Acids Extractable Mixture

High-Purity Standards

Chemwatch Hazard Alert Code: **2**

Catalogue number: **ACID-M16C**
Version No: **1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

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S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	Acids Extractable Mixture
Synonyms	ACID-M16C
Proper shipping name	Dichloromethane
Other means of identification	ACID-M16C

Recommended use of the chemical and restrictions on use

Relevant identified uses	Use according to manufacturer's directions.

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	High-Purity Standards
Address	PO Box 41727 SC 29423 United States
Telephone	843-767-7900
Fax	843-767-7906
Website	highpuritystandards.com
Email	Not Available

Emergency phone number

Association / Organisation	INFOTRAC
Emergency telephone numbers	1-800-535-5053
Other emergency telephone numbers	1-352-323-3500

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

Classification	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Acute Toxicity (Oral) Category 4, Skin Sensitizer Category 1, Carcinogenicity Category 2, Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 3

Label elements

Hazard pictogram(s)	
SIGNAL WORD	**WARNING**

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.

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H412	Harmful to aquatic life with long lasting effects.

Hazard(s) not otherwise specified

Not Applicable

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
75-09-2	balance	methylene chloride
58-90-2	0.2	2,3,4,6-tetrachlorophenol
95-95-4	0.2	2,4,5-trichlorophenol
88-06-2	0.2	2,4,6-trichlorophenol
120-83-2	0.2	2,4-dichlorophenol
Not Available	0.2	2,4-dimethylphenol
51-28-5	0.2	2,4-dinitrophenol
Not Available	0.2	2-chlorophenol
Not Available	0.2	2-methylphenol
Not Available	0.2	2-nitrophenol
Not Available	0.2	3-methylphenol
Not Available	0.2	4,6-dinitro-2methylphenol
Not Available	0.2	4-chloro-3-methylphenol
Not Available	0.2	4-methylphenol
Not Available	0.2	4-nitrophenol
65-85-0	0.2	benzoic acid
87-86-5	0.2	pentachlorophenol
108-95-2	0.2	phenol

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh 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. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation. For thermal burns: ▸ Decontaminate area around burn. ▸ Consider the use of cold packs and topical antibiotics. For first-degree burns (affecting top layer of skin) ▸ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides. ▸ Use compresses if running water is not available. ▸ Cover with sterile non-adhesive bandage or clean cloth. ▸ Do NOT apply butter or ointments; this may cause infection. ▸ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur. For second-degree burns (affecting top two layers of skin)

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	▸ Cool the burn by immerse in cold running water for 10-15 minutes. ▸ Use compresses if running water is not available. ▸ Do NOT apply ice as this may lower body temperature and cause further damage. ▸ Do NOT break blisters or apply butter or ointments; this may cause infection. ▸ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort): ▸ Lay the person flat. ▸ Elevate feet about 12 inches. ▸ Elevate burn area above heart level, if possible. ▸ Cover the person with coat or blanket. ▸ Seek medical assistance. For third-degree burns Seek immediate medical or emergency assistance. In the mean time: ▸ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound. ▸ Separate burned toes and fingers with dry, sterile dressings. ▸ Do not soak burn in water or apply ointments or butter; this may cause infection. ▸ To prevent shock see above. ▸ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway. ▸ Have a person with a facial burn sit up. ▸ Check pulse and breathing to monitor for shock until emergency help arrives.
Inhalation	▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** ▸ For advice, contact a Poisons Information Centre or a doctor. ▸ Urgent hospital treatment is likely to be needed. ▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▸ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. ▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** ▸ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).
For poisons (where specific treatment regime is absent):

BASIC TREATMENT

▸ Establish a patent airway with suction where necessary.
▸ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
▸ Administer oxygen by non-rebreather mask at 10 to 15 L/min.
▸ Monitor and treat, where necessary, for pulmonary oedema.
▸ Monitor and treat, where necessary, for shock.
▸ Anticipate seizures.
▸ **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

▸ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
▸ Positive-pressure ventilation using a bag-valve mask might be of use.
▸ Monitor and treat, where necessary, for arrhythmias.
▸ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
▸ Drug therapy should be considered for pulmonary oedema.
▸ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
▸ Treat seizures with diazepam.
▸ Proparacaine hydrochloride should be used to assist eye irrigation.
BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

▸ There is no restriction on the type of extinguisher which may be used.
▸ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

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Special protective equipment and precautions for fire-fighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ 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	▸ Non combustible. ▸ Not considered a significant fire risk, however containers may burn. May emit poisonous fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▸ 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	▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ 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 SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▸ 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 SDS. ▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
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 SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ 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.

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	For low viscosity materials ▸ 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. For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.): ▸ Removable head packaging; ▸ Cans with friction closures and ▸ low pressure tubes and cartridges may be used. - 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 *. - 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 *. - * unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.
Storage incompatibility	Dinitro-o-cresol: ▸ is thermally unstable; elevated temperatures may cause explosion - may be moistened with up to 10% water or may be provided as a paste with 55-60% water, to reduce this risk ▸ is incompatible with heat, strong oxidisers, amines, cresols, hydrocarbons, phenols ▸ is stable at low pH but decomposes upon UV radiation in alkaline solutions ▸ segregation from heavy metals and their salts is required. None known

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	methylene chloride	Methylene chloride	50 ppm	Not Available	Not Available	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	methylene chloride	Methylene Chloride	Not Available	Not Available	Not Available	See 1919.52.
US NIOSH Recommended Exposure Limits (RELs)	methylene chloride	Dichloromethane, Methylene dichloride	Not Available	Not Available	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	methylene chloride	Dichloromethane	Not Available	Not Available	Not Available	TLV® Basis: COHb-emia; CNS impair; BEI
US NIOSH Recommended Exposure Limits (RELs)	pentachlorophenol	PCP; Penta; 2,3,4,5,6-Pentachlorophenol	0.5 mg/m3	1 mg/m3	Not Available	[skin]
US ACGIH Threshold Limit Values (TLV)	pentachlorophenol	Pentachlorophenol	0.5 mg/m3	Not Available	Not Available	TLV® Basis: URT & eye irr; CNS & card impair; BEI
US OSHA Permissible Exposure Levels (PELs) - Table Z1	phenol	Phenol	19 mg/m3 / 5 ppm	Not Available	60 mg/m3 / 15.6 ppm	[15-minute]
US NIOSH Recommended Exposure Limits (RELs)	phenol	Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide	19 mg/m3 / 5 ppm	Not Available	Not Available	TLV® Basis: URT irr; lung dam; CNS impair; BEI
US ACGIH Threshold Limit Values (TLV)	phenol	Phenol	5 ppm	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
methylene chloride	Methylene chloride; (Dichloromethane)	Not Available	Not Available	Not Available
2,4,5-trichlorophenol	Trichlorophenol, 2,4,5-	2.5 mg/m3	27 mg/m3	160 mg/m3
2,4,6-trichlorophenol	Trichlorophenol, 2,4,6-	2.5 mg/m3	27 mg/m3	160 mg/m3
2,4-dichlorophenol	Dichlorophenol, 2,4-	Not Available	Not Available	Not Available
2,4-dinitrophenol	Dinitrophenol, 2,4-	0.61 mg/m3	6.8 mg/m3	16 mg/m3
benzoic acid	Benzoic acid	15 mg/m3	170 mg/m3	830 mg/m3
pentachlorophenol	Pentachlorophenol	1 mg/m3	15 mg/m3	150 mg/m3
phenol	Phenol	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
methylene chloride	10,000 ppm	2,000 ppm
2,3,4,6-tetrachlorophenol	Not Available	Not Available
2,4,5-trichlorophenol	Not Available	Not Available
2,4,6-trichlorophenol	Not Available	Not Available
2,4-dichlorophenol	Not Available	Not Available
2,4-dimethylphenol	Not Available	Not Available
2,4-dinitrophenol	Not Available	Not Available

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2-chlorophenol	Not Available	Not Available
2-methylphenol	Not Available	Not Available
2-nitrophenol	Not Available	Not Available
3-methylphenol	Not Available	Not Available
4,6-dinitro-2methylphenol	Not Available	Not Available
4-chloro-3-methylphenol	Not Available	Not Available
4-methylphenol	Not Available	Not Available
4-nitrophenol	Not Available	Not Available
benzoic acid	Not Available	Not Available
pentachlorophenol	150 mg/m3	2.5 mg/m3
phenol	250 ppm	250 [Unch] 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.

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.)

Within each range the appropriate value depends on:

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

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

- Safety glasses with side shields.
- Chemical goggles.
- 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

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

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.
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

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	choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). · 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. For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential 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.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ Eyewash unit. ▸ Barrier cream. ▸ Skin cleansing cream.
Thermal hazards	Not Available

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	colorless

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 Available
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	▸ 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
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

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SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Most deaths caused by DNOC have occurred when exposure occurred both by inhalation and skin contact, and most incidents involved agricultural workers, at concentrations greater than 2.5 mg/m3. Chief symptoms included fever, rapid pulse and breathing, profuse sweating, shortness of breath and cough.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Monochlorophenols are slightly less toxic than phenol but more toxic than chlorobenzene while Dichlorophenols may be more potent than phenol in eliciting convulsions. Toxicity increases with chlorination. In animal testing, the symptoms of chlorophenol poisoning include restlessness, increased rate of breathing, rapidly developing motor weakness, tremors, seizures, shortness of breath and coma. DNC did not seem to cause poisoning after one-time exposure, but swallowing it repeatedly has caused tiredness and malaise.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Although irritation is usually slight, lethal doses may be absorbed through the skin. Nail damage with a white material around the nail folds, which may swell, may occur. In a lethal case, the first symptoms were vomiting and headache, followed by jaundice (especially on the limbs), fast and weak heartbeat and a general depression. Autopsy showed bleeding in the gut and blood congestion in the brain, liver, lung, gut wall, heart muscle and kidneys, as well as fluid build-up in the lung and heart. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions 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	This material can cause eye irritation and damage in some persons.
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. DNOC is a cumulative poison in humans but not in animals. When blood levels of DNOC exceed 15-20 ug/g symptoms of poisoning appear. These levels indicate considerable accumulation from repeated, daily exposure because the blood levels found were in excess of the of the amount attainable from a single, daily dose. Chlorophenols have been associated with cancers of the throat, nose and connective tissue.

Acids Extractable Mixture

TOXICITY	IRRITATION
Not Available	Not Available

methylene chloride

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye(rabbit): 162 mg - moderate
Inhalation (mouse) LC50: 25200 ppm/7hr[2]	Eye(rabbit): 500 mg/24hr - mild
Oral (rat) LD50: 985 mg/kg[2]	Skin (rabbit): 100mg/24hr-moderate
	Skin (rabbit): 810 mg/24hr-SEVERE

2,3,4,6-tetrachlorophenol

TOXICITY	IRRITATION
dermal (rat) LD50: 485 mg/kg[2]	Not Available
Oral (rat) LD50: 140 mg/kgd[2]	

2,4,5-trichlorophenol

TOXICITY	IRRITATION
Oral (rat) LD50: 820 mg/kgd[2]	Not Available

2,4,6-trichlorophenol

TOXICITY	IRRITATION
dermal (mammal) LD50: 700 mg/kg[2]	Eye (rabbit): 0.25 mg/24h-SEVERE
Oral (rat) LD50: 820 mg/kge[2]	Skin (rabbit): 20 mg/24h-moderate

2,4-dichlorophenol

TOXICITY	IRRITATION
dermal (rat) LD50: 780 mg/kg[1]	Not Available
Oral (rat) LD50: 47 mg/kg[2]	

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2,4-dinitrophenol	

TOXICITY	IRRITATION
Oral (rat) LD50: 30 mg/kg[2]	Not Available

benzoic acid	

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 2000 mg/kg*[2]	Eye (rabbit): 100 mg - SEVERE
Oral (rat) LD50: 1700 mg/kgd[2]	Skin (human): 22 mg/3d - moderate
	Skin (rabbit): 500 mg/24h - mild

pentachlorophenol	

TOXICITY	IRRITATION
dermal (rat) LD50: 26 mg/kg[2]	Not Available
Oral (rat) LD50: 27 mg/kg[2]	

phenol	

TOXICITY	IRRITATION
dermal (rat) LD50: 525 mg/kg[1]	Eye(rabbit): 100 mg rinse - mild
Oral (rat) LD50: 317 mg/kgE[2]	Eye(rabbit): 5 mg - SEVERE
	Skin(rabbit): 500 mg open -SEVERE
	Skin(rabbit): 500 mg/24hr - SEVERE

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

METHYLENE CHLORIDE	**WARNING:** This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans. Inhalation (human) TCLo: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild
2,3,4,6-TETRACHLOROPHENOL	WARNING : IARC Human Limited Evidence [RTECS]
2,4,5-TRICHLOROPHENOL	The material may be irritating to the eye, with prolonged contact causing inflammation. Neoplastic by RTECS criteria. IARC Cancer Review: Animal Sufficient Evidence, Human Limited
2,4,6-TRICHLOROPHENOL	IARC Cancer Review: Animal Sufficient Evidence, Human Inadequate.
2,4-DICHLOROPHENOL	2,4-dichlorophenol (2,4-DCP) does not accumulate in tissues. IARC Cancer Review: Human Limited Evidence.
BENZOIC ACID	For benzoates: Benzyl alcohol, benzoic acid and its sodium and potassium salt have a common metabolic and excretion pathway. This is a member or analogue of a group of benzyl derivatives generally regarded as safe (GRAS), based partly on their self-limiting properties as flavouring substances in food. Mutagenicity: Bacterial reverse mutation test (S. typhimurium): not mutagenic (OECD 471, EC B.13/14; Ames test) In vitro mammalian chromosome aberration (Chinese hamster fibroblasts): negative Reproductive toxicity: 4 generation study in rats: Oral NOAEL >500 mg/kg bw/day STOT single exposure: In a repeated inhalation study benzoic acid appeared to be irritating to the respiratory tract at high doses * DSM SDS
PENTACHLOROPHENOL	**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. The complex mixture pentachlorophenol and by-products of its synthesis is reasonably anticipated to be a human carcinogen based on limited evidence of carcinogenicity from studies in humans and sufficient evidence of carcinogenicity from studies in experimental animals. This conclusion is supported by mechanistic studies whose findings are consistent with the biological plausibility of its carcinogenicity in humans. Pentachlorophenol as it is used commercially is a mixture of pentachlorophenol and by-products formed or present during its production.
PHENOL	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans.
METHYLENE CHLORIDE & 2,4-DINITROPHENOL	The material may produce moderate eye irritation leading to inflammation.
METHYLENE CHLORIDE & PHENOL	The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
2,3,4,6-TETRACHLOROPHENOL & 2,4,5-TRICHLOROPHENOL & 2,4,6-TRICHLOROPHENOL & 2,4-DICHLOROPHENOL & PENTACHLOROPHENOL	Side-reactions during manufacture of the parent compound may result in the production of trace amounts of polyhalogenated aromatic hydrocarbon(s).
2,3,4,6-TETRACHLOROPHENOL & 2,4,5-TRICHLOROPHENOL & 2,4,6-TRICHLOROPHENOL & 2,4-DICHLOROPHENOL & PENTACHLOROPHENOL	Polyhalogenated aromatic hydrocarbons (PHAHs) can cause effects on hormones and mimic thyroid hormone.

Continued...

2,3,4,6-TETRACHLOROPHENOL & PENTACHLOROPHENOL	WARNING: Pentachlorophenol can be embryotoxic, foetotoxic, and teratogenic (birth defects) in test animals.
2,3,4,6-TETRACHLOROPHENOL & 2,4,6-TRICHLOROPHENOL & BENZOIC ACID & PHENOL	The material may produce severe irritation to the eye causing pronounced inflammation.
2,3,4,6-TETRACHLOROPHENOL & 2,4-DICHLOROPHENOL & PENTACHLOROPHENOL	Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
2,3,4,6-TETRACHLOROPHENOL & 2,4,6-TRICHLOROPHENOL	Carcinogenic by RTECS criteria.
2,4,5-TRICHLOROPHENOL & 2,4,6-TRICHLOROPHENOL & 2,4-DINITROPHENOL & BENZOIC ACID & PENTACHLOROPHENOL	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
2,4,6-TRICHLOROPHENOL & PENTACHLOROPHENOL	Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [*National Toxicology Program: U.S. Dep.*
2,4-DICHLOROPHENOL & BENZOIC ACID & PENTACHLOROPHENOL & PHENOL	Asthma-like symptoms may continue for months or even years after exposure to the material ends.

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 available but does not fill the criteria for classification*
✔ *– Data available to make classification*
⊘ *– Data Not Available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Acids Extractable Mixture

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

methylene chloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	=13.1mg/L	1
EC50	48	Crustacea	=108.5mg/L	1
EC50	96	Algae or other aquatic plants	161.874mg/L	3
EC50	384	Crustacea	10.334mg/L	3
NOEC	96	Algae or other aquatic plants	56mg/L	4

2,3,4,6-tetrachlorophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.14mg/L	4
EC50	48	Crustacea	0.3mg/L	4
EC50	96	Algae or other aquatic plants	1.3mg/L	4
BCF	24	Fish	0.8mg/L	4
EC50	168	Crustacea	0.27mg/L	4
NOEC	48	Crustacea	0.01mg/L	4

2,4,5-trichlorophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.249mg/L	4
EC50	48	Crustacea	0.29mg/L	5
EC50	96	Algae or other aquatic plants	0.89mg/L	4
BCF	24	Fish	1.8mg/L	4
EC50	Not Applicable	Algae or other aquatic plants	0.2mg/L	5

Continued...

	NOEC	288	Fish	0.0625mg/L	4

2,4,6-trichlorophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.32mg/L	4
EC50	48	Crustacea	2.2mg/L	4
EC50	96	Algae or other aquatic plants	=3.5mg/L	1
BCF	24	Fish	10mg/L	4
EC0	504	Crustacea	=0.25mg/L	4
NOEC	48	Crustacea	<0.41mg/L	4

2,4-dichlorophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	=0.08mg/L	1
EC50	48	Crustacea	1.4mg/L	4
EC50	96	Algae or other aquatic plants	9.2mg/L	4
BCF	24	Fish	8mg/L	4
EC0	48	Crustacea	=0.7mg/L	1
NOEC	96	Algae or other aquatic plants	<0.000001mg/L	4

2,4-dinitrophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.06mg/L	4
EC50	48	Crustacea	3mg/L	4
EC50	72	Algae or other aquatic plants	8.78mg/L	4
EC50	96	Fish	0.09mg/L	5
NOEC	792	Fish	0.208mg/L	2

benzoic acid

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	180mg/L	1
EC50	48	Crustacea	860mg/L	4
EC50	72	Algae or other aquatic plants	>33.1mg/L	2
BCF	24	Algae or other aquatic plants	0.05mg/L	4
EC50	3	Algae or other aquatic plants	5mg/L	4
NOEC	72	Algae or other aquatic plants	0.11mg/L	2

pentachlorophenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.01mg/L	4
EC50	48	Crustacea	0.0003mg/L	5
EC50	96	Algae or other aquatic plants	0.0203mg/L	4
BCF	1	Crustacea	2mg/L	4
EC50	72	Crustacea	0.00013mg/L	5
NOEC	240	Fish	0.0005mg/L	4

phenol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.00175mg/L	4
EC50	48	Crustacea	=3.1mg/L	1
EC50	96	Algae or other aquatic plants	0.0611mg/L	4
BCF	24	Fish	60mg/L	4
EC50	24	Crustacea	0.000395mg/L	4
NOEC	144	Crustacea	0.01mg/L	4

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

Harmful 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.

Continued...

for Dinitrocresols: Henry's Law Constant: 1.4x10-6 atm-m3/mole; Adsorption Coefficient: 590 mg/g; BCF: 40; Log Kow: 2.85; Vapor Pressure: 1.05x10-4 mm Hg; Koc 2.35-2.77.
Atmospheric Fate: Photolysis of o-cresol in the presence of nitrogen oxides produced dinitrocresols in the aerosol phase. The distance of atmospheric transport for dinitro-o-cresols (DNOC) depends on the half-life and the physical state of the compound in air. It is possible that atmospheric DNOC will absorb sunlight and undergo a reaction. Physical removal processes such as wet/dry deposition and rain/snow washout may be important fate processes. The efficiency of both wet and dry precipitation is higher for particulate matter than for compounds that exist in the gas phase in the air. These compounds may not be transported long distances from their emission source.
Terrestrial Fate: Volatilization is not a significant transport process for DNOC from soil to the air. Volatilization is expected to occur more readily with increased soil acidity, moisture content, and temperature; however, a laboratory study of two types of soil found no loss of DNOC by volatilization in 65 days. This compound is moderately adsorbed in soil, has moderate mobility, and may not leach beyond 5 cm. The water soluble salts of DNOC (sodium, potassium, calcium, and ammonium) might be expected to leach into soil. It seems likely that DNOC will transfer to adjacent surface water, or land, via runoff from treated fields and waste sites. Several pure cultures of microorganisms isolated from soil or sediment have been shown to biodegrade DNOC.
Aquatic Fate: In natural waters at pH 5-9, >50% of the compound exists in the ionic state and the percent of ionic forms increases as the pH increases. Direct volatilization from water will not be significant for DNOC. The substance can transfer from water to suspended solids and sediment and this transfer is pH dependant. Adsorption increases as the pH of the solution decreases. Adsorption of DNOC also depends on the clay and organic carbon content of the suspended solids and sediment; an increase in either value increases adsorption thus decreasing adsorption of DNOC in water. DNOC may bioaccumulate in aquatic organisms. DNOC is highly toxic to fish thus, it is unlikely to bioconcentrate.
Ecotoxicity: Above a certain concentration, DNOC may be toxic to organisms. For example, at concentrations >500 mg/L, DNOC may be toxic to the bacterium C. simplex.

Contamination of polyhalogenated phenols in their manufacture by toxic species, such as the dibenzo-p-dioxins and dibenzofurans, raise concern in terms of their entry in the food chain.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
methylene chloride	LOW (Half-life = 56 days)	HIGH (Half-life = 191 days)
2,3,4,6-tetrachlorophenol	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 151.83 days)
2,4,5-trichlorophenol	HIGH (Half-life = 1820.42 days)	LOW (Half-life = 12.54 days)
2,4,6-trichlorophenol	HIGH (Half-life = 1820.42 days)	LOW (Half-life = 51.42 days)
2,4-dichlorophenol	MEDIUM (Half-life = 70 days)	LOW (Half-life = 8.83 days)
2,4-dimethylphenol	LOW (Half-life = 14 days)	LOW (Half-life = 0.5 days)
2,4-dinitrophenol	HIGH (Half-life = 526 days)	LOW (Half-life = 46.42 days)
2-chlorophenol	HIGH	HIGH
2-methylphenol	LOW (Half-life = 14 days)	LOW (Half-life = 0.67 days)
2-nitrophenol	LOW (Half-life = 28 days)	LOW (Half-life = 2.96 days)
3-methylphenol	LOW (Half-life = 49 days)	LOW (Half-life = 0.47 days)
4,6-dinitro-2methylphenol	LOW (Half-life = 42 days)	MEDIUM (Half-life = 129.08 days)
4-chloro-3-methylphenol	LOW (Half-life = 49 days)	LOW (Half-life = 0.67 days)
4-methylphenol	LOW (Half-life = 28 days)	LOW (Half-life = 0.63 days)
4-nitrophenol	LOW (Half-life = 9.79 days)	LOW (Half-life = 6.04 days)
benzoic acid	LOW	LOW
pentachlorophenol	HIGH (Half-life = 1535 days)	LOW (Half-life = 58 days)
phenol	LOW (Half-life = 10 days)	LOW (Half-life = 0.95 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
methylene chloride	LOW (BCF = 40)
2,3,4,6-tetrachlorophenol	LOW (BCF = 95)
2,4,5-trichlorophenol	MEDIUM (BCF = 825)
2,4,6-trichlorophenol	HIGH (BCF = 12130)
2,4-dichlorophenol	LOW (BCF = 69)
2,4-dimethylphenol	LOW (LogKOW = 2.3)
2,4-dinitrophenol	LOW (BCF = 3.7)
2-chlorophenol	LOW (BCF = 214)
2-methylphenol	LOW (LogKOW = 1.95)
2-nitrophenol	LOW (BCF = 76)
3-methylphenol	LOW (LogKOW = 1.96)
4,6-dinitro-2methylphenol	LOW (BCF = 2.9)
4-chloro-3-methylphenol	LOW (BCF = 13)
4-methylphenol	LOW (LogKOW = 1.94)
4-nitrophenol	LOW (BCF = 280)
benzoic acid	LOW (LogKOW = 1.87)
pentachlorophenol	LOW (BCF = 198)
phenol	LOW (BCF = 17.5)

Mobility in soil

Ingredient	Mobility
methylene chloride	LOW (KOC = 23.74)
2,3,4,6-tetrachlorophenol	LOW (KOC = 2002)
2,4,5-trichlorophenol	LOW (KOC = 1186)

Continued...

2,4,6-trichlorophenol	LOW (KOC = 1186)
2,4-dichlorophenol	LOW (KOC = 717.6)
2,4-dimethylphenol	LOW (KOC = 717.6)
2,4-dinitrophenol	LOW (KOC = 363.8)
2-chlorophenol	LOW (KOC = 443.1)
2-methylphenol	LOW (KOC = 443.1)
2-nitrophenol	LOW (KOC = 315.5)
3-methylphenol	LOW (KOC = 434)
4,6-dinitro-2methylphenol	LOW (KOC = 601.5)
4-chloro-3-methylphenol	LOW (KOC = 717.6)
4-methylphenol	LOW (KOC = 434)
4-nitrophenol	LOW (KOC = 309)
benzoic acid	LOW (KOC = 14.49)
pentachlorophenol	LOW (KOC = 3380)
phenol	LOW (KOC = 268)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ 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 SDS and observe all notices pertaining to the product. 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. A Hierarchy of Controls seems to be common - the user should investigate: ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) 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. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. ▸ **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.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO

Land transport (DOT)

UN number	1593
UN proper shipping name	Dichloromethane
Transport hazard class(es)	Class: 6.1 Subrisk: Not Applicable
Packing group	III
Environmental hazard	Not Applicable
Special precautions for user	Hazard Label: 6.1 Special provisions: IB3, IP8, N36, T7, TP2

Air transport (ICAO-IATA / DGR)

UN number	1593
UN proper shipping name	Dichloromethane

Continued...

Transport hazard class(es)	ICAO/IATA Class: 6.1 ICAO / IATA Subrisk: Not Applicable ERG Code: 6L
Packing group	III
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: Not Applicable Cargo Only Packing Instructions: 663 Cargo Only Maximum Qty / Pack: 220 L Passenger and Cargo Packing Instructions: 655 Passenger and Cargo Maximum Qty / Pack: 60 L Passenger and Cargo Limited Quantity Packing Instructions: Y642 Passenger and Cargo Limited Maximum Qty / Pack: 2 L

Sea transport (IMDG-Code / GGVSee)

UN number	1593
UN proper shipping name	DICHLOROMETHANE
Transport hazard class(es)	IMDG Class: 6.1 IMDG Subrisk: Not Applicable
Packing group	III
Environmental hazard	Not Applicable
Special precautions for user	EMS Number: F-A, S-A Special provisions: Not Applicable Limited Quantities: 5 L

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

METHYLENE CHLORIDE(75-09-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - Hawaii Air Contaminant Limits
US - Idaho - Acceptable Maximum Peak Concentrations
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Mutagens
US - Oregon Permissible Exposure Limits (Z-1)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part B.
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Carcinogens Listing
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Levels (PELs) - Table Z2
US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

2,3,4,6-TETRACHLOROPHENOL(58-90-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Massachusetts - Right To Know Listed Chemicals
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US CWA (Clean Water Act) - Toxic Pollutants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

2,4,5-TRICHLOROPHENOL(95-95-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Massachusetts - Right To Know Listed Chemicals
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

2,4,6-TRICHLOROPHENOL(88-06-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - Carcinogens
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - Massachusetts - Right To Know Listed Chemicals
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part B.
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

2,4-DICHLOROPHENOL(120-83-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Massachusetts - Right To Know Listed Chemicals
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US AIHA Workplace Environmental Exposure Levels (WEELs)
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

2,4-DINITROPHENOL(51-28-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

BENZOIC ACID(65-85-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US CWA (Clean Water Act) - List of Hazardous Substances
US EPA Carcinogens Listing
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PENTACHLOROPHENOL(87-86-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Oregon Permissible Exposure Limits (Z-1)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part B.
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PHENOL(108-95-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - Oregon Permissible Exposure Limits (Z-1)
US - Pennsylvania - Hazardous Substance List
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US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US SARA Section 302 Extremely Hazardous Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

Immediate (acute) health hazard	Yes
Delayed (chronic) health hazard	Yes
Fire hazard	No
Pressure hazard	No
Reactivity hazard	No

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
Dichloromethane	1000	454
Phenol, 2,3,4,6-tetrachloro-	10	4.54
Phenol, 2,4,5-trichloro-	10	4.54
Phenol, 2,4,6-trichloro-	10	4.54
2,4-Dichlorophenol	100	45.4
2,4-Dinitrophenol	10	4.54
Benzoic acid	5000	2270
Pentachlorophenol	10	4.54
Phenol	1000	454

State Regulations

US. CALIFORNIA PROPOSITION 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE

Dichloromethane (Methylene chloride), 2,4,6-Trichlorophenol, Pentachlorophenol Listed

National Inventory	Status
Australia - AICS	N (2,3,4,6-tetrachlorophenol)
Canada - DSL	N (2,4,5-trichlorophenol; 2,4,6-trichlorophenol)
Canada - NDSL	N (2,4-dinitrophenol; phenol; benzoic acid; pentachlorophenol; 2,4-dichlorophenol; methylene chloride; 2,3,4,6-tetrachlorophenol)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (phenol; benzoic acid; 2,4,6-trichlorophenol)
Korea - KECI	N (2,4,5-trichlorophenol)
New Zealand - NZIoC	N (pentachlorophenol; 2,3,4,6-tetrachlorophenol)
Philippines - PICCS	N (2,4,5-trichlorophenol; 2,3,4,6-tetrachlorophenol)
USA - TSCA	Y
Legend:	*Y = All ingredients are on the inventory* *N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

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

Continued...

available literature references.
The 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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index