technical equipment, such as handling equipment and the ventilation system, before use).

Stock management

The larger the stored volumes, the greater the hazard. Moreover, chemical waste, generates additional risks. A 'first in, first out' rule must be observed.

Without proper packaging, labelling and an up-to-date material safety data sheet (MSDS) a chemical should not be accepted in the storage facility. This might be exception for WasteServ to this rule: for instance, products for the general public (all relevant safety information must appear directly on their labels) or food additives (in this particular case, safety advice should be requested form the supplier).

Chemicals should be stored in their original container. However, if a transfer proved necessary, the chemical should be transferred in a suitable container with proper labelling: chemically, mechanically and thermally resistant, easy to handle with the existing equipment and tools and easy to store with the existing systems.

Maximum loads of storage systems must be respected as well as stacking rules. Moreover containers should be stored in such a way that their labelling can be easily read and that a leakage or damage can be easily seen and dealt with quickly.

Separation of incompatible chemicals

10. Stability and reactivity

10.1. Reactivity

May polymerize on exposure to light or heat.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

As a result of heat or light exposure or contact with certain substances (see 10.5.), may release excessive heat upon polymerization.

10.4. Conditions to avoid

Avoid light or heat exposure.

10.5. Incompatible materials

Strong acids

Strong oxidising agents

Strong bases

Brass

Copper

Steel

Iron

Iron salts

10.6. Hazardous decomposition products

Hazardous decomposition products form under fire conditions: carbon oxides.

Close-up on heading “10. Stability and reactivity” of a safety data sheet

Some chemicals can react hazardously together, causing harmful emissions, radiating heat, fire or explosions. In case of a leakage they must not come into contact with each other. Depending on the stored volumes, separation can mean placing these incompatible chemicals on different impounding basins or in different walled sections of the facility.

Such incompatibilities are usually described under headings ‘Handling and storage’ and ‘Stability and reactivity’, respectively of the MSDS¹. Safety institutes or organisations can also provide useful information about the reactivity of specific substances.

Emergency planning

Finally, in event of an accident, staff must react quickly and in an appropriate way. The employer must therefore draw up emergency procedures, install emergency and first aid equipment as necessary, and inform and train his/her staff accordingly.

Emergency procedures include:

- actions to be taken in case of a chemical accident;
- use of alarm systems;

- emergency call numbers;
- names of contact persons;
- evacuation instructions;
- first aid measures.

On top of safety training, evacuation drills must be organised regularly and first-aiders must be named and trained.

Furthermore when a number of different chemicals are stored, it is recommended to establish an inventory of all stored products as well as a storage plan, to keep them up to date and to have them readily available in case of an accident. These records should inform about the products, their quantities and their location in the storage facility and therefore avoid that the emergency and rescue teams expose themselves to additional risks during their intervention. Then, regular consultation with the local fire and rescue authorities will help them action the appropriate response in case of emergency. This inventory should not only be kept in the in the chemical storage room but also somewhere else safe so that if the department cannot have access into the chemical room they could get access to this information easily.

Tony Pisani

Operations manager

Civil Protection Department

File Reference: **H18-0116-WSM-C**

Consultant: Resolve Consulting

Status Update by: S Salomone

Date: 12.06.2020

Item	Status 11.12.2019	Status 12.06.2020	Target Completion Date
4.1 Organisation and Resources As noted in paragraph 5.1.1, Wasteserv is in the process of gradually implementing an occupational health and safety management system in accordance with ISO 45000 across all of its sites. This internationally accepted standard is intended to enable companies to manage occupational health and safety risks and improve their approach to preventing injury, illness and as a consequence, minimise damage to property. The plan to roll out and implement this management system is to be communicated to the insurers as it would increase confidence in the way risks on site are being proactively managed throughout the organisation.	Wasteserv will be implementing ISO 45001 in phases, starting from Tal-Kus, Malta-North, TTF and then going to Sant' Antnin.	Certification audit for KTS is scheduled for 10/07/2020. Currently implementing system at MN.	Q2 2021
4.2 Provision of First Aid It is understood that the number of qualified first aid personnel exceeds the minimum amount stipulated in local legislation. However, since the operation is a 24/7 operation, the insured is to ensure that the number of first aid personnel is sufficient to cater for the number of employees present on site at any one time, including during periods of sick leave, injury leave and vacation, shifts, etc. Signage indicating the identification and contact numbers of first aid personnel is to be clearly displayed.	Sufficient first aiders available to cover for sick / injury / vacation leave and shifts. Personnel are currently attending First Aid training. Last course will be held 12.12.19. Poster will be updated following receipt of certificates from Training Provider.	Training completed. Posters will be fixed before plant is re-opened.	Jan-20

<p>4.3 Work Equipment (Fixed Machinery and Heavy Plant)</p> <p>The insured must ensure that all equipment is maintained according to a comprehensive maintenance and inspection plan and records of these maintained.</p> <p>All maintenance to machinery and equipment must also include electrical maintenance.</p> <p>Detailed plant and machinery risk assessments should be carried out and documented to determine the specific mitigatory measures in place to minimise injury through contact with moving parts.</p> <p>Safety arrangements on plant and machinery are to be checked daily to ensure that they remain effective at all times. Any deficiencies as those noted are to be rectified immediately.</p> <p>Safety stops, including trip wires are to be reviewed to ensure that they are within easy reach and not rendered unreachable due to poor workplace organisation.</p>	In place.	In place.	Ongoing.
<p>4.4 Electrical supply, distribution and installation and electrical portable appliances</p> <p>The results from the thorough maintenance and inspection carried out in August by the competent person shall be reviewed and addressed immediately.</p> <p>The inspection frequency of the fixed installation and that of fixed machinery shall be determined based on the results of the thorough maintenance and inspection carried out by the by competent personnel.</p> <p>Electrical panels should be kept locked and accessible only to authorised persons. A permit-to-work system should be implemented in case of work being carried out on live systems. Signs denoting electrical panels and high voltage are to be maintained on all panels located within the premises.</p> <p>Damaged light fittings, electrical power outlets and the elimination of electrical extension leads shall be addressed as soon as possible.</p>	Done	Done	/
<p>4.5 Personal Protective Equipment</p> <p>Enforce use of personal protective equipment protection by visitors and workers. If necessary increase the amount of signage to encourage and inform personnel on the correct type of equipment to be used.</p>	In place.	In place.	Ongoing.

<p>4.6 Health surveillance</p> <p>Personnel that are exposed to non-mechanical hazards at the facility are to be included in a health surveillance program.</p> <p>As a minimum, the following arrangements should be in place:</p> <ul style="list-style-type: none"> - Pre-employment screening that includes a questionnaire about present or past health conditions - advise new employees about what to look out for and that they should report symptoms; - A questionnaire to be completed for all workers after employment at 6 weeks, 12 weeks (or similar intervals) and at least annually thereafter to enquire about any developing symptoms. The questionnaire must be administered by a responsible, trained person who must understand the purpose of the questionnaire, confidentiality requirements and what records must be kept; - Identify a named occupational health professional or company, who can advise on any adverse findings from the questionnaire and who can make arrangements for further investigation where necessary. 	Tender currently being drafted.	Tender at evaluation stage.	Mar-20
<p>4.7 Vehicle and pedestrian segregation</p> <p>A documented Traffic Management Plan (TMP) is recommended. It is intended to define the arrangements to ensure that the risks involved in the movement of mobile plant and vehicles around the facility, and the interface with site personnel are identified and controlled as far as reasonably practicable.</p> <p>The key risks associated with mobile plant and vehicle operations on the site include personnel being run over, crushed or struck by mobile plant or vehicles and personnel being struck by something falling from mobile plant.</p> <p>A site layout plan indicating the location of safe pedestrian routes and vehicle routes, safe/unsafe work areas for pedestrians and emergency exit routes or refuge areas should be included. Specific rules for pedestrians and operators must be included due to vision limitations during operation of such equipment.</p>	Pending	TMP currently being drafted. To be concluded by end of July '20.	Mar-20

<p>4.8 Hazardous Substances, including Biological Agents</p> <p>The main exposures to workers are related to the presence of possible infectious diseases in the waste handled on site. Apart from the personal protective equipment already being provided, it is recommended that a health surveillance program as detailed in paragraph 6.1.6 is implemented.</p> <p>Also, since hot and cold water systems, hose reels, water storages, etc. are present on site, a legionella monitoring program should be implemented.</p> <p>Specific chemicals' risk assessments are to be carried out in accordance to local legislation. These should be reviewed at regular intervals to ensure compliance.</p> <p>Training is to be provided and to include awareness of the requirements of the legislation.</p> <p>Keep stock of hazardous substances to a minimum to minimise the associated risk.</p> <p>Ensure that personnel are trained and kept abreast with any changes of the spill response plan.</p> <p>Maintain spill kits in areas where hazardous substances are handled.</p>	<p>Refer to 6.1.6</p> <p>A tender will be issued in 2020.</p> <p>In process.</p> <p>Pending.</p> <p>In place.</p> <p>In place.</p> <p>In place.</p>	<p>Refer to 6.1.6</p> <p>A tender will be issued in 2020.</p> <p>Risk assessments being drafted.</p> <p>Completed.</p> <p>In place.</p> <p>In place.</p> <p>In place.</p>	<p>/</p> <p>Aug-20</p> <p>Jun-20</p> <p>Aug-20</p> <p>/</p> <p>/</p> <p>/</p>
<p>4.9 Health and Safety Signage</p> <p>Maintain current signage and ensure that it is observed. Training on the significance of health and safety signage might need to be considered.</p> <p>Review signage based on continuous assessment to ensure that sufficient information is available within the facility.</p>	<p>In place.</p> <p>In place.</p>	<p>In place.</p> <p>In place.</p>	<p>/</p> <p>/</p>
<p>4.10 Falls from height</p> <p>Walkways, elevated working platforms and other locations situated at height are to be subjected to routine maintenance to ensure that the guardrails provided remain robust.</p> <p>Maintain safe systems of work for work beyond the safety of guardrails.</p> <p>Access equipment are also to be included in the facility's maintenance program.</p>	<p>In place.</p> <p>In place.</p> <p>In place.</p>	<p>In place.</p> <p>In place.</p> <p>In place.</p>	<p>/</p> <p>/</p> <p>/</p>

4.11 Confined Spaces All the confined spaces within the facility are to be clearly denoted with signage and entry must be controlled. Maintain the confined space hazard assessment and control program should be formally implemented detailing: - The identification and assessment of all potential hazards that may exist at the beginning of the work as well as those that may develop because of the work activities. - The roles and responsibilities of each person or party involved. - A plan to eliminate or control all identified hazards. - Written work procedures. - Training program for all the workers that will enter into the confined spaces. - The establishment of an entry permit system for each entry into a confined space. - Development of an emergency plan complete with training and equipment in case an unforeseen situation occurs and an emergency response system. - Medical fitness requirements of staff entering confined spaces. - Etc.	In place.	In place.	/
	In place.	In place.	/
4.12 Storage and Stacking The amount of baled and loose materials on site is to be kept to a minimum. Stack stability is to be monitored.	In place.	In place.	/

<p>4.13 Fire Safety and Explosion Management and Prevention</p> <p>It is recommended that the insured implements a fire safety management system (level 1) as defined in BS 9999, Code of practice for fire safety in the design, management and use of buildings.</p> <p>In view of the presence of flammable gases, i.e. methane, an explosion document is to be prepared. This document shall contain the findings of a risk assessment of any work activity involving flammable/or explosive atmospheres. It may be incorporated or at least referenced in the Safety Statement, be part of other risk assessment documentation or included in the Safety Report for the facility.</p> <p>It must detail:</p> <ul style="list-style-type: none"> · Technical or organisational measures so as to reduce or prevent the risk of explosions and measures used to mitigate the effects of an explosion. · The operation of early warning devices. · Training instruction and supervision given to workers who work in places where an explosive or flammable atmosphere may occur. · Operational procedures, maintenance, operation of permits to work, and co-ordination between employers. · Classified places where explosions may occur called hazardous zones and detail marking of areas as well as location. · Means of escape in the event of an explosion. · The properties of substances that present an explosion hazard. · Selection and use of suitable equipment for use in hazardous zones including certification and calibration documents. · Equipment used that is CE marked and in compliance the ATEX Directive 2014/34/EU that covers equipment and protective systems intended for use in potentially explosive atmospheres. · How often the EPD is reviewed and when is it due to be reviewed again. 	<p>In place.</p> <p>In place.</p>	<p>In place.</p> <p>In place.</p>	<p>/</p> <p>/</p>
<p>4.13.1 Compartmentation, Fire Separation and Smoke Venting</p> <p>Maintain inspection of all fire doors, integrity of fire compartments and smoke extraction systems.</p>	<p>N/A</p>	<p>N/A</p>	<p>/</p>
<p>4.13.2 Fire Detection and Fire Extinguishing Appliances</p> <p>Maintain inspection of all detection equipment and all fire extinguishing equipment, i.e. fire extinguishers, hydrants, hose reels, etc.</p> <p>Flat hose reels are to be readily available next to the fire pump room or in other strategic locations. Improve housekeeping around hydrants.</p>	<p>In place.</p> <p>In place.</p>	<p>In place.</p> <p>In place.</p>	<p>/</p> <p>/</p>
<p>4.13.3 Emergency exits, evacuation routes, manual call points and assembly points</p> <p>Maintain clear and unobstructed access to emergency exits, evacuation routes, manual call points and assembly points.</p>	<p>In place.</p>	<p>In place.</p>	<p>/</p>

4.13.4 Fire Training, Emergency Plan & Emergency Services

The current emergency response plan is to be reviewed to include the following:

- Communication arrangements, such as named emergency contacts, key holders, incident controllers, etc. with their telephone numbers and likely response time (for out of hours).
- Communications arrangements with neighbours/nearby premises which may be affected.
- Hazardous and combustible materials on site, including wastes.
- Specific hazards, such as gas cylinders, fuel stores, etc.
- Normal number of people working on site and usual hours of work.
- Fire-fighting equipment on site and where this is located, such as location of hydrants, fire extinguishers, hoses, etc.
- Location/s and detail of any fixed fire systems on site, such as sprinklers.
- Any other equipment on site which may be of use during a fire, such as heavy mobile plant which could be used to assist the Civil Protection.
- Any specific environmental issues, such as drainage issues for firewater, etc.
- The procedures, such as evacuation, firefighting and summoning the Civil Protection, which employees and others on site must follow in the event of a fire.

The accident/emergency plan should also include a map showing the:

- Layout of buildings (externally and internally, including fire exits and other access points).
- Location of all stored wastes (externally and internally stored), what these wastes are, how much is in each storage area typically, etc., and noting any specific wastes which may pose specific hazards such as plastics.
- Any locations where hazardous materials are stored on site (location of gas cylinders, chemicals, etc.)
- Main access routes for fire engines and others and any alternative accesses.
- Access points around the site perimeter to assist firefighting.
- Location of hydrants (on and off site) and water supplies.
- Location of fire extinguishers, hoses and other fire-fighting equipment on site.
- Location and layout of fixed plant (such as recycling plant and equipment), and where mobile plant is usually parked out of normal work hours.
- Location of utilities isolation points, such as electricity and water.

The plan should also detail disaster recovery measures as appropriate including:

- The removal of burnt material using appropriate and lawful disposal.
- The safe re-commission of plant.
- Salvage operations.

Done.

Done.

/

4.1.14 Risk Assessments Risk assessments done to date are to remain current and relevant. Recommendations made in the assessments are to be addressed and presented for review in the form of an action plan. The assessments need to be reviewed periodically. As noted under paragraph 6.1.3, detailed plant and machinery risk assessments should be carried out and documented to determine the specific mitigatory measures in place to minimise injury through contact with moving parts.	In place.	In place.	/
	In place.	In place.	/
	In place.	In place.	/

Report Reference: **PA TN 197179**

Prepared by: Ing. Fabio Stivala

Status Update by: S Salomone

Date: 12.06.2020

Item	Status 11.12.2019	Status 12.06.2020	Target Completion Date
<p>1. Fire Water Ring Main & Hydrants.</p> <p>This pipe work is in various locations found to be corroded or damaged. There currently is a leak, which manifests itself when pump pressure is raised. The leak has been identified in its approximate location, however this would be a second leak (pipe damage) discovered after a recent repair.</p> <p>Most of the galvanized steel pipe work is run buried, with pour / worn-out corrosion protection (bituminous wrap). There are not enough ring main isolation valves, that would enable repairs in a section whilst the rest remains 'live'. Most of the pipe is 4" dia. or smaller. This is undersized. Hydrant outlet risers are located in awkward locations where they are being hit by vehicles. In certain cases, these are too close to buildings. We have not seen readily-available hoses and nozzles.</p> <p>This situation may result in seriously inadequate fire fighting provisions in the event of a fire.</p> <p>It is suggested to install a new fire ring main, where possible run surface or overhead along with other pipe lines or structures. If sections need to be run buried, we suggest HDPE pipe runs. Ring main should be in 6" dia., Hydrant pillars should rise in 4", include an isolation valve and be protected by bollards. Vide Wasteserv MN.</p> <p>In some locations we strongly recommend the provision of portable water canons, typically, in the area between the MTP (back side) and the MMRF.</p>	<p>A complete overhaul of the firefighting system is planned. Currently market research is being carried out before issuing tender / negotiated procedure.</p> <p>In place.</p>	<p>Upgrading works initiated. To be completed by mid-July '20</p> <p>In place.</p>	<p>Jul-20</p> <p>/</p>

<p>2. Fire Pumps</p> <p>The fire pump-set is a twin-set electric submersible Calpeda 8SDS 100/7 flow 30-125 cu.m/hr, head 150-73.5m. i.e. 2000 lit/min at 7 bar. We have not done any pressure loss calculations for the existing ring main, since exact pipe route and pipe sizing is not available to us. However, the standard specifies 1500 lit/min at 5-8 Bar at the hydrant outlet. This means that the pump may just about be right. Our assessment for such a large site is that the ring main should have been 6" dia. A pressure releif valve is recommended with return to reservoir.</p> <p>The Electrical switchgear may need checking, especially where dual power supply is concerned. We are aware there is a generator on site, however the change-over from Enemalta supply to Generator should be: (a) changed-over automatically, and (b) guaranteed through separate fire rated cables.</p> <p>The key to access the fire pump room should be more readily available, and clear labelling & a schematic diagram within the room would help CPD identify and act quicker.</p>	<p>Refer to Point 1.</p> <p>Refer to Point 1.</p> <p>In place.</p>		<p>Jul-20</p> <p>Jul-20</p> <p>/</p>
<p>3. Fire Water Reservoir</p> <p>We believe the current reservoir is insuffiecient, and if the submersibles are installed vertically, then not all the water can be used. We recommend (a) the installation of the pumps in a horizontal position, include cooling shrouds, and dry run protection. (b) augmenting the water storage by refurbishing existing and un-used fibre-glass tanks currently near the compost shed, we believe there are 3 tanks which should each hold at least 10 cu.m.</p>	<p>Refer to Point 1.</p>	<p>Refer to Point 1.</p>	<p>Jul-20</p>
<p>4. Spillages & leaks, chemicals, Oils, etc</p> <p>Our impression when viewing the mechanical work shop areas (vehicle maintenance), which will also house a chemical storage room nearby, is that far too many chemical/oil leaks are un-controlled. There is also a diesel storage tank, which does not fully comply to REWS regulations (upgrade & engineer certification required).</p> <p>We presume that the new work shops being constructed/refurbished and these area require oil interceptors, and in any case, a perimetral gutter to collect all chemical spillages for further treatment and disposal.</p>	<p>Workshop currently being upgraded.</p>	<p>Workshop currently being upgraded.</p>	<p>Aug-20</p>
<p>5. Acetylene and other Gas Storages</p> <p>We observed storage of such gases in what appears to be not suitable and dangerous location.</p>	<p>Pending.</p>	<p>Gas cylinders moved away from building.</p>	<p>Mar-20</p>
<p>6. Spray paint Booth</p> <p>This is a make-shift steel container made into a spray booth. Besides H&S issues, we believe that thinner fumes may develop into a possible explosive atmosphere. There are no ATEX provisions in such booth. Currently there is a complete (possibly un-certified) electrical installation (power & lights), a fan, a radi-CD player and other appliances which may possibly trigger a spark. There is also a small storage of paints & thinners. ERA regulations may also apply re venting of fumes.</p>	<p>Works have been temporarily stopped until a proper spray booth is purchased.</p>	<p>No update.</p>	<p>Spraying currently not taking place. Wasteserv to decide if it's to purchase booth or contract this service.</p>

<p>7. Hydrolisers and Digester Tank farm, CHPs, Biogas, etc.</p> <p>A detailed ATEX study is required for this area. From basic inspection, it appears that (a) ATEX zones are not identified clearly, and (b) the condition of some electrical devices and their cabling, joints, etc seems dubious.</p> <p>Maintenance carried out in the above tanks requires careful measurements of LEL and HEL. We are not sure if the correct methodology is being followed.</p>	<p>Done.</p> <p>Procedure for working in ATEX zones currently being developed.</p>	<p>Done.</p> <p>Done.</p>	<p>/</p> <p>Jan-20</p>
<p>8. MRF proposal</p> <p>We understand there is a proposal to create a short-term (5-years) MRF area following the destruction by fire of the last year/s.</p> <p>This we understand involves several steel 40' containers laid out in a U-shaped manner. The bales are stored within this 'compound'. We recommend CCTV with IR hot spot monitoring cameras AND water monitors, as has been implemented at Wasteserv MN.</p>	<p>Refer to Point 1.</p>	<p>Refer to Point 1.</p>	<p>May-20</p>
<p>9. Fire Detection System (mainly MTP building)</p> <p>We understand that in these sites, this is always a problem since dusts and insects affect the detection devices. We propose to remove the fixed-point detectors and replace with beam detection system. The devices should be installed at locations which are easily reachable for cleaning and maintenance. Manual call points and sounders (especially the DECIBEL LEVEL) require increase.</p> <p>Some hose reels were noted to be damaged.</p>	<p>Both fixed-point detectors and beam detectors are in place. 120dB sounders have been installed which are more than sufficient for the area.</p> <p>Refer to Point 1.</p>	<p>Both fixed-point detectors and beam detectors are in place. 120dB sounders have been installed which are more than sufficient for the area.</p> <p>Refer to Point 1.</p>	<p>/</p> <p>Jul-20</p>
<p>10. EVACUATION ROUTES</p> <p>As was done at MN, clear evacuation routes with emergency lights, signs and markings should be identified. Currently these are not so evident. Many fire doors are found damaged.</p>	<p>Refer to Point 1.</p>	<p>Refer to Point 1.</p>	<p>Jul-20</p>
<p>11. Training, Fire Drills, Evacuation procedures</p> <p>It is our recommendation that management handles the above procedures, since this is by far what may reduce risk, evacuation time and effective and immediate action.</p>	<p>Emergency Response Team members have been trained in Advanced Fire Fighting, First Aid and Spill Response. Training on the revised Emergency Response Plan is in process. Fire Drills to be conducted in Jan-20.</p>	<p>Emergency Response Team members have been trained in Advanced Fire Fighting, First Aid and Spill Response. Training on the revised Emergency Response Plan is in process. Fire Drills to be conducted once upgrades to the fire fighting system are complete.</p>	<p>Jul-20</p>



SAWTP ODOUR MANAGEMENT PLAN

1. Introduction

An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of smell. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.

The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception.

2. Measures by Wasteserv to prevent or where not practical reduce odour

- a) Municipal waste (organic) shall be processed on the same day it is disposed of at the plant.
- b) Sheds and enclosures are equipped with fast acting doors.
- c) On a daily basis, fast acting doors are checked for functionality and integrity.
- d) Personnel access doors are kept shut.
- e) Apertures and/or cracks in shed walls are repaired.
- f) Waste stored outside is stored in enclosures and/or covered with impervious tarps.
- g) Waste of an odours nature in the quarantine area (if any) is stored contained areas for a period of not more than 24 hours.
- h) Wasteserv personnel ^[1] carries out routine odour monitoring in line with the Environmental Monitoring Programme.

3. Monitoring & Corrective Action

3.1 Routine Monitoring

Wasteserv personnel ^[1] carries out sniff testing and olfactometry testing in line with the Environmental Monitoring Programme. Test /reports are analysed and sources of odours are investigated and corrective action is taken.

3.2 In case of a complaints or report

In case of a complaint or report, Wasteserv personnel shall follow the below procedure:

Customer Care Personnel

- Take note of complaint details (including time, duration, location where odour was perceived and complainant details) and pass all information to facility personnel.

Scientist ^[2]

- Note time of complaint, wind direction and location where odour was perceived.
- Investigate complaint immediately to establish the source of odour.
- Share with Facility Manager / Plant Engineer all details pertaining to the occurrence.

Facility Manager / Plant Engineer

- Take corrective action to eliminate, minimise and/or limit odour as practically possible. As necessary, adjust and/or suspend process or activity.

Scientist

- Takes note of action taken and inform Customer Care Personnel accordingly.

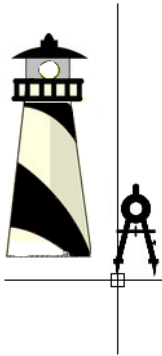
Customer Care Personnel

- Record all details pertaining to complaint, including time, duration, location where odour was perceived and action taken.

4. Notes

[1] – Sniff test is to be carried out by personnel which is / are not directly involved in operational area.

[2] – Investigation is to be carried out by Scientist which is not directly exposed to operational area.



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Perit Eric Formosa

2nd November 2017

C.c. Tonio Montebello

Wasteserv Malta

EkoCentre, Latmija Rd.,

Marsascula MSK4613

PA TN 197179

C.c. The Chairman - PA

Dear Sirs,

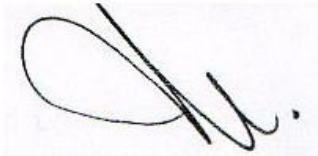
**FIRE SAFETY, VENTILATION, LIGHT & NOISE EMISSIONS / MITIGATION MEASURES
REPORTS - for Proposed Construction of Chemical Room over existing Garage**

Please find hereunder REPORT/S requested by PA for the above project. This report is based on a set of architectural drawings forwarded by Wasteserv Architect Eric Formosa, endorsed copy with comments is attached.

In line with PA screening letter, We confirm that by implementing the requirements listed in this report, including: (i) fire detection and fire-fighting measures, (ii) means of ventilation in conformity to relevant DC2015 clauses, and smoke extraction as indicated; (iii) noise emissions mitigation measures, (iv) mechanical ventilation providing sufficient air changes where natural ventilation is lacking, and Natural / Artificial Lighting complying to Sanitary law LN227 of 2016; then the premises will meet the required local and international standard.

The measures listed within this report must be implemented fully for a final Compliance certificate to be issued by the undersigned, once the project is completed. Therefore, We suggest that Architectural designers and M&E Engineers are copied with this report and drawings, so that they can include the necessary requirements in the instructions to contractors. Also note that Suppliers and Contractors MUST certify their works. Whilst this

is standard for M&E systems, one needs to clarify this point to the finishes contractors, particularly where Structural fire rating, fire compartmentation, partitions, soffits and fire doors are concerned. Should anything be unclear, kindly contact the undersigned for further explanations.



**FIRE SAFETY & DETECTION, MEANS OF VENTILATION, LIGHTING, MITIGATION
MEASURES AGAINST NOISE EMISSIONS NUISANCE REPORTS - WASTESERV SANT
ANTNIN – CHEMICAL ROOM OVER EXISTING GARAGE**

1. PRELIMINARY

This report may require modifications following **review and approval** by the PA, CPD, SEO, ERA & CRPD. We would welcome a meeting where we can clarify and discuss matters, particularly where we refer to mitigation measures or trade-offs. Should the Architect be required to carry out modifications to the plans of the above premises then we would request to be copied in order to verify that the variations do not impact negatively on the fire safety of the building.

As per PA requirements, once the project is completed, and testing, commissioning and handing over has been made, a **COMPLIANCE** certificate needs to be issued by the undersigned Fire Consultant, following a thorough inspection, where verification of the implementation of all prescribed systems has been carried out.

In order to ensure that all works are carried out in full compliance, it is recommended that periodic works inspections and site meetings are held. Any issues that require clarification must be referred to the undersigned.

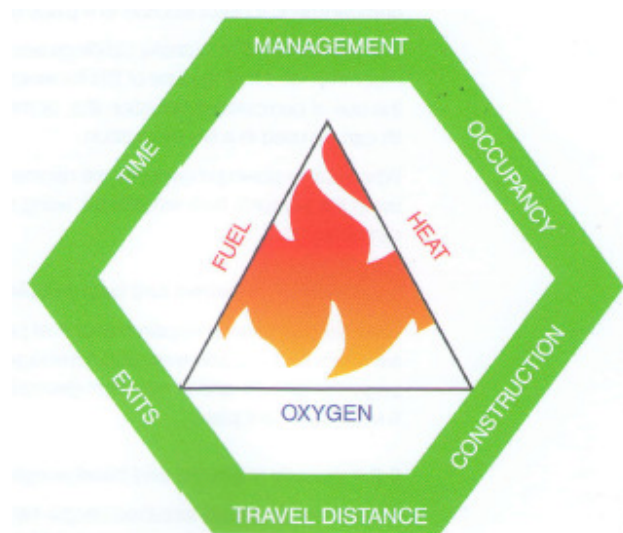
The reports do not relate to any granting of operational licenses. The Risk assessment has been carried out in relation to the plans submitted, and to the available information, provided by Architect and developer/operator. The measures listed in the reports therefore apply only to the scope of the building as mentioned herein.

Should the building use change, the operator MUST inform PA and the undersigned, since the safety measures may need to change. The Undersigned takes no responsibility for undisclosed information from the developer. Therefore the information about: *occupants* (quantity and category), *materials* and *processes* must be stated clearly.

Although the premises as designed would be compliant to the minimum safety requirements, the operator/employer is obliged by law to carry out staff training, appoint H&S/safety/security personnel, and fire wardens particularly since the premises are part of the larger grounds of the Sant Antnin Wasteserv treatment Plant. A Fire plan, policies, procedures, log books, fire drills, etc., must be in place. The Fire Alarm System programming (Cause & Effect matrix)** and all relevant interlocks with other building services MUST be set out and implemented professionally. The Evacuation plan should be studied carefully and drawn up such that the Occupants, Insurance and the CPD are in agreement.

**The Fire detection and Alarm for this building should be linked to the main security/control room.

The MOCTET HEXAGON diagram below depicts the constituent parts of the Protective Measures required by legislation:



6

Ref: The FPA – Fire Risk Assessment Guidance Notes

There are many guidance documents, codes, and standards which may be referred to, however, they are not to be used as prescriptive solutions which MUST be adhered to at

all costs. These are benchmarks to assist the fire risk assessor, which should be referred to in particular where legal notices might not be fully implemented.

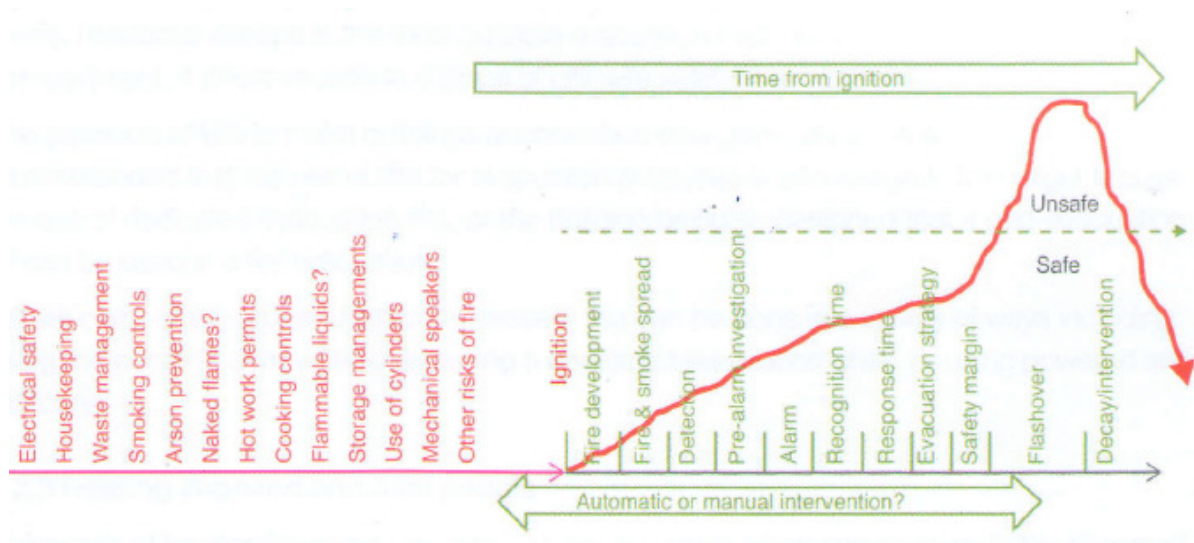
The Fire Safety Report deals with all the elements (sides of the MOCTET Hexagon), however, the following notes relate to Management, an area of building safety often neglected:

The Operator is required by OHSa Law and eventually the Fire Safety ACT (*currently being drafted by the BRO in conjunction with the CPD*) to carry out Fire Risk assessment for the premises.

There are numerous fire safety management issues that must be introduced within the building's operational procedures:

- Fire Safety Policy & procedures
- Training
- Appointing responsible person/duty holder
- Appointing a competent person (risk assessor)
- Procedures for calling the emergency services
- Using fire extinguishers, and fire-fighting systems within premises
- Shut down procedures
- Evacuation strategy
- Emergency evacuation plan, signage
- Fire wardens, security
- Persons/employees needing assistance
- Assembly points
- Fire drills
- In-house inspections, ensuring emergency exits & routes are unobstructed, fire hazards reduced, etc.

One of the most important aspects of fire safety is understanding the fire time-line diagram:



The **Prevention** (red left hand side) stage is all about the building's 'passive' built-in measures (mentioned in the report later paragraphs) and proper management. If a fire starts somewhere in the building (ignition) then the **Protective** measures (green right hand side) come into effect, but are time-related. Proper fire safety preventive and protective measures in place, together with management (emergency preparedness) will help avoid reaching the 'unsafe' stage.

2. SCOPE

The development proposed shall be dedicated to the storage of chemicals. Wasteserv have submitted MSDS of chemicals and a meeting was held on 18/09/2017 to discuss the quantities and storage segregation strategy.

This report should be read in conjunction with any attached documents.

This report does not include aspects related to intruder/access control/security, storm-flooding, and any danger not directly related to Fire.

The scope of this report is to provide guidelines for both the Client and his M&E Consultants on the requirements for Fire Safety as required by PA, SEO (and CPD) in the screening letter. The advice (or parts thereof) given in this report should be included in the structural, MEP and finishes works in order to raise the level of fire protection, increase the safety of occupiers, personnel & public, and preventing material loss (both buildings and contents).

We recommend CCTV coverage in all areas (inside and outside) and fail-safe electronic locks linked to the FAP system wherever these apply. No door shall remain locked during an evacuation.

The undersigned attended meetings with the Client & Architect, in order to clarify some issues.

The criteria used in this report aim:

- To provide adequate protection to the personnel and public occupants and to provide means to fight a fire.
- To diminish the likelihood of fire occurring, and if it does, to limit the size of a possible fire and therefore its consequential damage.
- To improve the level of fire protection so as to limit economic losses in case of fire.
- To prevent spreading of fire from one area to another by introducing fire rated compartments.
- To prevent the effects of heat or toxic fumes causing more serious consequences.

3. REFERENCES

We referred to **BS9999:2008** in order to establish the risk profile for the development; although the project may consist of different categories of risk, it must be noted that the main concern regarding Fire is the achievement of effective evacuation of people, and safe entry into the buildings for the CPD. The main focus has been Life Safety, however Property protection and material loss prevention has also been taken into consideration.

STANDARDS & CODES REFERENCES USED IN THE COMPILATION OF THIS REPORT
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- **Design Guidelines for fire safety in buildings in Malta – BCID**
- **BS 9999:2008** Code of Practice for fire safety in the design, management and use of buildings
- **The FPA- Fire Risk Assessment Course Handbook – 2017**
- **Doc B : FIRE SAFETY**, Building Regulations UK : 2013
- **BS5306-1 or MSA EN 671** Code of practice for fire extinguishing installations and equipment on premises.

- **MSA EN 12845** Fixed fire-fighting systems. Automatic sprinkler systems. Design, installation and maintenance
- **BS5306-3 & 8** Fire extinguishing installations and equipment on premises Selection and positioning of portable fire extinguishers
- **BS5839-1** Fire detection and fire alarm systems for buildings Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises
- **BS EN 1838 & BS5266** Emergency lighting Code of practice for the emergency escape lighting of premises
- **BS5499-1 & BS5499-4** Safety signs, including fire safety signs. Code of practice for escape route signing
- **Malta H&S Regs LN 45 of 2002**
- **BS 476 & EN1363** Fire tests on building materials and structures Guide to the principles, selection, role and application of fire testing and their outputs
- **EN54** Fire Detection & Alarm Systems
- **EN3** Fire Extinguishers
- **MEPA Development Control Design Policy, Guidance & Standards 2015, particularly P53**
- **Development Planning Act, LN227 of 2016**
- **Tech Guidance – Doc F, Conservation of Fuel, Energy & Natural Resources.** (Minimum requirements on the energy performance of buildings regulations 2006)
- **Doc F : VENTILATION**, Building Regulations UK : 2006
- **CIBSE : Environmental Design – Ventilation, Light & Noise Guidelines**
- **EN81-72 : Fire Fighting Lifts.**
- **EN ISO 7010 Safety Signs, Graphical symbols**

NOTES:

The nature of the building - mainly concrete, steel, brickwork, glass and other non-flammable structural elements, and its operation – Industrial / chemical stores - does not generally constitute a high occupancy (in terms of number of staff and hours spent within the stores). However the flammability load may be substantial**. However, the effects of a possible fire in the underlying garage floor should be carefully addressed. This has been taken into consideration throughout our report.

*** It is being assumed that no Fuels or LPG cylinders are stored within the said facility.*

Although the building is low rise and BS5306-1 / MSA-EN-671 does not require dry/wet riser protection, we strongly recommend that an external fire hydrant be

installed at approximately 6 - 10m away from the proposed development structure. This fire hydrant should be connected to the site's existing ring main.

The building includes a wide shutter, which we suggest should be either 4-leaf or 'up & over' type, so that within it, an emergency door may be included. This door should open outwards. Provision for manual opening (i.e. even in the absence of electricity) should be included, if the main shutter is electrically operated.

Note: Electricity Mains should be turned Off when store is not occupied (except for Fire detection, alarm, CCTV, extraction ventilation).

Where several products and equipment will be installed, it must be ensured that the MSA / MCCAA (Malta Standards Authority) standards and Malta Government legal notices are complied with. A case in point where often this is neglected may be: Fire Doors certification, where both the product and its installation MUST be certified.

Note: in this project there are no Fire doors envisaged.

The Operator must insure the premises to cover Fire damage. **The Insurance firm should be copied with this report at an early stage. The Insurance should submit comments if any points require further cover or if they are not in agreement with the approach included in this report.**

4. DRAWINGS

The following list of drawings was submitted by the Architects for our analyses:

- Plan & section
- Site & Block plans

Endorsed copy is attached.

In order to assist the PA, ERA, CPD and the Sanitary Officer, we separated the reports in sections.

VENTILATION REPORT

PART 1 – ASPECTS OF VENTILATION - FIRE SAFETY RELATED

In the event of a fire, the smoke generated within the store or in the underlying garage would quickly fill large volumes, and as the temperature rises, the smoke will rise to fill the compartment.

Given the nature of the operations, i.e. chemical storage, it is understood that the roller shutters will be kept open during work hours, this would help smoke and fumes exhaust. In general, smoke impairs breathing and vision, making safe exit impossible, within a short time. Heat will compromise the structural stability of the building. Hence, **smoke extraction** will prevent toxic environment situations and heat build-up. The CPD may need to remove smoke effectively prior to their entry into the building. The control of smoke build-up can be done in 2 ways, by natural convection – providing dedicated low level & ceiling openings to convey the smoke out of the building AND/OR via mechanical ventilation – smoke extraction fans. The former is available as included in our endorsed drawings; and we propose a total of 1 sq.m cross section area, on opposite walls. Mechanical smoke extraction is highly recommended in these premises, and we propose 6 air changes per hour during operational hours, and 10 air changes per hour triggered by the Fire Alarm system.

PART 2 – VENTILATION: AMBIENT AIR / ENVIRONMENTAL - RELATED

Doc F - VENTILATION, UK Building Regulations 2000, which also makes reference to CIBSE AM10 (Buildings other than dwellings, Natural ventilation of rooms) Extract rates as per tables below applies:

Table 1.5 Recommended comfort criteria for specific applications

Building/room type	Winter operative temp. range for stated activity and clothing levels*			Summer operative temp. range (air conditioned buildings†) for stated activity and clothing levels*			Suggested air supply rate / (L.s ⁻¹ per person) unless stated otherwise	Filtration grade‡	Maintained illuminance§ / lux	Noise ratings§ (NR)
	Temp. / °C	Activity / met	Clothing / clo	Temp. / °C	Activity / met	Clothing / clo				
Factories:										
— heavy work	11–14 ^[11]	2.5	0.85	— ^[12]	—	—	— ^[13]	Depends on use	— ^[14.15]	50–65
— light work	16–19	1.8	0.85	— ^[12]	—	—	— ^[13]	Depends on use	— ^[14.15]	45–55
— sedentary work	19–21	1.4	1.0	21–23	1.4	0.65	— ^[13]	Depends on use	— ^[14.15]	45
Garages:										
— parking	—	—	—	—	—	—	6 ACH (extract)	—	75/300	55
— servicing	16–19	1.8	0.85	—	—	—	—	G2–G3	300/500	45–50

Any non-habitable rooms that have no windows require mechanical ventilation, flow rates as per Doc F – Ventilation, Building Regs UK; or ASHRAE/CIBSE codes.

Wasteserv informed the undersigned that the store will only be accessed to place or removed goods, and staff will not spend hours within the premises. This therefore confirms that the store is not a habitable space. Therefore artificial lighting and mechanical ventilation are acceptable.

FIRE SAFETY REPORT

(i) **General** : BS9999 : 2008 Hazard / risk category:

BS 9999:2008

BRITISH STANDARD

6.2 Occupancy characteristic

The occupancy characteristic is principally determined according to whether the occupants are familiar or unfamiliar with the building and whether they are likely to be awake or asleep. Occupancy characteristics should be determined in accordance with Table 2.

NOTE It is recognized that within each of these categories there will be persons with a range of capabilities present. In some cases these will be known to the premises management. Further guidance is given in Clause 46.

Table 2 Occupancy characteristics

Occupancy characteristic	Description	Examples
A	Occupants who are awake and familiar with the building	Office and industrial premises
B	Occupants who are awake and unfamiliar with the building	Shops, exhibitions, museums, leisure centres, other assembly buildings, etc.
C	Occupants who are likely to be asleep:	
Ci	• Long-term individual occupancy	Individual flats without 24 h maintenance and management control on site
Cii	• Long-term managed occupancy	Serviced flats, halls of residence, sleeping areas or boarding schools
Ciii	• Short-term occupancy	Hotels
D ^{A)}	Occupants receiving medical care	Hospitals, residential care facilities ^{B)}
E ^{C)}	Occupants in transit	Railway stations, airports

^{A)} Currently occupancy characteristic D, medical care, is dealt with in other documentation and is outside the scope of this British Standard.

^{B)} Under some circumstances, residential care facilities may be classified as occupancy characteristic Cii.

^{C)} This occupancy characteristic is included for completeness within this table but is not referred to elsewhere in this British Standard.

6.3 Fire growth rate

The fire growth rate is the rate at which it is estimated that a fire will grow. Fire growth rates should be categorized in accordance with Table 3.

NOTE A building with a high fire load density will not necessarily have a rapid fire growth rate, and low fire load density will not necessarily have a slow fire growth rate.

Table 3 Fire growth rates

Category	Fire growth rate	Examples	Fire growth parameter ^{A)} kJ/s ³
1	Slow	Banking hall, limited combustible materials	0.002 9
2	Medium	Stacked cardboard boxes, wooden pallets	0.012
3	Fast	Baled thermoplastic chips, stacked plastic products, baled clothing	0.047
4	Ultra-fast	Flammable liquids, expanded cellular plastics and foam	0.188

A) This is discussed in PD 7974-1.

WE LIST CLASSIFICATION & CATEGORY AS FOLLOWS:

- STORAGE SPACES: A-2
- INDUSTRIAL AREA : A-2

All materials used for construction have zero fire load;

All finishes and furnishings MUST be fire retardant certified materials. (E.G. DO NOT USE TIMBER)

The introduction of fire protection measures recommended here below will lower the risk category.

The layout of the building as well as its use and the nature of its occupancy have been reviewed in conjunction with the *Design guidelines on fire safety for buildings in Malta – Vol. D / Draft Building regulations, issued in March 2004 by the BCID; and* BS9999:2008.

All Fire protection systems and equipment shall comply to the MSA – EN or BS standards quoted in this report.

Structural Fire resistance shall be REI-90min. Architects to certify.

(ii) Travel distance to Escape Routes

The “means of escape” are the *structural means whereby safe routes are provided for persons to travel, by their own unaided efforts, from any point in a building to a place of considerable safety.*

Recommendations: In carrying out a Fire Risk Assessment of proposed building plans, we review the three aspects which will lead to effective management of the Significant Hazards: (i) Prevent, (ii) Protect, (iii) Evacuate. In the case of the latter aspect, one needs to assess **Who** (especially disabled, children, elderly), **Where** (location w.r.t exits), **When** (time of day/night, rush hours, un-attended hours) and **Why** (e.g. people may be asleep and unaware...) occupants may be in danger.

Obtaining information from the operator and designers and answering these questions provides a better understanding of how *Safe Egress* from buildings should be provided.

- ❑ According to BS9999:2008, the maximum travel distance for most areas within this project are:

BRITISH STANDARD

BS 9999:2008

17.4 **Travel distance**

The travel distance should generally not exceed the value given in Table 12 for the appropriate risk profile; however, if additional fire protection measures are provided the travel distance may be increased subject to certain limitations (see Clause 19).

NOTE 1 The travel distances recommended in this subclause are based on the time available to travel safely to an exit (see Clause 11).

NOTE 2 These distances have been determined according to the risk profile (see Clause 6), taking into account the following issues:

- a) Distances need to be shorter for higher fire growth rates or where the occupants are unfamiliar with the building.
- b) Distances may be longer when additional fire protection measures are provided (see Clause 19).
- c) A person escaping might not go direct to their storey exit in the first instance.
- d) Speed of movement can vary widely according to the occupancy characteristics.
- e) Pre-movement time can vary with the size of room, the occupancy characteristics and the management provision.

Table 12 Maximum travel distance when minimum fire protection measures are provided ^{A)}

Risk profile	Travel distance, in metres (m)	
	Two-way travel	One-way travel
A1	65	26
A2	55	22
A3	45	18
A4 ^{B)}	Not applicable ^{B)}	Not applicable ^{B)}
B1	60	24
B2	50	20
B3	40	16
B4 ^{B)}	Not applicable ^{B)}	Not applicable ^{B)}
C1	27	13
C2	18	9
C3 ^{B)}	14	7
C4 ^{B)}	Not applicable ^{B)}	Not applicable ^{B)}

Where exact travel distances are not known, direct distances should be taken as two thirds of the travel distance.

These distances (A2 > 55-22m) stipulated have been met throughout this project.

- ❑ The Fire load needs to be kept as low as possible; particularly in escape routes such as stairs, corridors and emergency exit doorways;
- ❑ Adequate exit signage and illumination shall be provided.
- ❑ Lobbies should be introduced where possible.

Considerations : All escape route doors, fire doors and corridors must have a clear width of **minimum** 1000/1100mm (depending on location) and height not less than 2000mm. It must be ensured that the direction of door-opening is always in the flow direction of escape.

No door on an escape route shall be locked. If access control is required for security reasons, then these doors must fail safe OPEN in case of emergency, and must include a measure to open door manually (push button or key in (green) break glass box).

Include : (a) suitable hand and barrier railings to help prevent escaping personnel from falling; and (b) anti-slip tape or rough thread edges on steps.

Include panic door handles as necessary, adequate illumination, signage and avoid steps or unusual ramps.

Emergency Exits shall include mandatory (maintained) **Emergency Lighting** to BS5266 and **Safety Signs** to BS EN ISO 7010:2012+A5:2015

E	F	M	P	W
Evacuation route, location of safety equipment or safety facility, safety action (safe condition sign)	Fire equipment signs	Mandatory action signs	Prohibition signs	Warning signs
				
E001 Emergency exit (right hand)	F001 Fire extinguisher	M001 General mandatory sign	P001 General prohibition sign	W001 General warning sign

Escape routes require to be free from any obstacles, and clearly marked with signage providing easy exit.

(iii) Compartmentation & Structural Stability

Compartmentation is the division of a building into '*fire-tight*' compartments by fire resisting elements of building construction in order to contain fire within the compartment of origin. This can be achieved by completely separating different zones by fire resisting walls. All penetrations such as doors, windows, ductwork and pipes can be treated as above. **Different floors are also to be treated as separate fire compartments.**

Compartment walls shall reach from finished floor to the slab above forming continuity. Non compartmented walls may stop just above a false ceiling.

Gypsum partitions acting as fire rated walls, shall be: Stud Gypsum construction walls min 70mm thick, 30/60REI, 12.5mm fire rated certified boarding, on both faces, including taping, jointing, Rockwool infill and 2 coats vinyl acrylic non-toxic paint. Where higher REI-rating is required, use double gypsum board layers.

(iv) **Fire Load**

This is the amount of fuel within a particular area which will burn to release heat and feed the fire.

The materials used for both the structure (concrete & Maltese stone) and the finishes (sand-cement mortar & water-based paint) usually present minimal (or 'nil') heat release, flame spread, and minimal production of toxic fumes.

Any other flammable products used, materials stored and finishes shall be listed and adequate fire protection shall be provided.

Quantities shall be contained such that risk of fire and explosion is restricted. Chemicals which may react with each other must be segregated, and separated by fire refraction walls.

(vii) **Fire Detection**

An automatic fire detection system in compliance to BS5839-1 and equipment to EN54 would provide 24-hour surveillance for any signs of combustion throughout the premises. If the system is properly designed, it would provide a very early warning & alarm. This would enable early emergency response, thus minimizing the re-instatement costs related to fire damage. The detection system Fire Alarm Panel shall be linked to the Operator' s security staff via auto-dialler. These, in turn should alert the CPD.

The Detection system shall include: Fire resistant cable with several devices on the loops. Manual call points, bells, sirens, flash/strobe lights, heat detectors, (ionization/optical/beam) smoke detectors, flame detectors, Multi-sensor detectors, (carbon monoxide and LPG leak detectors – where applicable). Note: Flame detectors are required in these premises.

We recommend gas leak detectors and alarm. Wasteserv specialists should determine which gases are likely to be released in the event of a leak, these may include carbon monoxide, and other deadly or explosive gases. The detection system should trigger the alarm and actuate the extraction fans. **It should be determined whether explosion proof (ATEX) fan motors and lighting power systems are required.**

The system must include the necessary audible (75-90 dB(A)) and visual devices according to the situation and the persons occupying the rooms.

Design shall incorporate all the necessary interlocks with relevant equipment such as fans, etc.

A properly designed detection system must cover all areas. The system should comprise a conventional series of detectors all linked to a fire alarm panel (FAP) forming various recognizable fire zones. *This system **is mandatory**, for all areas of the building. Design system to Life safety category L1.*

(viii) **Fire Suppression Systems**

The fire **protection** of this project includes: *means to aid the CPD (external hydrant), manual suppression systems (extinguishers), early warning and detection, effective Smoke & Heat extraction systems which maintain low temperatures thus extending the resistance of the structure stability, adequately sized means of egress. The Evacuation strategy is meant to rely on Fire Service (CPD). Therefore, the fire alarm should warn occupants preparing them for egress without the need for external assistance. The 'Cause & Effect' matrix therefore should include well-planned evacuation strategy.*







This option is a package of various systems that, together, bring about an acceptable level of protection. It must be clarified that each of the components of this package is indispensable and careful design and maintenance of these is essential. However, we point out that without effective management and training, the above measure may not be sufficient.

The proposed package consists of:

- Multi-sensor detection system or heat trace cable, with strategically programmed fire alarm panel and control; and adequate sounders and flash lights for warning occupants.
- Flame detection
- External hydrant to BS5306-1 / MSA 671-1.
- Fire extinguishers, safety signage, emergency illumination, manual alarm call points.
- Smoke and heat extraction via the adequate natural ventilation provided

- Strict implementation of fire compartmentation
- Fire retardant finishes & materials, REI-90min Structure – Architects certified

All areas shall be protected by portable fire extinguishers as follows:

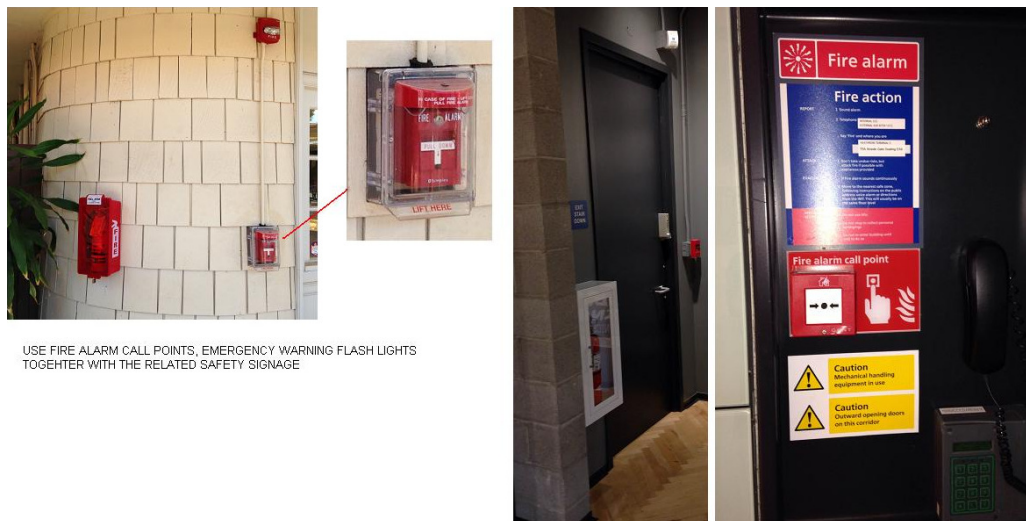
Class	Type of fire	Extinguishing method	Type of extinguisher
 A	Fires involving solid materials, usually of an organic nature. Combustion takes place with the formation of glowing embers (carbonaceous fires)	<ul style="list-style-type: none"> • Cooling • Cooling and smothering • Smothering and chemical interference 	Water Foam Powder (ABC type) Halon 1211 (BCF) * Wet chemical
 B	Fires involving flammable liquids or liquefiable solids	<ul style="list-style-type: none"> • Smothering • Chemical interference • Smothering and chemical interference 	Foam Carbon dioxide Powder (ABC type) Powder (BC type) Halon 1211 (BCF) *
 C	Fires involving flammable gases	<ul style="list-style-type: none"> • Starvation: turn supply of gas off • Chemical interference (only to be done if gas supply can be stopped, otherwise leave to burn) 	Powder (ABC type) Powder (BC type)
 D	Fires involving flammable metals **	<ul style="list-style-type: none"> • Smothering 	Powder (D type)
 E	Fires involving electrical equipment	<ul style="list-style-type: none"> • Smothering • Smothering and chemical interference 	Carbon dioxide Powder (ABC type)
 F	Fires involving cooking oils and fats	<ul style="list-style-type: none"> • Smothering and cooling 	Wet chemical

Manual call points are required at all escape routes, as indicated on drawings.

External and internal fire alarm sounders and flash lights are required as indicated on drawings.

A Fire-man' s Main switch at the service entrance is recommended, this would shut down electrical power, when the CPD decide that this is necessary.

Appropriate signage and Instructions (for CPD & security, fire marshals staff) are required at the front shutter.



(ix) **Safety Signs and Emergency Illumination**

To evacuate a building during an emergency, it is vital that all exit routes can be safely followed leading to a place of safety. Lighting and signage is of particular importance to people who are unfamiliar with the building layout, or in major smoke-filled scenarios, where even trained staff may lose orientation or judgement. A properly designed system will include installed and maintained emergency lights ensuring all relevant areas stay lit for sufficient time for all to escape and other measures safely taken.

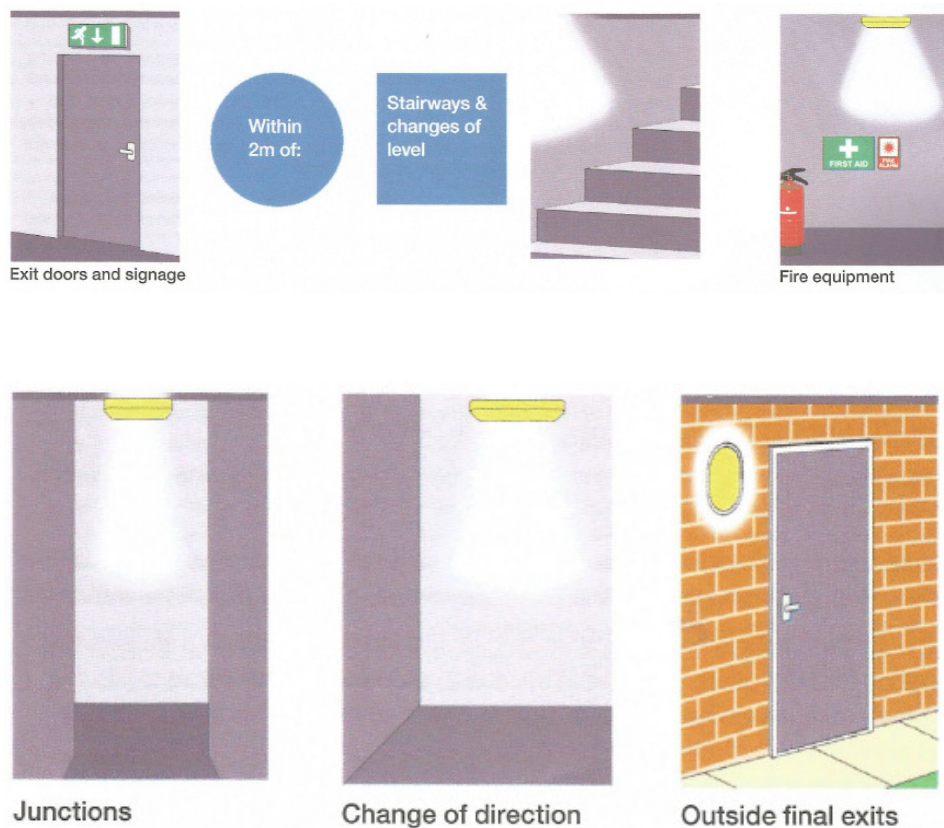
Emergency lighting design shall be in accordance to BS-EN1838 and BS 5266-7.

Non-maintained lighting refers to fixtures which light up when the mains power fails. During (non-emergencies) the units draw charge current to keep the built-in batteries topped. Normal lighting will illuminate all areas up to the stage where electric power is interrupted, either due to system failure, or by the CPD who may turn off power for water-based fire-fighting safety. At that point, the battery-backed units will turn ON and must be designed to provide a minimum of 0.5 to 1lx.

A maintained luminaire is one which has to remain ON at all times, providing adequate lighting, even during non-emergency times. Usually these fixtures are backed by generator supply.

Properly designed lighting and signage will facilitate a quicker exit time for persons who are not aquatinted with the building.

Site Emergency Lights as follows:



(x) Access and Facilities for Fire Service

Access to the CPD is straight forward and there are no issues.

(xi) Internal Control, Fire drills, fire & safety management

Personnel must be trained in basic fire-fighting and an emergency plan should be drafted. Regular maintenance and inspections shall be carried out and logs shall be kept. Residents, general public and personnel must also be made aware of fire evacuation procedures through effective sign posted plans and safety signage.

Fire Risk Assessments will be necessary in order to draw up a cause and effect matrix which shall serve both the FAP programming, and in drawing up a Fire Strategy.

This report is based on the drawings submitted. The complexity of the building, may require subsequent report updates depending on the status of the development, possible changes and clarifications requested.

<h2 style="text-align: center;">LIGHT REPORT</h2>

We have reviewed all areas in this project, and based on the plans and information supplied by the designers we verified the following:

- That there will be sufficient light fittings to provide day-light minimum lux levels.
- That the illuminance is well distributed providing very low glare and optimal contrast
- That LN227 of 2016 is adhered to.

In so far as light fixtures are concerned artificial lighting will be designed in accordance with the requirements of the CIBSE – The Society of Light and Lighting and taking into account:

- Legal Requirements & Emergency Lighting.
- Maintenance.
- Energy Efficiency and Sustainability.
- provide sufficient lighting levels related to the work being carried out.

Typical illuminance values: obtained from **CIBSE SLL Lighting GUIDES**, in particular, **Guide 10 lighting for the built environment; Guide 12 Emergency lighting:**

Following is a schedule of areas and the recommended average Lux levels.

Staircases	150 Lux @ on tread
Plant Rooms	200 Lux (general)
Stores for bulky items	200 Lux (general)
Stores for small items	300 Lux (general)
Switch rooms	300 Lux (general)
Staff rooms (Changing/lavatories)	100 Lux (general)
Emergency Lighting	0.5 – 1.0 Lux

The Luminous Efficacy (measure of how well a light source produces visible light) = ratio of luminous flux to power:

The ideal ratio to be 110 lumens of light output per watt of electrical energy.

All the storage area is a non-habitable floor and therefore shall depend on artificial lighting.

Battery back-up 2hrs for all emergency lights.

NOISE MITIGATION

The site for this development is known for significant traffic and congestion. The noise generation from an operation should in general never **exceed 5dB that of the measured background (existing) noise levels.**

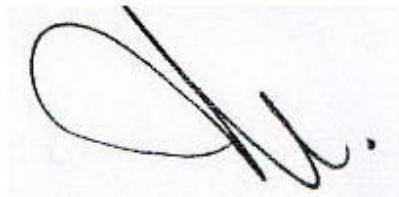
The main noise generating sources are equipment and plant which will generally operate during a power failure (generators) or for fumes & smoke evacuation purposes. These are deemed exceptional situations.

Other Sources of noise include the mechanical work shop machinery. However, these will not impact on the overall noise generation of the Sant Antnin Plant; which is classified as an industrial site, and is significantly distant from residential dwellings.

This specific development relates to storage, therefore the actual noise at nearest third-party receptors will be negligible.

RESIDUAL IMPACTS : No residual impacts are envisaged following mitigation.

I confirm that the recommendations re Fire Safety, Ventilation, light and noise emissions / mitigation measures contained in this report renders the development safe for the users and will comply with international standards, regulations & laws. CPD approval is requested.

A handwritten signature in black ink, consisting of a large loop followed by a series of smaller, connected strokes, ending with a period.

FIRE SAFETY SUMMARY:

1. No matter the distance of the building from the rest of the facilities; a fire hydrant needs to be positioned at a distance of 6-10m away from the said building. This hydrant is necessary for the CPD to draw water to fill their bowers and fight a fire. The civil works will involve trench works approx. 600mm wide by 1000mm deep from the nearest available hydrant or buried ring main. The trench will need a compacted sand bedding, placement of a 4" hydrant line, burying with sand, compaction, placement of marker blocks/tiles/slabs, warning tape, back filling and re-instatement of finished flooring.
2. The building will need internal segregation, by means of 230mm HCB walls infilled with concrete, these walls shall act as fire refraction walls between different category storage materials which are flammable. We are currently doing similar works at Wasteserv Malta North [refer to Stefan Salomone H&S], for the different type bales stored outdoors. In your block, we need to separate oils, fuels, chemicals, paper/cardboard/timber, paints & thinners, etc., from EACH OTHER. The reason is that of containing a fire to limited fuel loads, and also because fires may need different media for extinguishment (e.g. you use foam for fuels but you may need dry powder for chemicals). The segregation walls need to be 300mm higher than the storage height.
3. The top of the storage room/s need smoke and fumes venting. We therefore need to introduced permanently open windows with steel louvers and mesh (for prevention of

insects, rodents, arson....cigarettes/matches thrown in). usually a minimum of 1 sq.m is required, but it depends on the room area/s.

4. It is highly recommended that the access shutter door is fitted with louver grilles also at the bottom, this is necessary for the venting of fumes which may be denser than air, e.g. LPG, Carbon monoxide...
5. We suggest that the electrical installation is turned OFF from a main switch near the main access door.
6. We suggest that essential mechanical ventilation, artificial lighting, toilet facilities; emergency eye/shower; first aid kit are provided if personnel will spend hours inside these premises.
7. The ERA requires bunding around fuels and chemicals. This is to contain leaks and prevent the liquids to reach the water table or the main sewer.
8. Any highly flammable or dangerous goods may need to be stored under lock & key in separate rooms, which we suggest are constructed to class REI-60, and fitted with certified fire door.
9. We strongly recommend an alternative exit door way, located at an angle of 45 deg away from the main door way (i.e. the second exit must be reasonably sited away from the first so as to provide alternative safe exit if the first door is blocked by fire) Doors should be fitted with panic bar hardware.

Item Description	Quantity
Canopy 50m x 36.6m	1
Canopy 37m x 36.6m	1
Canopy 25m x 36.6m	1
Canopy 25m x 12.2m	1

