Liquid Volatile Organic Compounds

High-Purity Standards

Chemwatch Hazard Alert Code: **4**

Catalogue number: **VOC-M54C**
Version No: **1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: **06/05/2017**
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S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	Liquid Volatile Organic Compounds
Synonyms	VOC-M54C
Other means of identification	VOC-M54C

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	Specific target organ toxicity - repeated exposure Category 2, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Sensitizer Category 1, Germ cell mutagenicity Category 1B, Carcinogenicity Category 1A, Reproductive Toxicity Category 1A, Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 3, Flammable Liquid Category 2

Label elements

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

Hazard statement(s)

H373	May cause damage to organs through prolonged or repeated exposure.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H317	May cause an allergic skin reaction.
H340	May cause genetic defects.
H350	May cause cancer.

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H360	May damage fertility or the unborn child.
H412	Harmful to aquatic life with long lasting effects.
H225	Highly flammable liquid and vapour.

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

P403+P235	Store in a well-ventilated place. Keep cool.

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
67-56-1	balance	methanol
630-20-6	0.2	1,1,1,2-tetrachloroethane
71-55-6	0.2	1,1,1-trichloroethane
79-34-5	0.2	1,1,2,2-tetrachloroethane
79-00-5	0.2	1,1,2-trichloroethane
75-34-3	0.2	1,1-dichloroethane
75-35-4	0.2	vinylidene chloride
563-58-6	0.2	1,1-dichloropropene
87-61-6	0.2	1,2,3-trichlorobenzene
96-18-4	0.2	1,2,3-trichloropropane
120-82-1	0.2	1,2,4-trichlorobenzene
95-63-6	0.2	1,2,4-trimethyl benzene
96-12-8	0.2	1,2-dibromo-3-chloropropane
106-93-4	0.2	ethylene dibromide
95-50-1	0.2	1,2-dichlorobenzene
107-06-2	0.2	ethylene dichloride
78-87-5	0.2	1,2-dichloropropane
108-67-8	0.2	1,3,5-trimethyl benzene
541-73-1	0.2	1,3-dichlorobenzene
142-28-9	0.2	1,3-dichloropropane
106-46-7	0.2	1,4-dichlorobenzene
594-20-7	0.2	2,2-dichloropropane
95-49-8	0.2	o-chlorotoluene
106-43-4	0.2	p-chlorotoluene
71-43-2	0.2	benzene
108-86-1	0.2	bromobenzene
74-97-5	0.2	bromochloromethane
75-27-4	0.2	bromodichloromethane
75-25-2	0.2	bromoform
56-23-5	0.2	carbon tetrachloride
108-90-7	0.2	chlorobenzene
67-66-3	0.2	chloroform
156-59-2	0.2	cis-acetylene dichloride
10061-01-5	0.2	cis-1,3-dichloropropene

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124-48-1	0.2	dibromochloromethane
74-95-3	0.2	dibromomethane
75-09-2	0.2	methylene chloride
100-41-4	0.2	ethylbenzene
87-68-3	0.2	hexachlorobutadiene
98-82-8	0.2	isopropyl benzene - cumene
108-38-3	0.2	m-xylene
91-20-3	0.2	naphthalene
104-51-8	0.2	butylbenzene
103-65-1	0.2	propylbenzene
95-47-6	0.2	o-xylene
99-87-6	0.2	p-cymene
106-42-3	0.2	p-xylene
135-98-8	0.2	sec-butylbenzene
100-42-5	0.2	styrene
98-06-6	0.2	tert-butylbenzene
127-18-4	0.2	tetrachloroethylene
108-88-3	0.2	toluene
156-60-5	0.2	trans-acetylene dichloride
10061-02-6	0.2	trans-1,3-dichloropropene
79-01-6	0.2	trichloroethylene

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.
Inhalation	▸ 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.
Ingestion	▸ 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. ▸ Seek medical advice.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

for 1,3-dichloropropene:

- Remove ingested material by gastric aspiration and lavage. Use water as the lavage fluid.
- Demulcents such as alumina gels, but no fats or oils.
- Opiates, and atropine for the control of pain and intestinal spasm.
- Aminophylline (theophylline-ethylenediamine) intravenously slowly to correct bronchospasm.
- Oxygen and other measures for the management of adult respiratory distress syndrome.
- Digitalis and/or lidocaine in the event of cardiac disturbances.
- Wash extensively any contaminated areas of skin with soap and water. Discard contaminated clothing.
- A therapeutic trial with BAL or N-acetylcycsteine might be useful if instituted promptly after the exposure.
- Repeated function tests are desirable to detect and evaluate possible liver and kidney injury.

GOSSELIN, SMITH & HODGE: Clinical Toxicology of Commercial Products, 5th Ed.
For acute and short term repeated exposures to methanol:

- Toxicity results from accumulation of formaldehyde/formic acid.
- Clinical signs are usually limited to CNS, eyes and GI tract Severe metabolic acidosis may produce dyspnea and profound systemic effects which may become intractable. All symptomatic patients should have arterial pH measured. Evaluate airway, breathing and circulation.
- Stabilise obtunded patients by giving naloxone, glucose and thiamine.
- Decontaminate with Ipecac or lavage for patients presenting 2 hours post-ingestion. Charcoal does not absorb well; the usefulness of cathartic is not established.
- Forced diuresis is not effective; haemodialysis is recommended where peak methanol levels exceed 50 mg/dL (this correlates with serum bicarbonate levels below 18 meq/L).
- Ethanol, maintained at levels between 100 and 150 mg/dL, inhibits formation of toxic metabolites and may be indicated when peak methanol levels exceed 20 mg/dL. An intravenous solution of ethanol in D5W is optimal.
- Folate, as leucovorin, may increase the oxidative removal of formic acid. 4-methylpyrazole may be an effective adjunct in the treatment. 8.Phenytoin may be preferable to diazepam for controlling

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- seizure.

[Ellenhorn Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

Determinant	Index	Sampling Time	Comment
1. Methanol in urine	15 mg/l	End of shift	B, NS
2. Formic acid in urine	80 mg/gm creatinine	Before the shift at end of workweek	B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed.

NS: Non-specific determinant - observed following exposure to other materials.

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 alkalinise 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 FIRE-FIGHTING MEASURES

Extinguishing media

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Special protective equipment and precautions for fire-fighters

Fire Fighting	
Fire/Explosion Hazard	▸ Liquid and vapour are highly flammable. ▸ Severe fire hazard when exposed to heat, flame and/or oxidisers. ▸ Vapour may travel a considerable distance to source of ignition. ▸ Heating may cause expansion or decomposition leading to violent rupture of containers. ▸ On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: carbon dioxide (CO_2) other pyrolysis products typical of burning organic material.

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	Environmental hazard - contain spillage. ▸ 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 small quantities with vermiculite or other absorbent material. ▸ Wipe up. ▸ Collect residues in a flammable waste container.
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 all means available, spillage from entering drains or water courses. ▸ Consider evacuation (or protect in place). ▸ No smoking, naked lights or ignition sources. ▸ Increase ventilation. ▸ Stop leak if safe to do so. ▸ Water spray or fog may be used to disperse / absorb vapour. ▸ Contain or absorb spill with sand, earth or vermiculite. ▸ Collect recoverable product into labelled containers for recycling. ▸ 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.

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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. ▸ 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. ▸ Avoid smoking, naked lights, heat or ignition sources. ▸ When handling, **DO NOT** eat, drink or smoke. ▸ Vapour may ignite on pumping or pouring due to static electricity. ▸ **DO NOT** use plastic buckets. ▸ Earth and secure metal containers when dispensing or pouring product. ▸ Use spark-free tools when handling. ▸ Avoid contact with incompatible materials. ▸ Keep containers securely sealed. ▸ Avoid physical damage to containers. ▸ Always wash hands with soap and water after handling. ▸ Work clothes should be laundered separately. ▸ 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. ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
Other information	▸ Store in original containers in approved flame-proof area. ▸ No smoking, naked lights, heat or ignition sources. ▸ **DO NOT** store in pits, depressions, basements or areas where vapours may be trapped. ▸ Keep containers securely sealed. ▸ Store away from incompatible materials in a cool, dry well ventilated area. ▸ 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	▸ Packing as supplied by manufacturer. ▸ Plastic containers may only be used if approved for flammable liquid. ▸ Check that containers are clearly labelled and free from leaks. ▸ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : 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) ▸ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) ▸ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) 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 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	Dichloropropenes ▸ are incompatible with strong acids, oxidisers, active metals, aluminium or magnesium compounds, aliphatic amines, alkanolamines, alkaline materials ▸ reacts with certain materials such as rubber, leather and fur to produce a strong odour ▸ flow or agitation may generate electrostatic charges due to low conductivity 2,3-dichloro-1-propene (CAS RN: 78-88-6) ▸ is incompatible with aliphatic amines, alkanolamines, alkaline materials For alkyl aromatics: 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. ▸ 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 NOx - these may be components of photochemical smogs. Oxidation of Alkylaromatics: T.S.S Rao and Shubhra Awasthi: E-Journal of Chemistry Vol 4, No. 1, pp 1-13 January 2007 ▸ 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.

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	methanol	Methyl alcohol	260 mg/m3 / 200 ppm	325 mg/m3 / 250 ppm	Not Available	[skin]

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US NIOSH Recommended Exposure Limits (RELs)	methanol	Carbinol, Columbian spirits, Methanol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit	260 mg/m3 / 200 ppm	250 ppm	Not Available	TLV® Basis: Headache; eye dam; dizziness; nausea; BEI
US ACGIH Threshold Limit Values (TLV)	methanol	Methanol	200 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,1,1-trichloroethane	Methyl chloroform (1,1,1-Trichloroethane)	1900 mg/m3 / 350 ppm	450 ppm	1900 mg/m3 / 350 ppm	See Appendix C (Chloroethanes)
US NIOSH Recommended Exposure Limits (RELs)	1,1,1-trichloroethane	Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)	350 ppm	Not Available	Not Available	TLV® Basis: CNS impair; liver dam; BEI
US ACGIH Threshold Limit Values (TLV)	1,1,1-trichloroethane	Methyl chloroform	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,1,2,2-tetrachloroethane	1,1,2,2-Tetrachloroethane	35 mg/m3 / 5 ppm	Not Available	Not Available	Ca See Appendix A See Appendix C (Chloroethanes)
US NIOSH Recommended Exposure Limits (RELs)	1,1,2,2-tetrachloroethane	Acetylene tetrachloride, Symmetrical tetrachloroethane	7 mg/m3 / 1 ppm	Not Available	Not Available	TLV® Basis: Liver dam
US ACGIH Threshold Limit Values (TLV)	1,1,2,2-tetrachloroethane	1, 1, 2, 2-Tetrachloroethane	1 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,1,2-trichloroethane	1,1,2-Trichloroethane	45 mg/m3 / 10 ppm	Not Available	Not Available	Ca See Appendix A See Appendix C (Chloroethanes)
US NIOSH Recommended Exposure Limits (RELs)	1,1,2-trichloroethane	Ethane trichloride, β-Trichloroethane, Vinyl trichloride	45 mg/m3 / 10 ppm	Not Available	Not Available	TLV® Basis: CNS impair; liver dam
US ACGIH Threshold Limit Values (TLV)	1,1,2-trichloroethane	1, 1, 2-Trichloroethane	10 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,1-dichloroethane	1,1-Dichloroethane	400 mg/m3 / 100 ppm	Not Available	Not Available	See Appendix C (Chloroethanes)
US NIOSH Recommended Exposure Limits (RELs)	1,1-dichloroethane	Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride	400 mg/m3 / 100 ppm	Not Available	Not Available	TLV® Basis: URT & eye irr; liver & kidney dam
US ACGIH Threshold Limit Values (TLV)	1,1-dichloroethane	1, 1-Dichloroethane	100 ppm	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	vinylidene chloride	1,1-DCE; 1,1-Dichloroethene; 1,1-Dichloroethylene; VDC; Vinylidene chloride monomer; Vinylidene dichloride	5 ppm	Not Available	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	vinylidene chloride	Vinylidene chloride	Not Available	Not Available	Not Available	TLV® Basis: Liver & kidney dam
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,2,3-trichloropropane	1,2,3-Trichloropropane	300 mg/m3 / 50 ppm	Not Available	Not Available	Ca See Appendix A
US NIOSH Recommended Exposure Limits (RELs)	1,2,3-trichloropropane	Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin, Trichlorohydrin	60 mg/m3 / 10 ppm	Not Available	Not Available	TLV® Basis: Cancer
US ACGIH Threshold Limit Values (TLV)	1,2,3-trichloropropane	1, 2, 3-Trichloropropane	0.005 ppm	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	1,2,4-trichlorobenzene	unsym-Trichlorobenzene; 1,2,4-Trichlorobenzol	Not Available	Not Available	40 mg/m3 / 5 ppm	TLV® Basis: Eye & URT irr
US ACGIH Threshold Limit Values (TLV)	1,2,4-trichlorobenzene	1, 2, 4-Trichlorobenzene	Not Available	Not Available	5 ppm	Not Available
US NIOSH Recommended Exposure Limits (RELs)	1,2,4-trimethyl benzene	Asymmetrical trimethylbenzene, psi-Cumene, Pseudocumene [Note: Hemimellitene is a mixture of the 1,2,3-isomer with up to 10% of related aromatics such as the 1,2,4-isomer.]	125 mg/m3 / 25 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,2-dibromo-3-chloropropane	1,2-Dibromo-3-chloropropane	0.001 ppm	Not Available	Not Available	(DBCP); see 1910.1044;(TWA (Inhalation)); The employer shall assure that no employee is exposed to eye or skin contact with DBCP
US NIOSH Recommended Exposure Limits (RELs)	1,2-dibromo-3-chloropropane	1-Chloro-2,3-dibromopropane; DBCP; Dibromochloropropane	Not Available	Not Available	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	ethylene dibromide	Ethylene dibromide	20 ppm	Not Available	30 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	ethylene dibromide	Ethylene dibromide	0.045 ppm	Not Available	0.13 ppm	(Z37.31–1970)
US NIOSH Recommended Exposure Limits (RELs)	ethylene dibromide	1,2-Dibromoethane; Ethylene bromide; Glycol dibromide	Not Available	Not Available	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	ethylene dibromide	Ethylene dibromide	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,2-dichlorobenzene	o-Dichlorobenzene	25 ppm	50 ppm	300 mg/m3 / 50 ppm	TLV® Basis: URT & eye irr; liver dam

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US NIOSH Recommended Exposure Limits (RELs)	1,2-dichlorobenzene	o-DCB; 1,2-Dichlorobenzene; ortho-Dichlorobenzene; o-Dichlorobenzol	Not Available	Not Available	300 mg/m3 / 50 ppm	Not Available
US ACGIH Threshold Limit Values (TLV)	1,2-dichlorobenzene	o-Dichlorobenzene	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	ethylene dichloride	Ethylene dichloride (1,2-Dichloroethane)	4 mg/m3 / 50 ppm	8 mg/m3 / 2 ppm	100 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	ethylene dichloride	Ethylene dichloride	1 ppm	Not Available	Not Available	(Z37.21–1969)
US NIOSH Recommended Exposure Limits (RELs)	ethylene dichloride	1,2-Dichloroethane; Ethylene chloride; Glycol dichloride	10 ppm	Not Available	Not Available	Ca See Appendix A See Appendix C (Chloroethanes)
US ACGIH Threshold Limit Values (TLV)	ethylene dichloride	Ethylene dichloride	Not Available	Not Available	Not Available	TLV® Basis: Liver dam; nausea
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,2-dichloropropane	Propylene dichloride	350 mg/m3 / 75 ppm	Not Available	Not Available	Ca See Appendix A
US NIOSH Recommended Exposure Limits (RELs)	1,2-dichloropropane	Dichloro-1,2-propane; 1,2-Dichloropropane	10 ppm	Not Available	Not Available	TLV® Basis: URT irr; body weight eff
US ACGIH Threshold Limit Values (TLV)	1,2-dichloropropane	Propylene dichloride	Not Available	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	1,3,5-trimethyl benzene	Mesitylene, Symmetrical trimethylbenzene, sym-Trimethylbenzene	125 mg/m3 / 25 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,4-dichlorobenzene	p-Dichlorobenzene	450 mg/m3 / 75 ppm	Not Available	Not Available	Ca See Appendix A
US NIOSH Recommended Exposure Limits (RELs)	1,4-dichlorobenzene	p-DCB; 1,4-Dichlorobenzene; para-Dichlorobenzene; Dichlorocide	10 ppm	Not Available	Not Available	TLV® Basis: Eye irr; kidney dam
US ACGIH Threshold Limit Values (TLV)	1,4-dichlorobenzene	p-Dichlorobenzene	Not Available	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	o-chlorotoluene	1-Chloro-2-methylbenzene, 2-Chloro-1-methylbenzene, 2-Chlorotoluene, o-Tolyl chloride	250 mg/m3 / 50 ppm	375 mg/m3 / 75 ppm	Not Available	TLV® Basis: URT, eye, & skin irr
US ACGIH Threshold Limit Values (TLV)	o-chlorotoluene	o-Chlorotoluene	50 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	benzene	Benzene	1 ppm	5 ppm	25 ppm	see 1910.1028 (See Table Z-2 for the limits applicable in the operations or sectors excluded in 1910.1028d)
US OSHA Permissible Exposure Levels (PELs) - Table Z2	benzene	Benzene	10 ppm	1 ppm	Not Available	This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at 1910.1028;(Z37.40–1969)
US NIOSH Recommended Exposure Limits (RELs)	benzene	Benzol, Phenyl hydride	0.1 ppm	2.5 ppm	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	benzene	Benzene	0.5 ppm	Not Available	Not Available	TLV® Basis: Leukemia; BEI
US OSHA Permissible Exposure Levels (PELs) - Table Z1	bromochloromethane	Chlorobromomethane	1050 mg/m3 / 200 ppm	Not Available	Not Available	TLV® Basis: CNS impair; liver dam
US NIOSH Recommended Exposure Limits (RELs)	bromochloromethane	Bromochloromethane, CB, CBM, Fluorocarbon 1011, Halon® 1011, Methyl chlorobromide	1050 mg/m3 / 200 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	bromochloromethane	Chlorobromomethane	200 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	bromoform	Bromoform	5 mg/m3 / 0.5 ppm	Not Available	Not Available	[skin]
US NIOSH Recommended Exposure Limits (RELs)	bromoform	Methyl tribromide, Tribromomethane	5 mg/m3 / 0.5 ppm	Not Available	Not Available	TLV® Basis: Liver dam; URT & eye irr
US ACGIH Threshold Limit Values (TLV)	bromoform	Bromoform	0.5 ppm	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	carbon tetrachloride	Carbon tetrachloride	10 ppm	12.6 mg/m3 / 2 ppm	25 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	carbon tetrachloride	Carbon tetrachloride	5 ppm	10 ppm	Not Available	Z37.17–1967)
US NIOSH Recommended Exposure Limits (RELs)	carbon tetrachloride	Carbon chloride, Carbon tet, Freon® 10, Halon® 104, Tetrachloromethane	Not Available	Not Available	Not Available	Ca See Appendix A

Continued...

US ACGIH Threshold Limit Values (TLV)	carbon tetrachloride	Carbon tetrachloride	Not Available	Not Available	Not Available	TLV® Basis: Liver dam
US NIOSH Recommended Exposure Limits (RELs)	chlorobenzene	Benzene chloride, Chlorobenzol, MCB, Monochlorobenzene, Phenyl chloride	10 ppm	Not Available	Not Available	See Appendix D
US ACGIH Threshold Limit Values (TLV)	chlorobenzene	Chlorobenzene	Not Available	Not Available	Not Available	TLV® Basis: Liver dam; BEI
US OSHA Permissible Exposure Levels (PELs) - Table Z1	chloroform	Chloroform (Trichloromethane)	10 ppm	9.78 mg/m3 / 2 ppm	240 mg/m3 / 50 ppm	Ca See Appendix A
US NIOSH Recommended Exposure Limits (RELs)	chloroform	Methane trichloride, Trichloromethane	Not Available	Not Available	Not Available	TLV® Basis: Liver & embryo/fetal dam; CNS impair
US ACGIH Threshold Limit Values (TLV)	chloroform	Chloroform	Not Available	Not Available	Not Available	Not Available
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 OSHA Permissible Exposure Levels (PELs) - Table Z1	ethylbenzene	Ethyl benzene	435 mg/m3 / 100 ppm	545 mg/m3 / 125 ppm	Not Available	TLV® Basis: URT irr; kidney dam (nephropathy); cochlear impair; BEI
US NIOSH Recommended Exposure Limits (RELs)	ethylbenzene	Ethylbenzol, Phenylethane	435 mg/m3 / 100 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	ethylbenzene	Ethyl benzene	20 ppm	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	hexachlorobutadiene	HCBD; Hexachloro-1,3-butadiene; 1,3-Hexachlorobutadiene; Perchlorobutadiene	0.24 mg/m3 / 0.02 ppm	Not Available	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	hexachlorobutadiene	Hexachlorobutadiene	0.02 ppm	Not Available	Not Available	TLV® Basis: Kidney dam
US OSHA Permissible Exposure Levels (PELs) - Table Z1	isopropyl benzene - cumene	Cumene	245 mg/m3 / 50 ppm	Not Available	Not Available	[skin]
US NIOSH Recommended Exposure Limits (RELs)	isopropyl benzene - cumene	Cumol, Isopropyl benzene, 2-Phenyl propane	245 mg/m3 / 50 ppm	Not Available	Not Available	TLV® Basis: Eye, skin, & URT irr; CNS impair
US ACGIH Threshold Limit Values (TLV)	isopropyl benzene - cumene	Cumene	50 ppm	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	m-xylene	1,3-Dimethylbenzene; meta-Xylene; m-Xylol	435 mg/m3 / 100 ppm	655 mg/m3 / 150 ppm	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	naphthalene	Naphthalene	50 mg/m3 / 10 ppm	75 mg/m3 / 15 ppm	Not Available	TLV® Basis: URT irr; cataracts; hemolytic anemia
US NIOSH Recommended Exposure Limits (RELs)	naphthalene	Naphthalin, Tar camphor, White tar	50 mg/m3 / 10 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	naphthalene	Naphthalene	10 ppm	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	o-xylene	1,2-Dimethylbenzene; ortho-Xylene; o-Xylol	435 mg/m3 / 100 ppm	655 mg/m3 / 150 ppm	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	p-xylene	1,4-Dimethylbenzene; para-Xylene; p-Xylol	435 mg/m3 / 100 ppm	655 mg/m3 / 150 ppm	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	styrene	Styrene	215 mg/m3 / 100 ppm	425 mg/m3 / 100 ppm	200 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	styrene	Styrene	50 ppm	40 ppm	Not Available	(Z37.15–1969)
US NIOSH Recommended Exposure Limits (RELs)	styrene	Ethenyl benzene, Phenylethylene, Styrene monomer, Styrol, Vinyl benzene	20 ppm	Not Available	Not Available	TLV® Basis: CNS impair; URT irr; peripheral neuropathy; BEI
US ACGIH Threshold Limit Values (TLV)	styrene	Styrene, monomer	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	tetrachloroethylene	Perchloroethylene (Tetrachloroethylene)	100 ppm	100 ppm	200 ppm	See Table Z-2

Continued...

US OSHA Permissible Exposure Levels (PELs) - Table Z2	tetrachloroethylene	Tetrachloroethylene	25 ppm	Not Available	Not Available	(Z37.22–1967)
US NIOSH Recommended Exposure Limits (RELs)	tetrachloroethylene	Perchlorethylene, Perchloroethylene, Perk, Tetrachlorethylene	Not Available	Not Available	Not Available	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	tetrachloroethylene	Tetrachloroethylene	Not Available	Not Available	Not Available	TLV® Basis: CNS impair; BEI
US OSHA Permissible Exposure Levels (PELs) - Table Z1	toluene	Toluene	375 mg/m3 / 200 ppm	560 mg/m3 / 150 ppm	300 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	toluene	Toluene	100 ppm	Not Available	Not Available	(Z37.12–1967)
US NIOSH Recommended Exposure Limits (RELs)	toluene	Methyl benzene, Methyl benzol, Phenyl methane, Toluol	20 ppm	Not Available	Not Available	TLV® Basis: Visual impair; female repro; pregnancy loss; BEI
US ACGIH Threshold Limit Values (TLV)	toluene	Toluene	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	trichloroethylene	Trichloroethylene	100 ppm	25 ppm	200 ppm	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	trichloroethylene	Trichloroethylene	10 ppm	Not Available	Not Available	(Z37.19–1967)
US NIOSH Recommended Exposure Limits (RELs)	trichloroethylene	Ethylene trichloride, TCE, Trichloroethene, Trilene	Not Available	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	trichloroethylene	Trichloroethylene	Not Available	Not Available	Not Available	TLV® Basis: CNS impair; cognitive decrements; renal toxicity; BEI

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
methanol	Methyl alcohol; (Methanol)	Not Available	Not Available	Not Available
1,1,1,2-tetrachloroethane	Tetrachloroethane, 1,1,1,2-	0.2 ppm	2.2 ppm	13 ppm
1,1,1-trichloroethane	Trichloroethane, 1,1,1-; (Methyl chloroform)	Not Available	Not Available	Not Available
1,1,2,2-tetrachloroethane	Tetrachloroethane, 1,1,2,2-	3 ppm	120 ppm	150 ppm
1,1,2-trichloroethane	Trichloroethane, 1,1,2-	30 ppm	180 ppm	500 ppm
1,1-dichloroethane	Ethylidene chloride, 1,1-; (1,1-Dichloroethane)	300 ppm	670 ppm	4,000 ppm
vinylidene chloride	Vinylidene chloride; (1,1-Dichloroethylene)	45 ppm	Not Available	Not Available
1,1-dichloropropene	Dichloropropene, 1,1-	1.3 ppm	15 ppm	87 ppm
1,2,3-trichlorobenzene	Trichlorobenzene, 1,2,3-	15 mg/m3	60 mg/m3	360 mg/m3
1,2,3-trichloropropane	Trichloropropane, 1,2,3-	0.015 ppm	170 ppm	1,000 ppm
1,2,4-trichlorobenzene	Trichlorobenzene, 1,2,4-	0.45 ppm	5 ppm	20 ppm
1,2,4-trimethyl benzene	Permafluor E+	140 mg/m3	360 mg/m3	2,200 mg/m3
1,2,4-trimethyl benzene	Trimethylbenzene, 1,2,4-; (Pseudocumene)	Not Available	Not Available	480 ppm
1,2-dibromo-3-chloropropane	Dibromo-3-chloropropane, 1,2-; (DBCP)	0.003 ppm	2.2 ppm	4.3 ppm
ethylene dibromide	Ethylene dibromide; (Dibromoethane)	Not Available	Not Available	Not Available
1,2-dichlorobenzene	Dichlorobenzene, o-	50 ppm	170 ppm	1,000 ppm
ethylene dichloride	Ethylene dichloride; (1,2-Dichloroethane)	Not Available	Not Available	Not Available
1,2-dichloropropane	Dichloropropane, 1,2-; (Propylene dichloride)	30 ppm	220 ppm	2,000 ppm
1,3,5-trimethyl benzene	Mesitylene; (1,3,5-Trimethylbenzene)	Not Available	Not Available	480 ppm
1,3-dichlorobenzene	Dichlorobenzene, m-	6 ppm	66 ppm	400 ppm
1,3-dichloropropane	Dichloropropane, 1,3-	5.4 ppm	59 ppm	350 ppm
1,4-dichlorobenzene	Dichlorobenzene, p-	30 ppm	170 ppm	1,000 ppm
2,2-dichloropropane	Dichloropropane, 2,2-	2.6 ppm	29 ppm	170 ppm
o-chlorotoluene	Chlorotoluene, 2-; (o-Chlorotoluene)	75 ppm	310 ppm	1,800 ppm
p-chlorotoluene	Chlorotoluene, 4-; (p-Tolyl chloride)	1.2 ppm	13 ppm	80 ppm
benzene	Benzene	Not Available	Not Available	Not Available
bromobenzene	Bromobenzene; (Phenyl bromide)	2.6 ppm	29 ppm	74 ppm
bromochloromethane	Bromochloromethane	600 ppm	830 ppm	5,000 ppm
bromodichloromethane	Bromodichloromethane	1.3 mg/m3	14 mg/m3	85 mg/m3
bromoform	Bromoform; (Tribromomethane)	1.5 ppm	6.8 ppm	41 ppm
carbon tetrachloride	Carbon tetrachloride	1.2 ppm	Not Available	Not Available
chlorobenzene	Chlorobenzene; (Benzene chloride)	Not Available	Not Available	Not Available
chloroform	Chloroform	2 ppm	Not Available	Not Available
cis-acetylene dichloride	Dichloroethylene, cis-1,2-	Not Available	Not Available	Not Available

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dibromochloromethane	Dibromochloromethane; (Chlorodibromomethane)	1.1 mg/m3	12 mg/m3	73 mg/m3
dibromomethane	Dibromomethane; (Methylene dibromide)	3 ppm	33 ppm	200 ppm
methylene chloride	Methylene chloride; (Dichloromethane)	Not Available	Not Available	Not Available
ethylbenzene	Ethyl benzene	Not Available	Not Available	Not Available
hexachlorobutadiene	Hexachlorobutadiene	Not Available	Not Available	Not Available
isopropyl benzene - cumene	Cumene; (Isopropyl benzene)	Not Available	Not Available	Not Available
m-xylene	Xylene, m- (inlcudes o- (95-47-6) and p- (106-42-3) isomers)	150 ppm	200 ppm	1,000 ppm
naphthalene	Naphthalene	15 ppm	83 ppm	500 ppm
butylbenzene	Butylbenzene, n-; (1-Phenylbutane)	6.2 ppm	68 ppm	410 ppm
propylbenzene	Propylbenzene, n-; (Isocumene)	3 ppm	33 ppm	2300 ppm
p-cymene	Isopropyltoluene, 4-; (p-Cymene)	120 mg/m3	1,300 mg/m3	1,900 mg/m3
sec-butylbenzene	Butylbenzene, sec-; (2-Phenylbutane)	1.1 ppm	12 ppm	69 ppm
styrene	Styrene	Not Available	Not Available	Not Available
tert-butylbenzene	Butylbenzene, tert-	1.7 ppm	18 ppm	110 ppm
tetrachloroethylene	Perchloroethylene; (Tetrachloroethylene)	Not Available	Not Available	Not Available
toluene	Toluene	Not Available	Not Available	Not Available
trans-acetylene dichloride	Dichloroethylene, trans-1,2-	Not Available	Not Available	Not Available
trichloroethylene	Trichloroethylene	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
methanol	25,000 ppm	6,000 ppm
1,1,1,2-tetrachloroethane	Not Available	Not Available
1,1,1-trichloroethane	1,000 ppm	700 ppm
1,1,2,2-tetrachloroethane	150 ppm	100 ppm
1,1,2-trichloroethane	500 ppm	100 ppm
1,1-dichloroethane	4,000 ppm	3,000 ppm
vinylidene chloride	Not Available	Not Available
1,1-dichloropropene	Not Available	Not Available
1,2,3-trichlorobenzene	Not Available	Not Available
1,2,3-trichloropropane	1,000 ppm	100 ppm
1,2,4-trichlorobenzene	Not Available	Not Available
1,2,4-trimethyl benzene	Not Available	Not Available
1,2-dibromo-3-chloropropane	Not Available	Not Available
ethylene dibromide	400 ppm	100 ppm
1,2-dichlorobenzene	1,000 ppm	200 ppm
ethylene dichloride	1,000 ppm	50 ppm
1,2-dichloropropane	2,000 ppm	400 ppm
1,3,5-trimethyl benzene	Not Available	Not Available
1,3-dichlorobenzene	Not Available	Not Available
1,3-dichloropropane	Not Available	Not Available
1,4-dichlorobenzene	1,000 ppm	150 ppm
2,2-dichloropropane	Not Available	Not Available
o-chlorotoluene	Not Available	Not Available
p-chlorotoluene	Not Available	Not Available
benzene	3,000 ppm	500 ppm
bromobenzene	Not Available	Not Available
bromochloromethane	5,000 ppm	2,000 ppm
bromodichloromethane	Not Available	Not Available
bromoform	Unknown ppm	850 ppm
carbon tetrachloride	300 ppm	200 ppm
chlorobenzene	2,400 ppm	1,000 ppm
chloroform	1,000 ppm	500 ppm
cis-acetylene dichloride	Not Available	Not Available
cis-1,3-dichloropropene	Not Available	Not Available
dibromochloromethane	Not Available	Not Available
dibromomethane	Not Available	Not Available
methylene chloride	10,000 ppm	2,000 ppm
ethylbenzene	2,000 ppm	800 [LEL] ppm
hexachlorobutadiene	Not Available	Not Available

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isopropyl benzene - cumene	8,000 ppm	900 [LEL] ppm
m-xylene	1,000 ppm	900 ppm
naphthalene	500 ppm	250 ppm
butylbenzene	Not Available	Not Available
propylbenzene	Not Available	Not Available
o-xylene	1,000 ppm	900 ppm
p-cymene	Not Available	Not Available
p-xylene	1,000 ppm	900 ppm
sec-butylbenzene	Not Available	Not Available
styrene	5,000 ppm	700 ppm
tert-butylbenzene	Not Available	Not Available
tetrachloroethylene	500 ppm	150 ppm
toluene	2,000 ppm	500 ppm
trans-acetylene dichloride	Not Available	Not Available
trans-1,3-dichloropropene	Not Available	Not Available
trichloroethylene	1,000 ppm	1,000 [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.

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
- Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
- Open-vessel systems are prohibited.
- Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
- Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
- For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
- Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
- Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
- Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

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 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).

Continued...

	· 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	▸ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ▸ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] ▸ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. ▸ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. ▸ Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. ▸ Overalls. ▸ PVC Apron. ▸ PVC protective suit may be required if exposure severe. ▸ Eyewash unit. ▸ Ensure there is ready access to a safety shower. · Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. · For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). · Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.
Thermal hazards	Not Available

Respiratory protection

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class 1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+		-	Airline**

* - Continuous Flow
** - Continuous-flow or positive pressure demand.
A(All classes) = Organic vapours, B AUS or B1 = Acid gases, 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 deg C)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Not Available

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

Continued...

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

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse. A slow heart rate and low blood pressure may also occur. Alkylbenzenes are not generally toxic except at high levels of exposure. Their breakdown products have low toxicity and are easily eliminated from the body. On exposure to mixed trimethylbenzenes, some people may become nervous, tensed, anxious and have difficult breathing. There may be a reduction red blood cells and bleeding abnormalities. There may also be drowsiness. Dichloroprenes at concentrations exceeding 1500 ppm may cause lachrymation, dizziness, gasping, refusal to breath, coughing, substernal pain, bronchospasm, extreme respiratory distress, coma and delayed injury to liver, kidney and heart. Effects may continue for years after exposure and include malaise, headache, chest and abdominal discomfort and irritability. When 1,3-dichloropropene is detected by odour by most people in the range 1-3 parts per million, the odour is faint and fatigues rapidly, therefore warning properties are poor. Dichloropropenes at concentrations greater than 0.15% may cause excessive secretion of tears, dizziness, gasping, breathlessness, coughing, chest pain, airway spasm, extreme respiratory distress, coma and delayed injury to the liver, kidney and heart. These effects may last for years, and include general unwellness, headache, chest, and abdominal discomfort, and irritability. Headache is frequent. Inhaling concentrations of greater than 0.15% may cause serious poisoning, and lower concentrations can cause headache, chest discomfort, irritation of the mucous membrane, nausea, vomiting, dizziness, and, occasionally, loss of consciousness and libido. Animal testing showed that dichloropropenes can damage the nose as well as the lung, liver and kidney. Minor but regular methanol exposures may effect the central nervous system, optic nerves and retinae. Symptoms may be delayed, with headache, fatigue, nausea, blurring of vision and double vision. Continued or severe exposures may cause damage to optic nerves, which may become severe with permanent visual impairment even blindness resulting. **WARNING**: Methanol is only slowly eliminated from the body and should be regarded as a cumulative poison which cannot be made non-harmful [*CCINFO*] Inhalation of naphthalene vapour is linked with headache, loss of appetite, nausea, damage to the eyes and kidneys. According to animal testing, long term exposure may cause excessive weakness and increased salivation, weight loss,difficulty breathing, collapse, and evidence of damage to the skin, liver and lungs.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Swallowing 1,3-dichloropropene may lead to acute gastrointestinal distress, with congestion and fluid build-up in the lungs. 1,3-dichloropropene can damage the lungs and affect the liver and kidney. Ingestion of naphthalene and related compounds may produce abdominal cramps with nausea, vomiting, diarrhoea, headache, profuse sweating, listlessness, confusion, and in severe poisonings, coma with or without convulsions. Irritation of the bladder may also occur, producing urgency, painful urination, and the passage of brown or black urine with or without albumin or casts.
Skin Contact	Skin contact with the material may be harmful; systemic effects may result following absorption. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Severe skin irritation produced by 1,3-dichloropropene is characterised by a marked inflammatory response to the superficial skin and underlying tissues. Workers sensitised to naphthalene and related compounds show an inflammation of the skin with scaling and reddening. Some individuals show an allergic reaction. Open cuts, abraded or irritated skin should not be exposed to this material

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	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	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn). 0.1% dichloropropene was irritating to the nose and eyes of rats and caused excessive tear secretion if exposure was prolonged. Long term exposure to naphthalene has produced clouding of the lens (cataracts) in workers.
Chronic	Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. There is sufficient evidence to suggest that this material directly causes cancer in humans. Based on experiments and other information, there is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Prolonged or repeated exposure to 1,3-dichloropropene may produce inflammation of the skin, severe irritation and possibly burns. Animal studies indicate it may sensitise skin, and produce an increase in tumours (including cancer) of the liver, forestomach, bladder and lung. Long-term exposure to methanol vapour, at concentrations exceeding 3000 ppm, may produce cumulative effects characterised by gastrointestinal disturbances (nausea, vomiting), headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, conjunctivitis and clouded or double vision. Liver and/or kidney injury may also result. Chronic exposure to benzene may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anaemia and blood changes. Benzene is a myelotoxicant known to suppress bone- marrow cell proliferation and to induce haematologic disorders in humans and animals. Animal testing indicates that inhalation of naphthalene may increase the incidence of respiratory tumours and may aggravate chronic inflammation. The reactivity of an epoxide intermediate may be the reason for the cancer-causing properties of halogenated oxiranes. It is reported that 1,1-dichloroethyne, vinyl chloride, trichloroethylene, tetrachloroethylene and chloroprene all cause cancer. Generally speaking, substances with one halogen substitution show higher potential to cause cancer compared to substances with two.

Liquid Volatile Organic Compounds

TOXICITY	IRRITATION
Not Available	Not Available

methanol

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 15800 mg/kg[2]	Eye (rabbit): 100 mg/24h-moderate
Inhalation (rat) LC50: 64000 ppm/4hr[2]	Eye (rabbit): 40 mg-moderate
Oral (rat) LD50: 5600 mg/kg[2]	Skin (rabbit): 20 mg/24 h-moderate

1,1,1,2-tetrachloroethane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 20 mg/kg[2]	Not Available
Inhalation (rat) LC50: 2100 ppm/4hr[2]	
Oral (rat) LD50: 670 mg/kg[2]	

1,1,1-trichloroethane

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye (man): 450 ppm/8h
Inhalation (rat) LC50: 17000 ppm/4hr[2]	Eye (rabbit): 100 mg mild
Inhalation (rat) LC50: 18000 ppm/4hr[2]	Eye (rabbit): 2 mg/24h SEVERE
Oral (rat) LD50: >2000 mg/kg[1]	Skin (rabbit): 20 mg/24h moderate
	Skin (rabbit): 5000 mg/12d-I mild

1,1,2,2-tetrachloroethane

TOXICITY	IRRITATION
Oral (rat) LD50: 200 mg/kg[2]	Not Available

1,1,2-trichloroethane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 5377 mg/kgd[2]	Eye (rabbit): 162 mg - mild
Inhalation (mouse) LC50: 624 ppm/6hr[1]	Eye (rabbit): 500 mg/24h - mild
Oral (rat) LD50: 580 mg/kg[2]	Skin (rabbit): 500 mg(open)-mild
	Skin (rabbit): 500 mg/24h - mild
	Skin (rabbit): 810 mg/24h-SEVERE

1,1-dichloroethane

TOXICITY	IRRITATION
Inhalation (rat) LC50: 13000 ppm/4hr[2]	Not Available
Oral (rat) LD50: 725 mg/kgd[2]	

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vinylidene chloride

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 10000 mg/kg[2]	Not Available
Inhalation (rat) LC50: 10000 ppm/4hr[2]	
Inhalation (rat) LC50: 6350 ppm/4hr[2]	
Oral (rat) LD50: 200 mg/kgd[2]	

1,1-dichloropropene

TOXICITY	IRRITATION
Not Available	Not Available

1,2,3-trichlorobenzene

TOXICITY	IRRITATION
Oral (rat) LD50: 1830 mg/kg[2]	Not Available

1,2,3-trichloropropane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 390 mg/kg[1]	Eye (rabbit): 140 mg - SEVERE
Oral (rat) LD50: 120 mg/kg[1]	Skin (rabbit): 700 mg(open)-mild

1,2,4-trichlorobenzene

TOXICITY	IRRITATION
dermal (rat) LD50: 6139 mg/kg[2]	Skin (rabbit): 1950 mg/13w - I
Oral (rat) LD50: 600 mg/kg[1]	

1,2,4-trimethyl benzene

TOXICITY	IRRITATION
Oral (rat) LD50: 3280 mg/kg[1]	Not Available

1,2-dibromo-3-chloropropane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 1400 mg/kg[2]	Eye (rabbit): 1% - mild
Inhalation (rat) LC50: 206 ppm/8hr[2]	Skin (rabbit): 10 mg - SEVERE
Oral (rat) LD50: 170 mg/kgE[2]	

ethylene dibromide

TOXICITY	IRRITATION
dermal (rat) LD50: 300 mg/kg[2]	Skin (human): 1538 mg/2h - SEVERE
Oral (rat) LD50: 108 mg/kgE[2]	Skin (rabbit): 1%/14d - SEVERE

1,2-dichlorobenzene

TOXICITY	IRRITATION
Oral (rat) LD50: 500 mg/kgd[2]	Eye(rabbit):100mg/30s rinse-mild

ethylene dichloride

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 2800 mg/kg[2]	Skin (rabbit): 500 mg/24h - mild
Inhalation (monkey) LC50: 5250 ppm/7hr[2]	Skin (rabbit): 625 mg - mild
Inhalation (rat) LC50: 1750 ppm/7hr[2]	
Oral (rat) LD50: 500 mg/kg[2]	

1,2-dichloropropane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 8750 mg/kg[2]	Eye (rabbit): 500 mg - mild
Inhalation (mouse) LC50: 1200 ppm/10h*[2]	
Inhalation (mouse) LC50: 5.64 mg/l10 hr[1]	
Inhalation (rat) LC50: 28 mg/l8 hr[1]	
Inhalation (rat) LC50: 600 ppm/8hr[2]	
Oral (rat) LD50: 1900 mg/kg[2]	

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1,3,5-trimethyl benzene

TOXICITY	IRRITATION
Oral (rat) LD50: 3280 mg/kg[1]	Eye (rabbit): 500 mg/24h mild
	Skin (rabbit): 20 mg/24h moderate

1,3-dichlorobenzene

TOXICITY	IRRITATION
Oral (rat) LD50: ca.580 mg/kg[1]	Not Available

1,3-dichloropropane

TOXICITY	IRRITATION
Not Available	Not Available

1,4-dichlorobenzene

TOXICITY	IRRITATION
dermal (rat) LD50: 2000 mg/kg[2]	Eye (human): 80 ppm
Oral (rat) LD50: 500 mg/kg[2]	

2,2-dichloropropane

TOXICITY	IRRITATION
Not Available	Not Available

o-chlorotoluene

TOXICITY	IRRITATION
dermal (rat) LD50: >1083 mg/kg*[2]	Not Available
Oral (rat) LD50: 2350 mg/kg[1]	

p-chlorotoluene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >2000 mg/kg[1]	Not Available
Oral (rat) LD50: 2100 mg/kg.[2]	

benzene

TOXICITY	IRRITATION
dermal (mouse) LD50: 48 mg/kg[2]	Eye (rabbit): 2 mg/24h - SEVERE
Inhalation (rat) LC50: 17500 ppm/7hr[2]	SKIN (rabbit):20 mg/24h - moderate
Oral (rat) LD50: 690-1230 mg/kg[1]	

bromobenzene

TOXICITY	IRRITATION
Oral (rat) LD50: 2383 mg/kg[2]	Not Available

bromochloromethane

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >5000 mg/kg*[2]	Not Available
Oral (rat) LD50: 5000 mg/kg*d[2]	

bromodichloromethane

TOXICITY	IRRITATION
Oral (rat) LD50: 430 mg/kg[2]	Not Available

bromoform

TOXICITY	IRRITATION
Oral (rat) LD50: 933 mg/kg[2]	Not Available

carbon tetrachloride

TOXICITY	IRRITATION
dermal (rat) LD50: 5070 mg/kg[2]	Eye (rabbit): 2200ug/30s - mild
Inhalation (rat) LC50: 8000 ppm/4hr[2]	Eye (rabbit): 500 mg/24 h - mild
Oral (rat) LD50: 900 mg/kg[2]	Skin (rabbit): 500 mg/24 h - mild

chlorobenzene

TOXICITY	IRRITATION
Inhalation (mouse) LC50: 2150 ppm/2hr[2]	Not Available

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	Oral (rat) LD50: 1100 mg/kg*[2]

chloroform	TOXICITY	IRRITATION
	Oral (rat) LD50: 300 mg/kg[2]	Eye (rabbit): 148 mg
		Eye (rabbit):20 mg/24h - moderate
		Skin (rabbit):10 mg/24h(open)-mild
		Skin (rabbit):500 mg/24h - mild

cis-acetylene dichloride	TOXICITY	IRRITATION
	Not Available	Not Available

cis-1,3-dichloropropene	TOXICITY	IRRITATION
	dermal (rat) LD50: 758 mg/kg[1]	Not Available
	Oral (rat) LD50: 78 mg/kg[1]	

dibromochloromethane	TOXICITY	IRRITATION
	Oral (rat) LD50: 370 mg/kgd[2]	Not Available

dibromomethane	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >4000 mg/kg[2]	Not Available
	Oral (rat) LD50: 108 mg/kgd[2]	

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

ethylbenzene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye (rabbit): 500 mg - SEVERE
	Inhalation (rabbit) LC50: 4000 ppm/4hr[2]	Skin (rabbit): 15 mg/24h mild
	Oral (rat) LD50: 3500 mg/kgd[2]	

hexachlorobutadiene	TOXICITY	IRRITATION
	dermal (rat) LD50: 4500 mg/kg[2]	Eye (rabbit): 162 mg - mild
	Oral (rat) LD50: 82 mg/kge[2]	Eye (rabbit): 500 mg/24h
		Skin (rabbit): 500 mg/24h - mild
		SKIN (RABBIT): 810 MG/24H -moderate

isopropyl benzene - cumene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 2000 mg/kg[2]	Eye (rabbit): 500 mg/24h mild
	Oral (rat) LD50: 1400 mg/kgd[2]	Eye (rabbit): 86 mg mild
		Skin (rabbit): 10 mg/24h mild
		Skin (rabbit):100 mg/24h moderate

m-xylene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 14100 mg/kgd[2]	Eye (rabbit): 5 mg/24h - SEVERE
	Inhalation (mouse) LC50: 7900.5 ppm/6hr[2]	Skin (rabbit): 20 mg/24h - mod
	Oral (rat) LD50: 4988 mg/kg[2]	Skin (rabbit):0.01 mg/24h(open)

naphthalene	TOXICITY	IRRITATION

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	dermal (rat) LD50: >2500 mg/kg[2]	Eye (rabbit): 100 mg - mild
	Oral (rat) LD50: 490 mg/kg[2]	Skin (rabbit):495 mg (open) - mild

butylbenzene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >2000 mg/kg[1]	Not Available
Oral (rat) LD50: 5210 mg/kg[1]	

propylbenzene

TOXICITY	IRRITATION
Inhalation (rat) LC50: 32500 ppm/2hr[2]	Not Available
Oral (rat) LD50: 6040 mg/kg][2]	

o-xylene

TOXICITY	IRRITATION
Inhalation (mouse) LC50: 6892.5 ppm/6hr[1]	Not Available
Oral (rat) LD50: 3567 mg/kg[2]	

p-cymene

TOXICITY	IRRITATION
Oral (rat) LD50: 3669 mg/kg[2]	Not Available

p-xylene

TOXICITY	IRRITATION
Inhalation (rat) LC50: 4550 ppm/4hr[2]	Not Available
Oral (rat) LD50: 3910 mg/kg[2]	

sec-butylbenzene

TOXICITY	IRRITATION
Oral (rat) LD50: 6300 mg/kg[2]	Eye (rabbit): 500 mg/24h - mild
	Skin (rabbit): 100 mg/24h - mod

styrene

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 100 mg/24h - moderate
Inhalation (rat) LC50: 2770 ppm/4hr[2]	Eye (rabbit): 100 mg/24h - moderate
Oral (rat) LD50: 2650 mg/kgd[2]	Skin (rabbit): 500 mg - mild
	Skin (rabbit): 500 mg - mild

tert-butylbenzene

TOXICITY	IRRITATION
Oral (rat) LD50: 3045 mg/kg[2]	Not Available

tetrachloroethylene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >10000 mg/kg[1]	Eye (rabbit): 162 mg -mild
Inhalation (mouse) LC50: 4467 ppm/6hr[2]	Skin (rabbit): 810 mg/24h -SEVERE
Inhalation (rat) LC50: 6150 ppm/6hr[2]	
Oral (rat) LD50: 2629 mg/kgE[2]	

toluene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 12124 mg/kg[2]	Eye (rabbit): 2mg/24h - SEVERE
Inhalation (rat) LC50: >6675 ppm/1hr[2]	Eye (rabbit):0.87 mg - mild
Oral (rat) LD50: 636 mg/kge[2]	Eye (rabbit):100 mg/30sec - mild
	Skin (rabbit):20 mg/24h-moderate
	Skin (rabbit):500 mg - moderate

trans-acetylene dichloride

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye (rabbit): 10 mg - moderate
Oral (rat) LD50: 1235 mg/kge[2]	SKIN (RABBIT): 500 MG/24H - moderate

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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*

1,1,1-TRICHLOROETHANE	1,1,1-trichloroethane vapour is mainly absorbed through the airways and rapidly eliminated from blood.
1,1,2-TRICHLOROETHANE	For 1,1,2-trichloroethane (TCE): TCE is irritating to the skin, eyes, upper airway, and stomach. Reproductive effector
1,1-DICHLOROETHANE	Equivocal tumorigenic agent by RTECS criteria.
VINYLIDENE CHLORIDE	For vinylidene chloride: In humans, inhaling vinylidene chloride at a concentration of 0.4% causes intoxication that may lead to unconsciousness.
1,2,3-TRICHLOROPROPANE	for 1,2,3-trichloropropane: Studies with rats and mice suggest that 1,2,3-trichloropropane is similarly toxic following acute- and intermediate-duration exposure by either the inhalation or oral route. Bacterial cell mutagen Reproductive effector in rats
1,2,4-TRICHLOROBENZENE	Bacterial mutagen Altered sleep times, somnolence, convulsions, ataxia, maternal effects, effects on embryo, foetotoxicity, foetolethality recorded.
1,2,4-TRIMETHYL BENZENE	CHEMWATCH 2325 1,3,5-trimethylbenzene
1,2-DIBROMO-3-CHLOROPROPANE	Carcinogenic by RTECS criteria Reproductive effector in rats and rabbits Olfaction, respiratory tract, kidney, adrenal cortex, and skin tumours, paternal effects, foetotoxicity, foetolethality and specific developmental abnormalities involving urogenital system recorded.
ETHYLENE DIBROMIDE	Inhalation (rat) TCLO: 10 ppm/2y - I Eye (rabbit): 1%
1,2-DICHLOROBENZENE	Diffuse and zonal hepatocellular necrosis, lachrymation, general anaesthesia, paternal effects, specific developmental anormalities (musculoskeletal sysytem) recorded.
ETHYLENE DICHLORIDE	for ethylene dichloride (syn: 1,2-dichloroethane, EDC).
1,2-DICHLOROPROPANE	* Dow Chemical
1,3,5-TRIMETHYL BENZENE	CHEMWATCH 12171 1,2,4-trimethylbenzene
1,4-DICHLOROBENZENE	Eye effects, respiratory tract changes, diarrhoea, specific developmental effects (cardiovascular system) recorded.
O-CHLOROTOLUENE	O-chlorotoluene is corrosive to skin. for o-chlorotoluene (syn: 2-chlorotoluene) **Acute toxicity:** The acute oral toxicity: LD 50 (Rat, male): 3227 mg/kg bw; LD50 (Rat, female): 3860 mg/kg bw The acute inhalation toxicity: LC50 (Rat): 37517 mg/m3 (4 h) The acute dermal toxicity: LD 50 (Rat): > 1083 mg/kg bw; LD50 (Rabbit): > 2165 mg/kg bw 2-Chlorotoluene, tested according to OECD Guideline 404, is slightly irritating to the skin. * SIDS HPV Challenge Program
BENZENE	Inhalation (man) TCLo: 150 ppm/1y - I
BROMODICHLOROMETHANE	Changes in circulation in brain and coverings,somnolence, tremor, ataxia, antipsychotic behaviour, fatty liver degeneration, liver changes, haemorrhage recorded.
BROMOFORM	Changes in circulation, lachrymation, somnolence, ataxia, antipsychotic behaviour, respiratory tract tumours, fatty liver degeneration, haemorrhage recorded.
CHLOROBENZENE	Mammalian somatic cell mutagen NTP Carcinogenesis studies indicate some positive findings for rat following administration by gavage.
CIS-ACETYLENE DICHLORIDE	Rat liver cell mutagen in vitro
METHYLENE CHLORIDE	Inhalation (human) TCLo: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild
ETHYLBENZENE	Ethylbenzene is readily absorbed when inhaled, swallowed or in contact with the skin. Liver changes, utheral tract, effects on fertility, foetotoxicity, specific developmental abnormalities (musculoskeletal system) recorded.
HEXACHLOROBUTADIENE	Somnolence, irritability, effects on fertility, foetotoxicity, specific developmental abnormalities (central nervous system), effects on newborn
ISOPROPYL BENZENE - CUMENE	Cumene is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals. similar metabolic pathways. The relevance of the kidney tumors to cancer in humans is uncertain; there is evidence that a species-specific mechanism not relevant to humans contributes to their induction, but it is possible that other mechanisms relevant to humans, such as genotoxicity, may also contribute to kidney-tumour formation in male rats.
M-XYLENE	Effects on fertility, specific developmental abnormalities (craniofacial)
BUTYLBENZENE	None available.
O-XYLENE	Paternal effects recorded.
TOLUENE	For toluene: Acute toxicity: Humans exposed to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis (sleepiness) and death.
TRANS-ACETYLENE DICHLORIDE	Hamster lung cell mutagen in vitro
TRICHLOROETHYLENE	Overexposure to trichloroethylene fumes causes liver damage, irregular heartbeat, brain depression and death. Tenth Annual Report on Carcinogens: Substance known to be Carcinogenic [*National Toxicology Program: U.S. Dep.*
METHANOL & 1,1,1-TRICHLOROETHANE & 1,2,3-TRICHLOROPROPANE & 1,2,4-TRICHLOROBENZENE & 1,3,5-TRIMETHYL BENZENE & BENZENE & CARBON TETRACHLORIDE & CHLOROFORM & ETHYLBENZENE & HEXACHLOROBUTADIENE & ISOPROPYL BENZENE - CUMENE & NAPHTHALENE & P-CYMENE &	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.

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SEC-BUTYLBENZENE & STYRENE & TOLUENE & TRANS-ACETYLENE DICHLORIDE	
1,1,1,2-TETRACHLOROETHANE & 1,1,2,2-TETRACHLOROETHANE & 1,2-DICHLOROPROPANE & CARBON TETRACHLORIDE & TETRACHLOROETHYLENE & TRICHLOROETHYLENE	Disinfection byproducts (DBPs) are formed when disinfectants such as chlorine, chloramines and ozone react with organic and inorganic matter in water.
1,1,1,2-TETRACHLOROETHANE & 1,1,1-TRICHLOROETHANE & 1,2,3-TRICHLOROPROPANE & ETHYLBENZENE & M-XYLENE	The material may produce severe irritation to the eye causing pronounced inflammation.
1,1,1,2-TETRACHLOROETHANE & 1,1,2,2-TETRACHLOROETHANE	For 1,1,2,2-tetrachloroethane: A number of suicides from drinking 1,1,2,2-tetrachloroethane have been reported, with unconsciousness occurring within 1 hour and death within 3-20 hours.
1,1,1,2-TETRACHLOROETHANE & 1,1,2,2-TETRACHLOROETHANE & 1,2-DIBROMO-3-CHLOROPROPANE & ETHYLENE DICHLORIDE & 1,4-DICHLOROBENZENE & BROMODICHLOROMETHANE & CARBON TETRACHLORIDE & CHLOROFORM & ETHYLBENZENE & ISOPROPYL BENZENE - CUMENE & NAPHTHALENE & STYRENE	**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
1,1,1-TRICHLOROETHANE & 1,1,2-TRICHLOROETHANE & VINYLIDENE CHLORIDE & 1,2-DICHLOROBENZENE & 1,3-DICHLOROBENZENE & BROMOFORM & DIBROMOCHLOROMETHANE & HEXACHLOROBUTADIENE	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans.
1,1,2-TRICHLOROETHANE & 1,2-DIBROMO-3-CHLOROPROPANE & 1,2-DICHLOROBENZENE & 1,2-DICHLOROPROPANE & 1,3,5-TRIMETHYL BENZENE & HEXACHLOROBUTADIENE & NAPHTHALENE & SEC-BUTYLBENZENE & TETRACHLOROETHYLENE	The material may be irritating to the eye, with prolonged contact causing inflammation.
1,1,2-TRICHLOROETHANE & 1,2-DIBROMO-3-CHLOROPROPANE & ETHYLENE DIBROMIDE & 1,2-DICHLOROBENZENE & METHYLENE CHLORIDE & M-XYLENE & TETRACHLOROETHYLENE & TRICHLOROETHYLENE	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.
1,1-DICHLOROETHANE & 1,2,3-TRICHLOROBENZENE & 1,2,4-TRICHLOROBENZENE & 1,2,4-TRIMETHYL BENZENE & ETHYLENE DIBROMIDE & 1,2-DICHLOROBENZENE & ETHYLENE DICHLORIDE & 1,3,5-TRIMETHYL BENZENE & 1,3-DICHLOROPROPANE & BROMOCHLOROMETHANE & BROMODICHLOROMETHANE & CIS-1,3-DICHLOROPROPENE & DIBROMOCHLOROMETHANE & ISOPROPYL BENZENE - CUMENE & PROPYLBENZENE & P-CYMENE & TRANS-1,3-DICHLOROPROPENE	Asthma-like symptoms may continue for months or even years after exposure to the material ends.

Continued...

1,1-DICHLOROPROPENE & 1,3-DICHLOROPROPANE & 2,2-DICHLOROPROPANE & CIS-1,3-DICHLOROPROPENE & TRANS-1,3-DICHLOROPROPENE	No significant acute toxicological data identified in literature search.
1,2,3-TRICHLOROBENZENE & 1,2,4-TRICHLOROBENZENE	Trichlorobenzenes (TCBs) are moderately toxic if swallowed or inhaled.
1,2,3-TRICHLOROBENZENE & 1,2,4-TRICHLOROBENZENE & 1,2-DICHLOROBENZENE & 1,3-DICHLOROBENZENE & 1,4-DICHLOROBENZENE & CHLOROBENZENE	Chlorobenzenes produce several clinical symptoms including eye and airway irritation, blood disorders, abnormal skin changes and foetal defects at levels toxic to the mother.
1,2,3-TRICHLOROPROPANE & ETHYLENE DIBROMIDE & METHYLENE CHLORIDE & TETRACHLOROETHYLENE	**WARNING:** This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans.
1,2,3-TRICHLOROPROPANE & 1,2-DIBROMO-3-CHLOROPROPANE & ETHYLENE DICHLORIDE & 1,4-DICHLOROBENZENE & BROMODICHLOROMETHANE & CHLOROFORM & ISOPROPYL BENZENE - CUMENE	Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [*National Toxicology Program: U.S. Dep.*
1,2,4-TRIMETHYL BENZENE & 1,3,5-TRIMETHYL BENZENE	For trimethylbenzenes: Absorption of 1,2,4-trimethylbenzene occurs after exposure by swallowing, inhalation, or skin contact.
1,2,4-TRIMETHYL BENZENE & 1,3,5-TRIMETHYL BENZENE	Other Toxicity data is available for
1,2,4-TRIMETHYL BENZENE & 1,3,5-TRIMETHYL BENZENE	CHEMWATCH 12172 1,2,3-trimethylbenzene
1,2-DIBROMO-3-CHLOROPROPANE & CARBON TETRACHLORIDE	Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
ETHYLENE DIBROMIDE & METHYLENE CHLORIDE & TRANS-ACETYLENE DICHLORIDE & TRICHLOROETHYLENE	The material may produce moderate eye irritation leading to inflammation.
ETHYLENE DIBROMIDE & 1,2-DICHLOROPROPANE & DIBROMOMETHANE & ETHYLBENZENE	**NOTE:** Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.
1,2-DICHLOROBENZENE & 1,3-DICHLOROBENZENE & 1,4-DICHLOROBENZENE	1,2-DCB is quickly and extensively absorbed through both the gastrointestinal tract and the respiratory tract.
1,2-DICHLOROPROPANE & BENZENE & TRICHLOROETHYLENE	**WARNING:** This substance has been classified by the IARC as Group 1: **CARCINOGENIC TO HUMANS**.
BROMOFORM & DIBROMOCHLOROMETHANE	Bromoform and dibromochloromethane are readily absorbed from the gastrointestinal tract, and may also be absorbed through the airways and skin.
CIS-ACETYLENE DICHLORIDE & TRANS-ACETYLENE DICHLORIDE	Studies have shown that trans-1,2-dichloroethylene shows low levels of acute toxicity.
CIS-1,3-DICHLOROPROPENE & TRANS-1,3-DICHLOROPROPENE	The following information refers to contact allergens as a group and may not be specific to this product.
HEXACHLOROBUTADIENE & M-XYLENE	recorded.
ISOPROPYL BENZENE - CUMENE & P-CYMENE	For aromatic terpenes: p-cymene and cumene have low toxic potential and are excreted in the urine.

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

Continued...

Toxicity

Liquid Volatile Organic Compounds

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

methanol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>100mg/L	4
EC50	48	Crustacea	>10000mg/L	4
BCF	24	Algae or other aquatic plants	0.05mg/L	4
EC50	24	Algae or other aquatic plants	0.0246708mg/L	4
NOEC	72	Crustacea	0.1mg/L	4

1,1,1,2-tetrachloroethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	5.971mg/L	3
EC50	96	Algae or other aquatic plants	12.528mg/L	3
EC50	384	Crustacea	1.463mg/L	3
NOEC	48	Crustacea	<10mg/L	4

1,1,1-trichloroethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	7.224mg/L	3
EC50	48	Crustacea	11.2mg/L	4
EC50	72	Algae or other aquatic plants	0.213-0.536mg/L	2
EC10	72	Algae or other aquatic plants	0.213mg/L	4
NOEC	408	Crustacea	1.3mg/L	4

1,1,2,2-tetrachloroethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	12mg/L	4
EC50	48	Crustacea	23mg/L	4
EC50	96	Algae or other aquatic plants	=6.44mg/L	1
EC50	384	Crustacea	4.990mg/L	3
NOEC	768	Fish	1.4mg/L	4

1,1,2-trichloroethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	22.278mg/L	3
EC50	48	Crustacea	=18mg/L	1
EC50	72	Algae or other aquatic plants	57.0mg/L	4
EC50	384	Crustacea	=2.9mg/L	1
NOEC	24	Crustacea	=1mg/L	1

1,1-dichloroethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	25.157mg/L	3
EC50	96	Algae or other aquatic plants	80.142mg/L	3
EC50	384	Crustacea	6.002mg/L	3
NOEC	24	Fish	100mg/L	4

vinylidene chloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.685mg/L	3
EC50	48	Crustacea	37mg/L	2
EC50	72	Algae or other aquatic plants	9.12mg/L	4
EC10	72	Algae or other aquatic plants	3.94mg/L	4
NOEC	Not Applicable	Crustacea	<2.4mg/L	1

1,1-dichloropropene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.038mg/L	3
EC50	96	Algae or other aquatic plants	8.800mg/L	3

Continued...

1,2,3-trichlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.348384mg/L	4
EC50	48	Crustacea	1.7mg/L	5
EC50	96	Algae or other aquatic plants	0.9mg/L	4
BCF	96	Fish	0.0808mg/L	4
EC50	1008	Fish	0.097983mg/L	4
NOEC	504	Crustacea	0.03mg/L	4

1,2,3-trichloropropane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	10.804mg/L	3
EC50	48	Crustacea	>=2.65374- <=6.48692mg/L	2
EC50	96	Algae or other aquatic plants	26.430mg/L	3
EC50	384	Crustacea	2.622mg/L	3
NOEC	48	Crustacea	=4mg/L	1

1,2,4-trichlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.202mg/L	3
EC50	48	Crustacea	1.2mg/L	5
EC50	96	Algae or other aquatic plants	1.4mg/L	1
BCF	768	Fish	0.92mg/L	4
EC50	384	Crustacea	0.269mg/L	5
NOEC	504	Fish	0.04mg/L	2

1,2,4-trimethyl benzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.318mg/L	3
EC50	48	Crustacea	ca.6.14mg/L	1
EC50	96	Algae or other aquatic plants	2.154mg/L	3
EC50	384	Crustacea	0.328mg/L	3

1,2-dibromo-3-chloropropane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	12.798mg/L	3
EC50	96	Algae or other aquatic plants	29.358mg/L	3
EC50	384	Crustacea	3.118mg/L	3

ethylene dibromide

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.13mg/L	2
EC50	48	Crustacea	11.61mg/L	2
EC50	72	Algae or other aquatic plants	>4.48mg/L	2
EC50	72	Algae or other aquatic plants	>4.48mg/L	2
NOEC	48	Crustacea	5.24mg/L	2

1,2-dichlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.58mg/L	2
EC50	48	Crustacea	0.66mg/L	2
EC50	96	Algae or other aquatic plants	2.2mg/L	4
BCF	24	Algae or other aquatic plants	10mg/L	4
EC50	336	Crustacea	0.55mg/L	4
NOEC	48	Crustacea	0.36mg/L	4

ethylene dichloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	22.365mg/L	3
EC50	48	Crustacea	155mg/L	1
EC50	96	Algae or other aquatic plants	69.488mg/L	3
EC50	384	Crustacea	5.344mg/L	3
NOEC	336	Fish	=1.82mg/L	4

Continued...

1,2-dichloropropane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	12.605mg/L	3
EC50	48	Crustacea	44.97mg/L	5
EC50	72	Algae or other aquatic plants	15.3mg/L	2
EC50	384	Crustacea	3.041mg/L	3
NOEC	672	Crustacea	4.09mg/L	4

1,3,5-trimethyl benzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.318mg/L	3
EC50	48	Crustacea	13mg/L	5
EC50	96	Algae or other aquatic plants	2.154mg/L	3
EC50	384	Crustacea	0.328mg/L	3
NOEC	504	Crustacea	0.4mg/L	4

1,3-dichlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.904mg/L	3
EC50	48	Crustacea	1.2mg/L	4
EC50	96	Algae or other aquatic plants	5.28mg/L	4
EC50	384	Crustacea	0.717mg/L	3
NOEC	384	Crustacea	=0.3mg/L	1

1,3-dichloropropane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	11.205mg/L	3
EC50	96	Algae or other aquatic plants	29.230mg/L	3
EC50	384	Crustacea	2.708mg/L	3
NOEC	96	Algae or other aquatic plants	<5.6mg/L	4

1,4-dichlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.88mg/L	4
EC50	48	Crustacea	0.0007mg/L	4
EC50	96	Algae or other aquatic plants	1.6mg/L	5
BCF	48	Fish	0.1381mg/L	4
EC50	96	Fish	0.0011mg/L	4
NOEC	336	Fish	>=0.2- <=0.23mg/L	2

2,2-dichloropropane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	4.087mg/L	3
EC50	96	Algae or other aquatic plants	8.607mg/L	3
EC50	384	Crustacea	1.001mg/L	3

o-chlorotoluene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.958mg/L	3
EC50	96	Algae or other aquatic plants	5.677mg/L	3
EC50	384	Crustacea	0.729mg/L	3
NOEC	504	Crustacea	0.14mg/L	4

p-chlorotoluene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.958mg/L	3
EC50	48	Crustacea	0.612mg/L	5
EC50	96	Algae or other aquatic plants	5.677mg/L	3
EC50	384	Crustacea	0.729mg/L	3
NOEC	720	Fish	0.20330mg/L	4

benzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.00528mg/L	4

Continued...

	EC50	48	Crustacea	9.23mg/L	4
	EC50	72	Algae or other aquatic plants	29mg/L	4
	BCF	24	Algae or other aquatic plants	10mg/L	4
	EC50	24	Crustacea	1.59mg/L	5
	NOEC	480	Crustacea	ca.0.17mg/L	1

bromobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	5.6mg/L	4
EC50	96	Algae or other aquatic plants	12.976mg/L	3
BCF	24	Algae or other aquatic plants	~0.05mg/L	4
EC50	384	Crustacea	1.487mg/L	3

bromochloromethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	57.277mg/L	3
EC50	96	Algae or other aquatic plants	205.273mg/L	3
EC50	384	Crustacea	13.561mg/L	3

bromodichloromethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	53.591mg/L	3
EC50	96	Algae or other aquatic plants	180.111mg/L	3
EC50	384	Crustacea	12.741mg/L	3

bromoform

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	7.1mg/L	4
EC50	96	Algae or other aquatic plants	12.3mg/L	4
EC50	96	Fish	7.1mg/L	5
NOEC	96	Fish	2.9mg/L	4

carbon tetrachloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	10.4mg/L	4
EC50	48	Crustacea	29mg/L	1
EC50	72	Algae or other aquatic plants	0.246mg/L	4
BCF	24	Algae or other aquatic plants	0.05mg/L	4
EC10	72	Algae or other aquatic plants	0.0717mg/L	4
NOEC	336	Fish	=2.5mg/L	4

chlorobenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.05mg/L	2
EC50	48	Crustacea	0.2656416mg/L	2
EC50	96	Algae or other aquatic plants	12.5mg/L	1
BCF	24	Algae or other aquatic plants	10mg/L	4
EC50	168	Fish	0.05mg/L	5
NOEC	384	Crustacea	0.32mg/L	1

chloroform

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	=3mg/L	1
EC50	48	Crustacea	=29mg/L	1
EC50	72	Algae or other aquatic plants	=13.3mg/L	1
EC10	72	Algae or other aquatic plants	3.61mg/L	4
NOEC	6480	Fish	0.151mg/L	2

cis-acetylene dichloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.083mg/L	3
EC50	96	Algae or other aquatic plants	20.513mg/L	3
NOEC	24	Fish	100mg/L	4

Continued...

cis-1,3-dichloropropene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.6mg/L	2
NOEC	96	Fish	0.59mg/L	2

dibromochloromethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	58.566mg/L	3
EC50	96	Algae or other aquatic plants	190.611mg/L	3
EC50	384	Crustacea	13.952mg/L	3

dibromomethane

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	66.151mg/L	3
EC50	96	Algae or other aquatic plants	229.582mg/L	3
EC50	384	Crustacea	15.694mg/L	3

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

ethylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.0043mg/L	4
EC50	48	Crustacea	1.184mg/L	4
EC50	96	Algae or other aquatic plants	3.6mg/L	2
EC50	96	Crustacea	=0.49mg/L	1
NOEC	168	Crustacea	0.96mg/L	5

hexachlorobutadiene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.089mg/L	3
EC50	48	Crustacea	0.9mg/L	4
EC50	96	Algae or other aquatic plants	0.415mg/L	3
BCF	24	Fish	0.0591mg/L	4
EC50	168	Fish	0.08mg/L	4
NOEC	336	Fish	=0.005mg/L	4

isopropyl benzene - cumene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.784mg/L	3
EC50	48	Crustacea	=0.6mg/L	1
EC50	72	Algae or other aquatic plants	1.29mg/L	2
EC50	384	Crustacea	0.442mg/L	3
NOEC	72	Algae or other aquatic plants	0.22mg/L	2

m-xylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.0092mg/L	4
EC50	48	Crustacea	>3.4mg/L	2
EC50	72	Algae or other aquatic plants	4.9mg/L	2
EC50	384	Crustacea	0.710mg/L	3
NOEC	168	Crustacea	1.17mg/L	5

naphthalene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.213mg/L	4
EC50	48	Crustacea	1.6mg/L	4
EC50	72	Algae or other aquatic plants	ca.0.4mg/L	1
BCF	12	Fish	10.2mg/L	4

Continued...

EC50	0.05	Crustacea	0.000000085mg/L	4
NOEC	48	Fish	0.012817mg/L	4

butylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.777mg/L	3
EC50	48	Crustacea	0.34mg/L	4
EC50	96	Algae or other aquatic plants	1.109mg/L	3
EC50	384	Crustacea	0.195mg/L	3
NOEC	24	Crustacea	0.2mg/L	5

propylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.55mg/L	4
EC50	48	Crustacea	109mg/L	4
EC50	72	Algae or other aquatic plants	1.8mg/L	4
EC50	384	Crustacea	0.394mg/L	3

o-xylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.011mg/L	4
EC50	48	Crustacea	1.39mg/L	4
EC50	72	Algae or other aquatic plants	4.7mg/L	4
EC50	1	Fish	0.6mg/L	4
NOEC	168	Crustacea	1.17mg/L	2

p-cymene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.790mg/L	3
EC50	96	Algae or other aquatic plants	1.132mg/L	3
EC50	384	Crustacea	0.199mg/L	3
NOEC	48	Crustacea	<4.6mg/L	4

p-xylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.002mg/L	4
EC50	48	Crustacea	4.73mg/L	4
EC50	72	Algae or other aquatic plants	3.2mg/L	4
EC50	384	Crustacea	0.710mg/L	3
NOEC	73	Algae or other aquatic plants	0.44mg/L	2

sec-butylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.874mg/L	3
EC50	96	Algae or other aquatic plants	1.279mg/L	3
EC50	384	Crustacea	0.219mg/L	3

styrene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	3.963mg/L	3
EC50	48	Crustacea	=4.7mg/L	1
EC50	96	Algae or other aquatic plants	=0.72mg/L	1
EC10	96	Algae or other aquatic plants	=0.13mg/L	1
NOEC	96	Algae or other aquatic plants	0.063mg/L	4

tert-butylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.935mg/L	3
EC50	96	Algae or other aquatic plants	1.388mg/L	3
EC50	384	Crustacea	0.234mg/L	3

tetrachloroethylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.797mg/L	3

Continued...

	EC50	48	Crustacea	2.49mg/L	5
	EC50	72	Algae or other aquatic plants	~0.2mg/L	4
	BCF	240	Fish	350mg/L	4
	EC50	24	Algae or other aquatic plants	~0.2mg/L	4
	NOEC	168	Crustacea	0.33mg/L	5

toluene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.0073mg/L	4
EC50	48	Crustacea	3.78mg/L	5
EC50	72	Algae or other aquatic plants	12.5mg/L	4
BCF	24	Algae or other aquatic plants	10mg/L	4
EC50	384	Crustacea	1.533mg/L	3
NOEC	168	Crustacea	0.74mg/L	5

trans-acetylene dichloride

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.083mg/L	3
EC50	96	Algae or other aquatic plants	20.513mg/L	3
NOEC	48	Crustacea	<110mg/L	4

trans-1,3-dichloropropene

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

trichloroethylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.345mg/L	3
EC50	48	Crustacea	=2.2mg/L	1
EC50	96	Algae or other aquatic plants	11.596mg/L	3
EC3	72	Algae or other aquatic plants	=0.1mg/L	1
NOEC	504	Crustacea	>1.384mg/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*

On the basis of the available evidence concerning properties and predicted or observed environmental fate and behavior, the material may present a danger to the structure and/ or functioning of the stratospheric ozone layer.
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.
For 1,2,4 - Trimethylbenzene:
Half-life (hr) air: 0.48-16;
Half-life (hr) H2O surface water: 0.24 -672;
Half-life (hr) H2O ground: 336-1344;
Half-life (hr) soil: 168-672;
Henry's Pa m3 /mol: 385 -627;
Bioaccumulation: not significant. 1,2,4-Trimethylbenzene is a volatile organic compound (VOC) substance.
Atmospheric Fate: 1,2,4-trimethylbenzene can contribute to the formation of photochemical smog in the presence of other VOCs. Degradation of 1,2,4-trimethylbenzene in the atmosphere occurs by reaction with hydroxyl radicals. Reaction also occurs with ozone but very slowly (half life 8820 days).
Aquatic Fate: 1,2,4-Trimethylbenzene volatilizes rapidly from surface waters with volatilization half-life from a model river calculated to be 3.4 hours. Biodegradation of 1,2,4-trimethylbenzene has been noted in both seawater and ground water. Various strains of Pseudomonas can biodegrade 1,2,4-trimethylbenzene.
Terrestrial Fate: 1,2,4-Trimethylbenzene also volatilizes from soils however; moderate adsorption to soils and sediments may occur. Volatilization is the major route of removal of 1,2,4-trimethylbenzene from soils; although, biodegradation may also occur. Due to the high volatility of the chemical it is unlikely to accumulate in soil or surface water to toxic concentrations.
Ecotoxicity: No significant bioaccumulation has been noted. 1,2,4-Trimethylbenzene is moderately toxic to fathead minnow and slightly toxic to dungeness crab. 1,2,4-Trimethylbenzene has moderate acute toxicity to aquatic organisms. No stress was observed in rainbow trout, sea lamprey and Daphnia magna water fleas. The high concentrations required to induce toxicity in laboratory animals are not likely to be reached in the environment.
For Aromatic Substances Series:
Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.
Atmospheric Fate: PAHs are 'semi-volatile substances" which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization.
Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive.
Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus. The order of most toxic to least in a study using grass shrimp and brown shrimp was dimethylnaphthalenes > methylnaphthalenes >naphthalenes. Anthrcene is a phototoxic PAH. UV light greatly increases the toxicity of anthracene to bluegill sunfish. Biological resources in strong sunlight are at more risk than those that are not. PAHs in general are more frequently associated with chronic risks.
Environmental Fate:
Soil: The distribution of 1,3-dichloropropene in soil compartment depends on vapor pressure, diffusion coefficient, temperature, and moisture content of the soil. Its persistence in soil is influenced by volatilization, chemical and biological degradation, photochemical degradation, and organism uptake. 1,3-dichloropropene is initially degraded by hydrolysis forming 3-chloroallyl alcohol and then will be biodegraded into 3-chloroacrolein and 3-chloroacrylic acid. Volatilization and diffusion are the most significant mechanisms for environmental dispersion and dilution of 1,3-dichloropropene. When the fumigant is properly applied, residues of the compound are not likely to accumulate because it rapidly disappears in soil. 1,3-dichloropropene is potentially mobile in soil, particularly in open-textured, sandy soil with a low moisture content. Infiltration of the compound is enhanced by deep cultivation of soil with low porosity thus the compound may find its way and enter the upper groundwater.
Water: Because of its relatively low water solubility and high volatility, 1,3-dichloropropene rapidly disappears in water.
Air: 1,3-dichloropropene in air is mainly degraded by reaction with free radicals and ozone. Direct photolysis of the compound may not be significant but it can be enhanced in the presence of

Continued...

atmospheric particles.
Plants: 1,3-dichloropropene can be taken up by plants, however significant accumulation of residue is not likely to occur in edible crops because these are not normally planted until most of the fumigant has dissipated.
Ecotoxicity:
Fish LC50 (96h): 1-7.9 mg/l
EC50 (96h): freshwater alga (Selenastrum capricornutum) 4.95 mg/l; estuarine diatom (Skeletoneria costatum) 1 mg/l
Birds LC50 (8d): mallard duck and bobwhite quail >10 g/kg
Bees LD50 (48h): 6.6 ug/bee

For naphthalene:
Environmental Fate: Naphthalene may be reach surface water and soil through transportation in water or being carried by air. Most airborne naphthalene is in a vapour form and hence deposition is expected to be slow. A minimal amount of naphthalene emitted to the air is transported to other environmental components mostly by dry deposition. Naphthalene in surface water may volatililize into the atmosphere, depending on environmental condiditons. It remains in solution in water, with only small amounts associated with suspended material and benthic sediments. While naphthalene is readily volatilized from aerated soils, it adheres to soils with a high organic content. Adsorption to aquifer material reduces transportation of naphthalene through groundwater, and the presence of nonionic organic compounds such as tetrachloroethene may enhance sorption to materials that contain low carbon content. Bioconcentration of naphthalene is moderate in aquatic organisms. It is readily metabolized by fish, and invertebrates that are placed in pollutant free water rapidly eliminate any traces of the pollutant. While bioaccumulation in the food chain is unlikely, exposure of cows and chickens to naphthalene could lead to naphthalene being present in milk and eggs. While the data on the transport and partitioning of methylnaphthalenes in the environment is limited, the characteristics of these chemicals are similar to naphthalene, so they are expected to behave in a similar manner to naphthalene in the environment, and produce the same effects on aquatic organisms. Biodegradation of naphthalene occurs relatively quickly in aquatic systems. Methylnaphthalenes are biodegraded under aerobic conditions after adaptation. Degradation rates are highest in water constantly polluted with petroleum. Naphthalene biodegradation rates are higher in sediment than in the water column above it. Methylnaphthalenes biodegrades more slowly. Reported half-lives in sediments were 46 weeks for 1-methylnaphthalene and ranged from 14 to 50 weeks for 2-methylnaphthalene. In soils, the potential for biodegradation is an important factor for biological remediation of soil. Studies on biodegradation of PAHs suggest that adsorption to the organic matter significantly reduces the bioavailability for microorganisms, and thus the biodegradability, of PAHs, including naphthalene. Biodegradation is accomplished through the action of aerobic microorganisms and is reduced in anaerobic soil conditions. Naphthalene biodegrades to carbon dioxide in aerobic soils, with salicylate as an intermediate product. Abiotic degradation of naphthalene seldom occurs in soils. As with naphthalene, 1-Methylnaphthalene is easily volatilised from aerated soil, and the biodegradation half-life averages between 1.7 and 2.2 days.
Ecotoxicity: Acute toxicity data on naphthalene for several fish species (freshwater and marine), show 96h LC50 values range from 1.8 to 7.8 mg/L. Comparable results were obtained with other vertebrates (amphibians). From chronic toxicity tests, a precise NOEL is not clearly determined. A NOEC of 0.12 mg/L was observed in a 40 days test on juvenile pink salmon, but 50% mortality at 0.11 mg/L was calculated for trout fry exposed during hatching.Several data are also available for invertebrates, showing 48h EC50 values ranging from 2.1 to 24 mg/L. While chronic data on freshwater invertebrates and algae are questionable, a 50% photosynthesis reduction was observed at 2.8 mg/L in 4 hours experiments.QSAR prediction models give results consistent with experimental short-term data on fish daphnia and algae.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
methanol	LOW	LOW
1,1,1,2-tetrachloroethane	MEDIUM (Half-life = 66.83 days)	HIGH (Half-life = 931.71 days)
1,1,1-trichloroethane	HIGH (Half-life = 546 days)	HIGH (Half-life = 2247.04 days)
1,1,2,2-tetrachloroethane	LOW (Half-life = 44 days)	MEDIUM (Half-life = 88.79 days)
1,1,2-trichloroethane	HIGH (Half-life = 730 days)	MEDIUM (Half-life = 81.5 days)
1,1-dichloroethane	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 102.83 days)
vinylidene chloride	HIGH	HIGH
1,1-dichloropropene	HIGH	HIGH
1,2,3-trichlorobenzene	HIGH	HIGH
1,2,3-trichloropropane	HIGH (Half-life = 720 days)	LOW (Half-life = 25.54 days)
1,2,4-trichlorobenzene	HIGH (Half-life = 360 days)	LOW (Half-life = 53.5 days)
1,2,4-trimethyl benzene	LOW (Half-life = 56 days)	LOW (Half-life = 0.67 days)
1,2-dibromo-3-chloropropane	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 60.79 days)
ethylene dibromide	HIGH (Half-life = 180 days)	MEDIUM (Half-life = 106.96 days)
1,2-dichlorobenzene	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 63.67 days)
ethylene dichloride	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 121.54 days)
1,2-dichloropropane	HIGH (Half-life = 2578 days)	LOW (Half-life = 26.92 days)
1,3,5-trimethyl benzene	HIGH	HIGH
1,3-dichlorobenzene	HIGH (Half-life = 360 days)	LOW (Half-life = 37.13 days)
1,3-dichloropropane	HIGH	HIGH
1,4-dichlorobenzene	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 83.58 days)
2,2-dichloropropane	HIGH	HIGH
o-chlorotoluene	HIGH	HIGH
p-chlorotoluene	HIGH	HIGH
benzene	HIGH (Half-life = 720 days)	LOW (Half-life = 20.88 days)
bromobenzene	HIGH	HIGH
bromochloromethane	HIGH	HIGH
bromodichloromethane	HIGH	HIGH
bromoform	HIGH (Half-life = 360 days)	HIGH (Half-life = 541.21 days)
carbon tetrachloride	HIGH (Half-life = 360 days)	HIGH (Half-life = 6666.67 days)
chlorobenzene	HIGH (Half-life = 300 days)	LOW (Half-life = 30.38 days)
chloroform	HIGH (Half-life = 1800 days)	HIGH (Half-life = 259.63 days)
cis-acetylene dichloride	HIGH	HIGH
dibromochloromethane	HIGH (Half-life = 180 days)	HIGH (Half-life = 427.17 days)
dibromomethane	HIGH (Half-life = 560.17 days)	HIGH (Half-life = 354.58 days)

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methylene chloride	LOW (Half-life = 56 days)	HIGH (Half-life = 191 days)
ethylbenzene	HIGH (Half-life = 228 days)	LOW (Half-life = 3.57 days)
hexachlorobutadiene	HIGH (Half-life = 360 days)	HIGH (Half-life = 1193.75 days)
isopropyl benzene - cumene	HIGH	HIGH
m-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.08 days)
naphthalene	HIGH (Half-life = 258 days)	LOW (Half-life = 1.23 days)
butylbenzene	HIGH	HIGH
propylbenzene	HIGH	HIGH
o-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
p-cymene	HIGH	HIGH
p-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.75 days)
sec-butylbenzene	HIGH	HIGH
styrene	HIGH (Half-life = 210 days)	LOW (Half-life = 0.3 days)
tert-butylbenzene	HIGH	HIGH
tetrachloroethylene	HIGH (Half-life = 720 days)	MEDIUM (Half-life = 160.13 days)
toluene	LOW (Half-life = 28 days)	LOW (Half-life = 4.33 days)
trans-acetylene dichloride	HIGH	HIGH
trichloroethylene	HIGH (Half-life = 1653 days)	LOW (Half-life = 11.33 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
methanol	LOW (BCF = 10)
1,1,1,2-tetrachloroethane	LOW (LogKOW = 2.9332)
1,1,1-trichloroethane	LOW (BCF = 9)
1,1,2,2-tetrachloroethane	LOW (BCF = 13.2)
1,1,2-trichloroethane	LOW (BCF = 17)
1,1-dichloroethane	LOW (LogKOW = 1.79)
vinylidene chloride	LOW (BCF = 13)
1,1-dichloropropene	LOW (LogKOW = 2.5281)
1,2,3-trichlorobenzene	MEDIUM (LogKOW = 4.05)
1,2,3-trichloropropane	LOW (BCF = 9)
1,2,4-trichlorobenzene	HIGH (BCF = 4420)
1,2,4-trimethyl benzene	LOW (BCF = 275)
1,2-dibromo-3-chloropropane	LOW (LogKOW = 2.96)
ethylene dibromide	LOW (BCF = 10)
1,2-dichlorobenzene	LOW (BCF = 260)
ethylene dichloride	LOW (BCF = 6)
1,2-dichloropropane	LOW (BCF = 7)
1,3,5-trimethyl benzene	LOW (BCF = 342)
1,3-dichlorobenzene	HIGH (BCF = 6918)
1,3-dichloropropane	LOW (LogKOW = 2)
1,4-dichlorobenzene	LOW (BCF = 190)
2,2-dichloropropane	LOW (LogKOW = 2.9163)
o-chlorotoluene	LOW (BCF = 112)
p-chlorotoluene	LOW (BCF = 101.6)
benzene	HIGH (BCF = 4360)
bromobenzene	LOW (BCF = 34)
bromochloromethane	LOW (LogKOW = 1.41)
bromodichloromethane	LOW (LogKOW = 2)
bromoform	LOW (BCF = 21)
carbon tetrachloride	LOW (BCF = 30)
chlorobenzene	LOW (BCF = 41)
chloroform	LOW (BCF = 13)
cis-acetylene dichloride	LOW (LogKOW = 1.9808)
dibromochloromethane	LOW (LogKOW = 2.16)
dibromomethane	LOW (LogKOW = 1.7)
methylene chloride	LOW (BCF = 40)
ethylbenzene	LOW (BCF = 79.43)
hexachlorobutadiene	HIGH (LogKOW = 4.78)

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isopropyl benzene - cumene	LOW (BCF = 35.5)
m-xylene	LOW (BCF = 1.37)
naphthalene	HIGH (BCF = 18000)
butylbenzene	MEDIUM (LogKOW = 4.38)
propylbenzene	LOW (LogKOW = 3.69)
o-xylene	LOW (BCF = 219)
p-cymene	MEDIUM (LogKOW = 3.9963)
p-xylene	LOW (BCF = 2.2)
sec-butylbenzene	HIGH (LogKOW = 4.57)
styrene	LOW (BCF = 77)
tert-butylbenzene	MEDIUM (LogKOW = 4.11)
tetrachloroethylene	LOW (BCF = 77.1)
toluene	LOW (BCF = 90)
trans-acetylene dichloride	LOW (LogKOW = 2.09)
trans-1,3-dichloropropene	LOW (LogKOW = 2.03)
trichloroethylene	HIGH (BCF = 5370)

Mobility in soil

Ingredient	Mobility
methanol	HIGH (KOC = 1)
1,1,1,2-tetrachloroethane	LOW (KOC = 96.63)
1,1,1-trichloroethane	LOW (KOC = 48.64)
1,1,2,2-tetrachloroethane	LOW (KOC = 106.8)
1,1,2-trichloroethane	LOW (KOC = 67.7)
1,1-dichloroethane	LOW (KOC = 35.04)
vinylidene chloride	LOW (KOC = 35.04)
1,1-dichloropropene	LOW (KOC = 67.7)
1,2,3-trichlorobenzene	LOW (KOC = 732.5)
1,2,3-trichloropropane	LOW (KOC = 130.8)
1,2,4-trichlorobenzene	LOW (KOC = 717.6)
1,2,4-trimethyl benzene	LOW (KOC = 717.6)
1,2-dibromo-3-chloropropane	LOW (KOC = 130.8)
ethylene dibromide	LOW (KOC = 43.79)
1,2-dichlorobenzene	LOW (KOC = 443.1)
ethylene dichloride	LOW (KOC = 43.79)
1,2-dichloropropane	LOW (KOC = 67.7)
1,3,5-trimethyl benzene	LOW (KOC = 703)
1,3-dichlorobenzene	LOW (KOC = 434)
1,3-dichloropropane	LOW (KOC = 80.77)
1,4-dichlorobenzene	LOW (KOC = 434)
2,2-dichloropropane	LOW (KOC = 48.64)
o-chlorotoluene	LOW (KOC = 443.1)
p-chlorotoluene	LOW (KOC = 434)
benzene	LOW (KOC = 165.5)
bromobenzene	LOW (KOC = 268)
bromochloromethane	LOW (KOC = 23.74)
bromodichloromethane	LOW (KOC = 35.04)
bromoform	LOW (KOC = 35.04)
carbon tetrachloride	LOW (KOC = 48.64)
chlorobenzene	LOW (KOC = 268)
chloroform	LOW (KOC = 35.04)
cis-acetylene dichloride	LOW (KOC = 43.79)
dibromochloromethane	LOW (KOC = 35.04)
dibromomethane	LOW (KOC = 23.74)
methylene chloride	LOW (KOC = 23.74)
ethylbenzene	LOW (KOC = 517.8)
hexachlorobutadiene	LOW (KOC = 993.5)
isopropyl benzene - cumene	LOW (KOC = 817.2)
m-xylene	LOW (KOC = 434)

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naphthalene	LOW (KOC = 1837)
butylbenzene	LOW (KOC = 1761)
propylbenzene	LOW (KOC = 955)
o-xylene	LOW (KOC = 443.1)
p-cymene	LOW (KOC = 1324)
p-xylene	LOW (KOC = 434)
sec-butylbenzene	LOW (KOC = 1579)
styrene	LOW (KOC = 517.8)
tert-butylbenzene	LOW (KOC = 1181)
tetrachloroethylene	LOW (KOC = 106.8)
toluene	LOW (KOC = 268)
trans-acetylene dichloride	LOW (KOC = 43.79)
trichloroethylene	LOW (KOC = 67.7)

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. ▸ 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. ▸ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). ▸ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	 
Marine Pollutant	NO

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR)

UN number	1230
UN proper shipping name	Methanol
Transport hazard class(es)	ICAO/IATA Class: 3 ICAO / IATA Subrisk: 6.1 ERG Code: 3L
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: A104A113 Cargo Only Packing Instructions: 364 Cargo Only Maximum Qty / Pack: 60 L

Continued...

Passenger and Cargo Packing Instructions	352
Passenger and Cargo Maximum Qty / Pack	1 L
Passenger and Cargo Limited Quantity Packing Instructions	Y341
Passenger and Cargo Limited Maximum Qty / Pack	1 L

Sea transport (IMDG-Code / GGVSee)

UN number	1230
UN proper shipping name	METHANOL
Transport hazard class(es)	IMDG Class: 3 IMDG Subrisk: 6.1
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	EMS Number: F-E, S-D Special provisions: 279 Limited Quantities: 1 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

METHANOL(67-56-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
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
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 Clean Air Act - Hazardous Air Pollutants
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,1,1,2-TETRACHLOROETHANE(630-20-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - California Proposition 65 - 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 - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,1,1-TRICHLOROETHANE(71-55-6) 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
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) - 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 Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,1,2,2-TETRACHLOROETHANE(79-34-5) 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) - 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 Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,1,2-TRICHLOROETHANE(79-00-5) 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) - 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 Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,1-DICHLOROETHANE(75-34-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

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 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 NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

VINYLIDENE CHLORIDE(75-35-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
US - Alaska Limits for Air Contaminants
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 - 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 - 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 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 NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,1-DICHLOROPROPENE(563-58-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Rhode Island Hazardous Substance List
US TSCA New Chemical Exposure Limits (NCEL)

1,2,3-TRICHLOROBENZENE(87-61-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US CWA (Clean Water Act) - Toxic Pollutants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,2,3-TRICHLOROPROPANE(96-18-4) 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 Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - 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 - 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 ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
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 Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,2,4-TRICHLOROBENZENE(120-82-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

US - Alaska Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants
US - Hawaii Air Contaminant Limits
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US ACGIH Threshold Limit Values (TLV)
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 NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,2,4-TRIMETHYL BENZENE(95-63-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - California Permissible Exposure Limits for Chemical Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,2-DIBROMO-3-CHLOROPROPANE(96-12-8) 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 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
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 ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
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 Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

ETHYLENE DIBROMIDE(106-93-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
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 - 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 - California Proposition 65 - Reproductive Toxicity
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 - Oregon Permissible Exposure Limits (Z-2)
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 Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
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 OSHA Permissible Exposure Levels (PELs) - Table Z2
US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,2-DICHLOROBENZENE(95-50-1) 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 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
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 - 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 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 NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

ETHYLENE DICHLORIDE(107-06-2) 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 - 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 - Oregon Permissible Exposure Limits (Z-2)
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) - 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 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)

1,2-DICHLOROPROPANE(78-87-5) 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 - 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 EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,3,5-TRIMETHYL BENZENE(108-67-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - California Permissible Exposure Limits for Chemical Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,3-DICHLOROBENZENE(541-73-1) 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 - Pennsylvania - Hazardous Substance List
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
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 OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

1,3-DICHLOROPROPANE(142-28-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US CWA (Clean Water Act) - List of Hazardous Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

1,4-DICHLOROBENZENE(106-46-7) 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 - 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 - 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 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

2,2-DICHLOROPROPANE(594-20-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

O-CHLOROTOLUENE(95-49-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Alaska Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants
US - Hawaii Air Contaminant Limits
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
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 ACGIH Threshold Limit Values (TLV)
US NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

P-CHLOROTOLUENE(106-43-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

BENZENE(71-43-2) 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 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
US - Connecticut Carcinogenic Substances
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 - Oregon Permissible Exposure Limits (Z-2)
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) - 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 A Known to be Human Carcinogens
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

BROMOBENZENE(108-86-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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

BROMOCHLOROMETHANE(74-97-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

US - Alaska Limits for Air Contaminants
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
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 - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US ACGIH Threshold Limit Values (TLV)
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

BROMODICHLOROMETHANE(75-27-4) 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 - Pennsylvania - Hazardous Substance List
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
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
US TSCA New Chemical Exposure Limits (NCEL)

BROMOFORM(75-25-2) 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 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) - 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 Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

CARBON TETRACHLORIDE(56-23-5) 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 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 - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
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) - 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 OSHA Permissible Exposure Levels (PELs) - Table Z2
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

CHLOROBENZENE(108-90-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

US - Alaska Limits for Air Contaminants
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
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 NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

CHLOROFORM(67-66-3) 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 - 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 Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US SARA Section 302 Extremely Hazardous Substances
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)

CIS-ACETYLENE DICHLORIDE(156-59-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US ACGIH Threshold Limit Values (TLV)
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

CIS-1,3-DICHLOROPROPENE(10061-01-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Rhode Island Hazardous Substance List
US TSCA New Chemical Exposure Limits (NCEL)

DIBROMOCHLOROMETHANE(124-48-1) 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 - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

DIBROMOMETHANE(74-95-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

METHYLENE CHLORIDE(75-09-2) 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 - 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)

ETHYLBENZENE(100-41-4) 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 - 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 - 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 NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

HEXACHLOROBUTADIENE(87-68-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
US - Alaska Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - Hawaii Air Contaminant Limits
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 - 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 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 NIOSH Recommended Exposure Limits (RELs)
US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

ISOPROPYL BENZENE - CUMENE(98-82-8) 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 Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - 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 - 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 Clean Air Act - Hazardous Air 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 Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

M-XYLENE(108-38-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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 - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
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 Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

NAPHTHALENE(91-20-3) 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 - 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 - 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

BUTYLBENZENE(104-51-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PROPYLBENZENE(103-65-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

O-XYLENE(95-47-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

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 - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
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 Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

P-CYMENE(99-87-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

P-XYLENE(106-42-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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 - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
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 Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - List of Hazardous Substances
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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

SEC-BUTYLBENZENE(135-98-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

STYRENE(100-42-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
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 - California Proposition 65 - 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 - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
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) - List of Hazardous Substances
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 OSHA Permissible Exposure Levels (PELs) - Table Z2
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

TERT-BUTYLBENZENE(98-06-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

TETRACHLOROETHYLENE(127-18-4) 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 - 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 - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
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 Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Levels (PELs) - Table Z2
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

TOLUENE(108-88-3) 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 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
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 - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
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) - List of Hazardous Substances
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US Drug Enforcement Administration (DEA) List I and II Regulated Chemicals
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 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

TRANS-ACETYLENE DICHLORIDE(156-60-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Pennsylvania - Hazardous Substance List
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ACGIH Threshold Limit Values (TLV)
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

TRANS-1,3-DICHLOROPROPENE(10061-02-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Massachusetts - Right To Know Listed Chemicals
US - Rhode Island Hazardous Substance List
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US TSCA New Chemical Exposure Limits (NCEL)

TRICHLOROETHYLENE(79-01-6) 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 - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
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 - California Proposition 65 - Reproductive Toxicity
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 - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
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) - 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 A Known to be Human Carcinogens
US NIOSH Recommended Exposure Limits (RELs)
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)

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	Yes
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
Methanol	5000	2270
Ethane, 1,1,1,2-tetrachloro-	100	45.4
Ethane, 1,1,1-trichloro-	1000	454
Ethane, 1,1,2,2-tetrachloro-	100	45.4
Ethane, 1,1,2-trichloro-	100	45.4
1,1-Dichloroethane	1000	454
1,1-Dichloroethylene	100	45.4
Dichloropropene	100	45.4
1,2,4-Trichlorobenzene	100	45.4
1,2-Dibromo-3-chloropropane	1	0.454
Dibromoethane	1	0.454
Benzene, 1,2-dichloro-	100	45.4
1,2-Dichloroethane	100	45.4
Ethene, 1,2-dichloro-(E)	1000	454
1,2-Dichloropropane	1000	454
Benzene, 1,3-dichloro-	100	45.4
1,3-Dichloropropane	1000	454
Benzene, 1,4-dichloro-	100	45.4
Dichloropropane	1000	454
Benzene	10	4.54
Dichlorobromomethane	5000	2270
Bromoform	100	45.4
Carbon tetrachloride	10	4.54
Benzene, chloro-	100	45.4
Chloroform	10	4.54
Dichloropropene	100	45.4
Chlorodibromomethane	100	45.4
Methane, dibromo-	1000	454

Continued...

Dichloromethane	1000	454
Ethylbenzene	1000	454
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	1	0.454
Benzene, (1-methylethyl)-	5000	2270
m-Xylene	1000	454
Naphthalene	100	45.4
o-Xylene	1000	454
p-Xylene	100	45.4
Styrene	1000	454
Ethene, tetrachloro-	100	45.4
Benzene, methyl-	1000	454
Dichloropropene	100	45.4
Ethene, trichloro-	100	45.4

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

Methanol, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, Vinyl trichloride (1,1,2-Trichloroethane), 1,1-Dichloroethane, 1,2,3-Trichloropropane, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene dibromide, Ethylene dichloride (1,2-Dichloroethane), 1,2-Dichloropropane, p-Dichlorobenzene, Benzene, Bromodichloromethane, Bromoform, Carbon tetrachloride, Chloroform, Dichloromethane (Methylene chloride), Ethylbenzene, Hexachlorobutadiene, Cumene, Naphthalene, Styrene, Tetrachloroethylene (Perchloroethylene), Toluene, Trichloroethylene Listed

National Inventory	Status
Australia - AICS	N (1,1-dichloropropene; dibromochloromethane; bromodichloromethane; trans-1,3-dichloropropene; 1,2-dibromo-3-chloropropane)
Canada - DSL	N (cis-acetylene dichloride; cis-1,3-dichloropropene; 1,1-dichloropropene; 1,3-dichloropropane; dibromochloromethane; bromodichloromethane; trans-1,3-dichloropropene; 1,2-dibromo-3-chloropropane; p-chlorotoluene; 1,1-dichloroethane)
Canada - NDSL	N (toluene; bromochloromethane; dibromomethane; sec-butylbenzene; chlorobenzene; 1,2,3-trichlorobenzene; methanol; naphthalene; styrene; 2,2-dichloropropane; bromobenzene; hexachlorobutadiene; 1,2-dichlorobenzene; 1,1,2,2-tetrachloroethane; cis-1,3-dichloropropene; bromoform; ethylbenzene; tetrachloroethylene; 1,1-dichloropropene; carbon tetrachloride; 1,2-dichloropropane; 1,1,1,2-tetrachloroethane; 1,3,5-trimethyl benzene; ethylene dibromide; propylbenzene; 1,1,1-trichloroethane; 1,1,2-trichloroethane; tert-butylbenzene; methylene chloride; benzene; 1,4-dichlorobenzene; isopropyl benzene - cumene; ethylene dichloride; 1,2,4-trimethyl benzene; o-xylene; trichloroethylene; vinylidene chloride; o-chlorotoluene; 1,2,4-trichlorobenzene; p-xylene; m-xylene; p-cymene; 1,2,3-trichloropropane; butylbenzene; 1,3-dichlorobenzene; trans-acetylene dichloride; chloroform)
China - IECSC	N (2,2-dichloropropane; cis-1,3-dichloropropene; 1,1-dichloropropene; 1,1,1,2-tetrachloroethane; dibromochloromethane; bromodichloromethane; 1,2-dibromo-3-chloropropane)
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (bromochloromethane; sec-butylbenzene; methanol; 2,2-dichloropropane; bromobenzene; hexachlorobutadiene; cis-1,3-dichloropropene; tetrachloroethylene; 1,1-dichloropropene; carbon tetrachloride; 1,1,1,2-tetrachloroethane; 1,3,5-trimethyl benzene; dibromochloromethane; propylbenzene; 1,1,1-trichloroethane; tert-butylbenzene; isopropyl benzene - cumene; bromodichloromethane; o-xylene; trichloroethylene; trans-1,3-dichloropropene; 1,2-dibromo-3-chloropropane; p-xylene; m-xylene; p-cymene; butylbenzene; 1,1-dichloroethane)
Korea - KECI	N (cis-1,3-dichloropropene; 1,1-dichloropropene; dibromochloromethane; tert-butylbenzene; bromodichloromethane; butylbenzene)
New Zealand - NZIoC	N (2,2-dichloropropane; hexachlorobutadiene; cis-1,3-dichloropropene; 1,1-dichloropropene; 1,1,1,2-tetrachloroethane; dibromochloromethane; trans-1,3-dichloropropene; 1,2-dibromo-3-chloropropane)
Philippines - PICCS	N (2,2-dichloropropane; cis-acetylene dichloride; cis-1,3-dichloropropene; 1,1-dichloropropene; 1,1,1,2-tetrachloroethane; dibromochloromethane; bromodichloromethane; trans-1,3-dichloropropene)
USA - TSCA	N (cis-1,3-dichloropropene; 1,1-dichloropropene)
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 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

Continued...

BCF: BioConcentration Factors
BEI: Biological Exposure Index

end of SDS