

Techniques for the reduction of Waste and Emissions

Reduction of Mixed Uncontaminated Waste

Mixed uncontaminated (municipal) waste is reduced through the recycling of wood (from packaging pallets and crates), plastic (mainly clean secondary packaging of raw materials, equipment packaging, clean plastic bags, broken plastic pallets), glass (clean reagent bottles, broken glass) and paper/cardboard (clean secondary packaging of raw materials, equipment packaging, consumables packaging, paper).

Combino Pharm has been a self-compliant producer of packaging and packaging waste since early in its operation and from 2015 has been registered with one of the main Packaging Packaging Schemes recognised by the Environment and resources Authority.

Reduction of Contaminated Waste

Contaminated waste is an inevitable result of the production process. It is mainly made up of solid materials (contaminated packaging, contaminated absorbents and clothing, off-specification products, rejects and expired materials, samples or products. Some liquid waste is also produced by the production process and the laboratory. All waste is duly handled and segregated on site, transported by authorised waste brokers through legally approved channels, and exported to be treated by authorised waste treatment plants.

Whenever possible, contaminated packaging is cleaned to be recycled (see above). However, under most circumstances, cleaning consumes additional resources whilst not giving the reassurance that the waste is sufficiently clean and free from any contaminants. For this reason, most contaminated waste is destroyed by incineration.

It is in the interest of the company to reduce such waste as much as possible, both from a process yield point of view and also due to the typically high costs associated with the destruction of contaminated, non-recyclable waste. It is to be noted that most incineration plants nowadays operate processes with energy recovery.

Reduction of Emissions

While it is recognised that in a pharmaceutical manufacturing facility, the primary focus has to be the quality of the final product with respect to the end user, every effort is made to reduce emissions as much as reasonably practicable.

Emissions to water

Combino Pharm operates under a Public Sewer Discharge Permit issued by the Water Services Corporation. Waste water from the washing of floors and equipment, together with boiler blowdown water and brine from the water purification plant is discharged into the Waste Water Treatment Plant operated by Medichem Manufacturing (Malta) Ltd. This is a physico-chemical waste water treatment plant which reduces contaminant loads through pH adjustment, coagulation, flocculation and sedimentation. No solvents are used at Combino Pharm.

Emissions to land

While very few liquids apart from water are used at Combino Pharm, possible emissions to land are reduced through the use of adequate containment and spill control procedures.

Emissions to air

Emissions to air occur through two main sources:

HVAC systems – HEPA filters installed on the exhaust ports of the system create optimum abatement up to 99.95% (H13).

Boiler exhaust – Measured pollutants are CO, NO_x and particulates. The boiler (thermal rating 607kW) operates on LPG which limits emissions of particulates. Regular maintenance of the steam boiler and regular measurements of the pollutants ensure that emissions are kept in control.

Legionella – There are no cooling towers on Combino Pharm premises. Adherence to the requirements for other sources of emission are more of a Public Health issue rather than an environmental concern.

In addition, emissions to air can occur in exceptional, emergency situations.

No bulk solvents are stored on site since solvents are only used in small quantities as laboratory reagents.

Noise emissions

A comprehensive noise monitoring exercise was carried out in 2010 (Reference: Audioworks Ltd, 2010. Noise Risk Assessment Report). A number of recommendations were made and followed up. The study showed that noise emissions from the installation are in control. The areas of concern were of an occupational, rather than environmental nature.

Heat emissions

There are no heat emissions apart from those coming from the normal use of outdoor equipment and steam boiler.