



CARBON REMOVER

Drew Marine

Chemwatch: 24-0167

Version No: 2.1.1.1

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 01/01/2013

Print Date: 11/10/2014

Initial Date: Not Available

S.GHS.USA.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	CARBON REMOVER
Chemical Name	Not Applicable
Proper shipping name	Toxic liquids, corrosive, organic, n.o.s. (contains cresylic acid)
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Use according to manufacturer's directions.
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Details of the manufacturer/importer

Registered company name	Drew Marine
Address	100 South Jefferson Road Whippany 07981 NJ United States
Telephone	973 526-5700.
Fax	Not Available
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	The numbers below are for EMERGENCY USE ONLY. Use the corporate number above for all other calls.
Other emergency telephone numbers	CHEMWATCH: From within the US and CANADA: 1 877-715-9305 OR call + 613 9573 3112. From outside the US and Canada: + 800 2436 2255 (+800 CHEMCALL) or +613 9573 3112

CHEMWATCH EMERGENCY RESPONSE

Primary Number	Alternative Number 1	Alternative Number 2
877 715 9305	+612 9186 1132	Not Available

Once connected and if the message is not in your preferred language then please dial 01

Una vez conectado y si el mensaje no está en su idioma preferido, por favor marque 02

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification	Metal Corrosion Category 1, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1, Carcinogen Category 2, STOT - SE (Narcosis) Category 3, Aspiration Hazard Category 1, Acute Aquatic Hazard Category 2, Chronic Aquatic Hazard Category 2
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Label elements

GHS label elements	
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SIGNAL WORD	DANGER
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Hazard statement(s)

H290	May be corrosive to metals
H301	Toxic if swallowed

Continued...

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H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H351	Suspected of causing cancer
H336	May cause drowsiness or dizziness
H304	May be fatal if swallowed and enters airways
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

Supplementary statement(s)

Not Applicable

Precautionary statement(s): Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P234	Keep only in original container.
P273	Avoid release to the environment.

Precautionary statement(s): Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water and soap
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s): Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s): Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
29797-40-8	10-30	dichlorotoluene
1319-77-3	10-30	cresylic acid
64742-94-5	10-20	solvent naphtha petroleum, heavy aromatic
91-20-3	<2	naphthalene
		other ingredients non hazardous or not contributing
		to the final classification.
		Manufacturer has supplied full
		ingredient information to allow
		CHEMWATCH assessment.

other ingredients non hazardous or not contributing

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes:
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	<ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If spilled on skin:</p> <ul style="list-style-type: none"> ▶ Remove contaminated clothing, swab repeatedly with glycerin, PEG (polyethylene glycol), or PEG/ methylated spirit mixture or if necessary with methylated spirit alone* ▶ Contamination of skin with phenol and some of its derivatives may produce rapid collapse and death. ▶ After skin contamination, keep patient under observation for at least 24-48 hours. ▶ Phenol-decontaminating fluid is more effective than water in removing phenol from the skin and retarding absorption; olive oil or vegetable oil may also be used; do not use mineral oil. ▶ Alcohols* (methylated spirit, for example) may enhance absorption and their use alone may be ill-advised; some authorities however continue to advise the use of such treatment. ▶ Rapid water dilution of phenol burns may increase systemic absorption by decreasing the extent of the coagulum and thus allowing greater absorption (1). <p>(1) Ellenhorn and Barceloux: Medical Toxicology: Diagnosis and Treatment of Human Poisoning.</p>
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. ▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. ▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). ▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. ▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. <p>This must definitely be left to a doctor or person authorised by him/her. (ICSC13719)</p>
Ingestion	<ul style="list-style-type: none"> ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol. ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Transport to hospital or doctor without delay. ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- ▶ Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- ▶ Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- ▶ A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- ▶ Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- ▶ Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

Treat symptomatically.

Preplacement and annual medical examinations are recommended for workers exposed to cresol. Preplacement examinations should include:

- ▶ work histories evaluating preexisting disorders particularly of the lungs, liver, kidneys, pancreas, nervous and cardiovascular systems, and skin.
- ▶ physical examination with emphasis on the lungs, liver, kidneys, pancreas, skin, and nervous and cardiovascular systems. urinalysis that includes a microscopic examination.
- ▶ additional tests such as complete blood counts, and liver and kidney function tests.

Annual examinations should include the above tests, and monitor cases of skin abnormalities, such as scaling, crusting, or irritation.

(Source: Occupational Diseases; NIOSH)

for naphthalene intoxication: Naphthalene requires hepatic and microsomal activation prior to the production of toxic effects. Liver microsomes catalyse the initial synthesis of the reactive 1,2-epoxide intermediate which is subsequently oxidised to naphthalene dihydrodiol and alpha-naphthol. The 2-naphthoquinones are thought to produce haemolysis, the 1,2-naphthoquinones are thought to be responsible for producing cataracts in rabbits, and the glutathione-adducts of naphthalene-1,2-oxide are probably responsible for pulmonary toxicity. Suggested treatment regime:

- ▶ Induce emesis and/or perform gastric lavage with large amounts of warm water where oral poisoning is suspected.
- ▶ Instill a saline cathartic such as magnesium or sodium sulfate in water (15 to 30g).
- ▶ Demulcents such as milk, egg white, gelatin, or other protein solutions may be useful after the stomach is emptied but oils should be avoided because they promote absorption.
- ▶ If eyes/skin contaminated, flush with warm water followed by the application of a bland ointment.
- ▶ Severe anaemia, due to haemolysis, may require small repeated blood transfusions, preferably with red cells from a non-sensitive individual.
- ▶ Where intravascular haemolysis, with haemoglobinuria occurs, protect the kidneys by promoting a brisk flow of dilute urine with, for example, an osmotic diuretic such as mannitol. It may be useful to alkalise the urine with small amounts of sodium bicarbonate but many researchers doubt whether this prevents blockage of the renal tubules.
- ▶ Use supportive measures in the case of acute renal failure. GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, 5th Ed.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

	<ul style="list-style-type: none"> ▶ Water spray or fog. ▶ Foam. ▶ Dry chemical powder. ▶ BCF (where regulations permit). ▶ Carbon dioxide.
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Special hazards arising from the substrate or mixture

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Fire Incompatibility

- ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ Wear full body protective clothing with breathing apparatus.
- ▶ Prevent, by any means available, spillage from entering drains or water course.
- ▶ Use fire fighting procedures suitable for surrounding area.
- ▶ **Do not approach containers suspected to be hot.**
- ▶ Cool fire exposed containers with water spray from a protected location.
- ▶ If safe to do so, remove containers from path of fire.
- ▶ Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard

- ▶ Combustible.
- ▶ Slight fire hazard when exposed to heat or flame.
- ▶ Heating may cause expansion or decomposition leading to violent rupture of containers.
- ▶ On combustion, may emit toxic fumes of carbon monoxide (CO).
- ▶ May emit acid smoke.
- ▶ Mists containing combustible materials may be explosive.

Combustion products include: carbon dioxide (CO₂), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material. May emit poisonous fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills

- Environmental hazard - contain spillage.
- ▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
 - ▶ Check regularly for spills and leaks.
 - ▶ Remove all ignition sources.
 - ▶ Clean up all spills immediately.
 - ▶ Avoid breathing vapours and contact with skin and eyes.
 - ▶ Control personal contact with the substance, by using protective equipment.
 - ▶ Contain and absorb spill with sand, earth, inert material or vermiculite.
 - ▶ Wipe up.
 - ▶ Place in a suitable, labelled container for waste disposal.

Major Spills

- Environmental hazard - contain spillage.
- ▶ Clear area of personnel and move upwind.
 - ▶ Alert Fire Brigade and tell them location and nature of hazard.
 - ▶ Wear full body protective clothing with breathing apparatus.
 - ▶ Prevent, by any means available, spillage from entering drains or water course.
 - ▶ Consider evacuation (or protect in place).
 - ▶ Stop leak if safe to do so.
 - ▶ Contain spill with sand, earth or vermiculite.
 - ▶ Collect recoverable product into labelled containers for recycling.
 - ▶ Neutralise/decontaminate residue (see Section 13 for specific agent).
 - ▶ Collect solid residues and seal in labelled drums for disposal.
 - ▶ Wash area and prevent runoff into drains.
 - ▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
 - ▶ If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling

- ▶ Containers, even those that have been emptied, may contain explosive vapours.
- ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- ▶ **DO NOT allow clothing wet with material to stay in contact with skin**
- ▶ Electrostatic discharge may be generated during pumping - this may result in fire.
- ▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- ▶ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec).
- ▶ Avoid splash filling.
- ▶ Do NOT use compressed air for filling discharging or handling operations.
- ▶ Avoid all personal contact, including inhalation.
- ▶ Wear protective clothing when risk of exposure occurs.
- ▶ Use in a well-ventilated area.
- ▶ Prevent concentration in hollows and sumps.
- ▶ **DO NOT enter confined spaces until atmosphere has been checked.**
- ▶ **DO NOT allow material to contact humans, exposed food or food utensils.**
- ▶ Avoid contact with incompatible materials.
- ▶ **When handling, DO NOT eat, drink or smoke.**
- ▶ Keep containers securely sealed when not in use.
- ▶ Avoid physical damage to containers.
- ▶ Always wash hands with soap and water after handling.
- ▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- ▶ Use good occupational work practice.
- ▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.
- ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other information

- ▶ Store in original containers.
- ▶ Keep containers securely sealed.
- ▶ Store in a cool, dry, well-ventilated area.
- ▶ Store away from incompatible materials and foodstuff containers.
- ▶ Protect containers against physical damage and check regularly for leaks.
- ▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.

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Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▶ Drums and jerricans must be of the non-removable head type. ▶ Where a can is to be used as an inner package, the can must have a screwed enclosure. <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> ▶ Removable head packaging; ▶ Cans with friction closures and ▶ low pressure tubes and cartridges <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.</p> <p>-</p> <p>In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.</p> <p>-</p> <p>* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.</p>
Storage incompatibility	<p>Chlorotoluene:</p> <ul style="list-style-type: none"> ▶ reacts with water forming hydrochloric acid ▶ reacts violently with strong oxidisers ▶ can produce toxic chlorine fumes at elevated temperatures or on contact with acids or acid fumes ▶ is incompatible with alkalis, strong acids ▶ may cause pitting and stress corrosion of austenitic stainless steels and other metals in the presence of moisture ▶ attacks some plastics, rubber and coatings ▶ may generate electrostatic charges due to low conductivity. <p>Cresols:</p> <ul style="list-style-type: none"> ▶ are incompatible with strong acids, oxidisers, aldehydes, alkalis, aliphatic amines, amides, chlorosulfonic acid, fuming sulfuric acid (oleum) ▶ can attack plastics, rubber and many metals <p>For alkyl aromatics:</p> <p>The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.</p> <ul style="list-style-type: none"> ▶ Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen ▶ Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids. ▶ Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides. ▶ Hock-rearrangement by the influence of strong acids converts the hydroperoxides to hemiacetals. Peresters formed from the hydroperoxides undergo Criegee rearrangement easily. ▶ Alkali metals accelerate the oxidation while CO₂ as co-oxidant enhances the selectivity. ▶ Microwave conditions give improved yields of the oxidation products. ▶ Photo-oxidation products may occur following reaction with hydroxyl radicals and NO_x - these may be components of photochemical smogs. <p>Oxidation of Alkylaromatics: T.S.S Rao and Shubhra Awasthi: E-Journal of Chemistry Vol 4, No. 1, pp 1-13 January 2007</p> <ul style="list-style-type: none"> ▶ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. ▶ Aromatics can react exothermically with bases and with diazo compounds. ▶ Phenols are incompatible with strong reducing substances such as hydrides, nitrides, alkali metals, and sulfides. ▶ Avoid use of aluminium, copper and brass alloys in storage and process equipment. ▶ Heat is generated by the acid-base reaction between phenols and bases. ▶ Phenols are sulfonated very readily (for example, by concentrated sulfuric acid at room temperature), these reactions generate heat. ▶ Phenols are nitrated very rapidly, even by dilute nitric acid. ▶ Nitrated phenols often explode when heated. Many of them form metal salts that tend toward detonation by rather mild shock. ▶ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	cresylic acid	Cresol, all isomers	22 mg/m ³ / 5 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	cresylic acid	Cresol, all isomers	20 mg/m ³	Not Available	Not Available	TLV® Basis: URT irr
US OSHA Permissible Exposure Levels (PELs) - Table Z1	naphthalene	Naphthalene	50 mg/m ³ / 10 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	naphthalene	* Naphthalene	10 ppm	Not Available	Not Available	TLV® Basis: URT irr; cataracts; hemolytic anemia
US NIOSH Recommended Exposure Limits (RELs)	naphthalene	Naphthalin, Tar camphor, White tar	50 mg/m ³ / 10 ppm	75 mg/m ³ / 15 ppm	Not Available	Not Available

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EMERGENCY LIMITS

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
CARBON REMOVER	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
dichlorotoluene	Not Available	Not Available
cresylic acid	250 ppm	250 [Unch] ppm
solvent naphtha petroleum, heavy aromatic	Not Available	Not Available
naphthalene	500 ppm	250 ppm

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.										
	Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.										
	<table><tr><td>Type of Contaminant:</td><td>Air Speed:</td></tr><tr><td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td><td>0.25-0.5 m/s (50-100 f/min.)</td></tr><tr><td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td><td>0.5-1 m/s (100-200 f/min.)</td></tr><tr><td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td><td>1-2.5 m/s (200-500 f/min.)</td></tr><tr><td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td><td>2.5-10 m/s (500-2000 f/min.)</td></tr></table>	Type of Contaminant:	Air Speed:	solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)
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Within each range the appropriate value depends on:											
<table><tr><td>Lower end of the range</td><td>Upper end of the range</td></tr><tr><td>1: Room air currents minimal or favourable to capture</td><td>1: Disturbing room air currents</td></tr><tr><td>2: Contaminants of low toxicity or of nuisance value only.</td><td>2: Contaminants of high toxicity</td></tr><tr><td>3: Intermittent, low production.</td><td>3: High production, heavy use</td></tr><tr><td>4: Large hood or large air mass in motion</td><td>4: Small hood-local control only</td></tr></table>	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood-local control only	
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	Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.										
Personal protection											
Eye and face protection	<ul style="list-style-type: none">▶ Chemical goggles.▶ Full face shield may be required for supplementary but never for primary protection of eyes.▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]										
Skin protection	See Hand protection below										
Hands/feet protection	<ul style="list-style-type: none">▶ Wear chemical protective gloves, e.g. PVC.▶ Wear safety footwear or safety gumboots, e.g. Rubber▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none">▶ frequency and duration of contact,▶ chemical resistance of glove material,▶ glove thickness and▶ dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p>										

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	<ul style="list-style-type: none"> ▶ When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. ▶ When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. ▶ Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. ▶ Contaminated gloves should be replaced. <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ PVC Apron. ▶ PVC protective suit may be required if exposure severe. ▶ Eyewash unit. ▶ Ensure there is ready access to a safety shower.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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Material	CPI
VITON	A

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-
up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Corrosive liquid; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution(1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7

Continued...

CARBON REMOVER

Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.
Ingestion	Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual. The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
Skin Contact	Skin contact with the material may produce toxic effects; systemic effects may result following absorption. The material can produce chemical burns following direct contact with the skin. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.
Chronic	On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis. Chronic exposure to the skin by cresol can cause facial peripheral nerve damage, impairment of renal function and even necrosis of the liver and kidneys. Symptoms of chronic poisoning are abundant production of saliva, vomiting, diarrhoea, loss of appetite, headache, dizziness, mental disturbances and fainting. Contact dermatitis may also occur. Workers exposed to cresol vapour for 1.5 to 3 years experienced headaches that were frequently accompanied by nausea and vomiting. Other symptoms included elevated blood pressure, signs of impaired kidney function, blood calcium imbalance and marked tremors. Isomers of cresol are tumor promoters. Prolonged or repeated skin contact may cause degreasing with drying, cracking and dermatitis following. In a two-year inhalation study, groups of mice were exposed at 0, 10 or 30 ppm naphthalene, 6 hours/day, 5 days/week for 103 weeks. Female mice showed an increase of pulmonary alveolar/bronchiolar adenomas at 30 ppm. There was no increase in the incidence of tumours in male mice. Naphthalene inhalation was associated with an increase in the incidence and severity of chronic inflammation, metaplasia of the olfactory epithelium, and hyperplasia of the respiratory epithelium in the nose, and chronic inflammation of the lungs of both sexes. Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS]

CARBON REMOVER	TOXICITY	IRRITATION
	Not Available	Not Available
dichlorotoluene	TOXICITY	IRRITATION
	Oral (rat) LD50: 4600 mg/kg	Eye : Mild
	Not Available	Skin : Moderate
cresylic acid	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 2000 mg/kg	Eye (rabbit): 105 mg - SEVERE
	Oral (rat) LD50: 1454 mg/kg	Skin (rabbit): 524 mg/24h - SEVERE
solvent naphtha petroleum, heavy aromatic	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >3160 mg/kg	[PETROFIN]
	Oral (rat) LD50: 3200 mg/kg	Eye (rabbit): Irritating
naphthalene	TOXICITY	IRRITATION
	Not Available	Skin (rabbit): 495 mg (open) - mild
	TOXICITY	IRRITATION
	Not Available	Not Available

Not available. Refer to individual constituents.

DICHLOROTOLUENE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high
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CARBON REMOVER

	<p>concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p> <p>For dichlorotoluenes:</p> <p>2,6-Dichlorotoluene is moderately toxic in a repeated dose study (i.e. liver, kidney, thymus) and reproductive/ developmental toxicity study (maternal toxicity).</p> <p>Repeat dose toxicity: In a combined repeat dose and reproductive/developmental toxicity screening test, using 2,6-dichlorotoluene both male and female rats showed histopathological changes in liver, kidney and thymus, and maternal toxicity was observed. The no observed effect levels (NOEL) were obtained as 30 mg/kg/day for repeated dose toxicity and 100 mg/kg/day for reproductive toxicity.</p> <p>In a combined repeat dose and reproductive/developmental toxicity screening test, using 2,4-dichlorotoluene, dose dependent salivation was found in all treated groups. Toxicological significant changes in haematological and blood chemical examinations were found at the highest dose (e.g. decrease of platelet count). Increased liver and kidney weights were also found at the same level with pathological remarks (e.g. centrilobular swelling of hepatocytes). For reproductive/developmental end-points, a decrease of fertility was found in conjunction with normal copulation but with low pregnancy at the highest dose. However, no histopathological change related to infertility was seen in the paternal organs. Decreases of pup body weights were noted in the highest dose group during the lactation period. Therefore, the overall NOEL was less than 12.5 mg/kg/day for repeated dose toxicity and 79 mg/kg/day for reproductive toxicity.</p> <p>Mutagenicity/ genotoxicity: 2,4-Dichlorotoluene showed no genotoxic effects in bacteria and in a chromosomal aberration test <i>in vitro</i>.</p> <p>2,4-Dichlorotoluene showed negative results in <i>Salmonella typhimurium</i> TA100, TA1535, TA98, TA1537 and <i>Escherichia coli</i> WVP2 <i>uvrA</i> at concentrations up to 1 mg/plate with or without metabolic activation system.</p> <p>A chromosomal aberration test in line with Guidelines for Screening Mutagenicity Testing of Chemicals (Japan) and OECD Test Guideline 473 was conducted using cultured Chinese Hamster lung (CHL/IU) cells exposed to 2,4-dichlorotoluene. No structural chromosomal aberrations or polyploidy were observed up to a maximum concentration (90 ug/ml) in both continuous treatment and short-term treatment with or without an exogenous metabolic activation system.</p> <p>2,6-Dichlorotoluene had no genotoxic effects in bacteria and in chromosomal aberration test <i>in vitro</i></p> <p>No sensitising effects in guinea pig (OECD 406) GPMT according to Magnusson-Kligman</p>
CRESYLIC ACID	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p>
SOLVENT NAPHTHA PETROLEUM, HEAVY AROMATIC	<p>for petroleum:</p> <p>This product contains benzene which is known to cause acute myeloid leukaemia and n-hexane which has been shown to metabolize to compounds which are neuropathic.</p> <p>This product contains toluene. There are indications from animal studies that prolonged exposure to high concentrations of toluene may lead to hearing loss.</p> <p>This product contains ethyl benzene and naphthalene from which there is evidence of tumours in rodents</p> <p>Carcinogenicity: Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans. Inhalation exposure to rats causes kidney tumours which are not considered relevant to humans.</p> <p>Mutagenicity: There is a large database of mutagenicity studies on gasoline and gasoline blending streams, which use a wide variety of endpoints and give predominantly negative results. All <i>in vivo</i> studies in animals and recent studies in exposed humans (e.g. petrol service station attendants) have shown negative results in mutagenicity assays.</p> <p>Reproductive Toxicity: Repeated exposure of pregnant rats to high concentrations of toluene (around or exceeding 1000 ppm) can cause developmental effects, such as lower birth weight and developmental neurotoxicity, on the foetus. However, in a two-generation reproductive study in rats exposed to gasoline vapour condensate, no adverse effects on the foetus were observed.</p> <p>Human Effects: Prolonged/ repeated contact may cause defatting of the skin which can lead to dermatitis and may make the skin more susceptible to irritation and penetration by other materials.</p> <p>Lifetime exposure of rodents to gasoline produces carcinogenicity although the relevance to humans has been questioned. Gasoline induces kidney cancer in male rats as a consequence of accumulation of the alpha2-microglobulin protein in hyaline droplets in the male (but not female) rat kidney. Such abnormal accumulation represents lysosomal overload and leads to chronic renal tubular cell degeneration, accumulation of cell debris, mineralisation of renal medullary tubules and necrosis. A sustained regenerative proliferation occurs in epithelial cells with subsequent neoplastic transformation with continued exposure. The alpha2-microglobulin is produced under the influence of hormonal controls in male rats but not in females and, more importantly, not in humans.</p>
NAPHTHALENE	<p>Unrep. (human) LDLo: 29 mg/kg Eye (rabbit): 100 mg - mild Unrep. (man) LDLo: 74 mg/kg Oral (rat) LD50: 490 mg/kg Dermal (rat) LD50: >2500 mg/kg</p> <p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.</p>

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	⊖
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	⊖	STOT - Repeated Exposure	⊖
Mutagenicity	⊖	Aspiration Hazard	✓

Legend: ✓ – Data required to make classification available
 ✗ – Data available but does not fill the criteria for classification
 ⊖ – Data Not Available to make classification

CMR STATUS

CARCINOGEN	dichlorotoluene	US Environmental Defense Scorecard Suspected Carcinogens	P65-MC
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CARBON REMOVER

	naphthalene	US Environmental Defense Scorecard Recognized Carcinogens US Environmental Defense Scorecard Suspected Carcinogens	P65 EPA-HEN, P65-MC
RESPIRATORY	naphthalene	US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	X
SKIN	cresylic acid	US - Washington Permissible exposure limits of air contaminants - Skin US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants - Skin	X Yes S
	naphthalene	US ACGIH Threshold Limit Values (TLV) - Skin	Yes

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and/or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and/or delayed, to the structure and/or functioning of natural ecosystems.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
cresylic acid	low (Half-life = 49 days)	low (Half-life = 0.67 days)
naphthalene	high (Half-life = 258 days)	low (Half-life = 1.23 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
naphthalene	low (BCF = 168)

Mobility in soil

Ingredient	Mobility
naphthalene	low (KOC = 1837)




SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Where possible retain label warnings and MSDS and observe all notices pertaining to the product. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> Reduction Reuse Recycling Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type.</p> <p>Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.</p> <ul style="list-style-type: none"> DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

	 
Marine Pollutant	

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Land transport (DOT)

UN number	2927
Packing group	II
UN proper shipping name	Toxic liquids, corrosive, organic, n.o.s. (contains cresylic acid)
Environmental hazard	No relevant data
Transport hazard class(es)	Class : 6.1
Special precautions for user	Special provisions : IB2, T11, TP2, TP27

Air transport (ICAO-IATA / DGR)

UN number	2927
Packing group	II
UN proper shipping name	Toxic liquid, corrosive, organic, n.o.s. * (contains cresylic acid)
Environmental hazard	No relevant data
Transport hazard class(es)	ICAO/IATA Class : 6.1 ICAO / IATA Subrisk : 8 ERG Code : 6C
Special precautions for user	Special provisions : A4A137 Cargo Only Packing Instructions : 660 Cargo Only Maximum Qty / Pack : 30 L Passenger and Cargo Packing Instructions : 653 Passenger and Cargo Maximum Qty / Pack : 1 L Passenger and Cargo Limited Quantity Packing Instructions : Y640 Passenger and Cargo Limited Maximum Qty / Pack : 0.5 L

Sea transport (IMDG-Code / GGVSee)

UN number	2927
Packing group	II
UN proper shipping name	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (contains cresylic acid)
Environmental hazard	No relevant data
Transport hazard class(es)	IMDG Class : 6.1 IMDG Subrisk : 8
Special precautions for user	EMS Number : F-A , S-B Special provisions : 274 Limited Quantities : 100 mL

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	cresylic acid	Y
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	naphthalene	X

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

dichlorotoluene(29797-40-8) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
cresylic acid(1319-77-3) is found on the following regulatory lists	"US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)", "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Michigan Exposure Limits for Air Contaminants", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Minnesota Permissible Exposure Limits (PELs)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"
solvent naphtha petroleum, heavy aromatic(64742-94-5) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

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naphthalene(91-20-3) is found on the following regulatory lists

"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - Michigan Exposure Limits for Air Contaminants", "US EPA Carcinogens Listing", "US National Toxicology Program (NTP) 12th Report Part B. Reasonably Anticipated to be a Human Carcinogen", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US NIOSH Recommended Exposure Limits (RELs)", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - California Proposition 65 - Carcinogens", "US National Toxicology Program (NTP) 12th Report Part A Known to be Human Carcinogens", "US - Minnesota Permissible Exposure Limits (PELs)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"

SECTION 16 OTHER INFORMATION**Other information**

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.