Base/Neutrals - Mix 1

Novachem Pty Ltd

Chemwatch Hazard Alert Code: **4**

Version No: **4.4**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: **06/07/2023**
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S.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	Base/Neutrals - Mix 1
Synonyms	Z-014A
Proper shipping name	Dichloromethane
Other means of identification	Z-014A

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

Relevant identified uses	Laboratory chemical reference material.

Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Novachem Pty Ltd**	**Accustandard**
Address	25 Crissane Road, Heidelberg West Victoria 3081 Australia	125 Market St New Haven CT 6513 United States
Telephone	+61384151255	+1 203 786 5290|+1 800 442 5290
Fax	+61386250088	+1 203 786 5287
Website	www.novachem.com.au	http://www.accustandard.com/
Email	novachem@novachem.com.au	kw@accustandard.com

Emergency telephone number

Association / Organisation	**Victorian Poisons Information Centre**
Emergency telephone numbers	13 11 26
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Poisons Schedule	Not Applicable
Classification [1]	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Inhalation) Category 4, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Carcinogenicity Category 1B, Hazardous to the Aquatic Environment Long-Term Hazard Category 3
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

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H350	May cause cancer.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/ attention.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
75-09-2	97.2	methylene chloride
131-11-3	0.2	dimethyl phthalate
84-74-2	0.2	dibutyl phthalate
101-55-3	0.2	4-bromodiphenyl ether
111-91-1	0.2	dichloroethyl formal
111-44-4	0.2	dichloroethyl ether
108-60-1	0.2	bis(2-chloroisopropyl)ether
117-84-0	0.2	di-n-octyl phthalate
86-30-6	0.2	N-nitrosodiphenylamine
62-75-9	0.2	N-nitrosodimethylamine
621-64-7	0.2	N-nitrosodi-n-propylamine
7005-72-3	0.2	p-chlorodiphenyl oxide
85-68-7	0.2	butyl benzyl phthalate
84-66-2	0.2	diethyl phthalate
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available*	

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, without delay.

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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. ▸ Avoid giving milk or oils. ▸ Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
for intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
- Maintain an open airway and assist ventilation if necessary
- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:
- There is no specific antidote

C: Decontamination
- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:
- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition
- Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- No specific antidote.
- Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- If lavage is performed, suggest endotracheal and/or esophageal control.
- Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- Treatment based on judgment of the physician in response to reactions of the patient

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

BASIC TREATMENT

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

ADVANCED TREATMENT

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

BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

SECTION 5 Firefighting measures

Extinguishing media
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

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

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	Combustion products include: carbon dioxide (CO_2) hydrogen chloride

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	phosgene other pyrolysis products typical of burning organic material. **Contains low boiling substance:** Closed containers may rupture due to pressure buildup under fire conditions. May emit poisonous fumes. ▸ Non flammable liquid. ▸ However vapour will burn when in contact with high temperature flame. ▸ Ignition ceases on removal of flame. ▸ May form a flammable / explosive mixture in an oxygen enriched atmosphere ▸ Heating may cause expansion/vapourisation with violent rupture of containers ▸ Decomposes on heating and produces corrosive fumes of hydrochloric acid, carbon monoxide and small amounts of toxic phosgene.
HAZCHEM	2Z

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.
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.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	**Contains low boiling substance:** Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately. ▸ Check for bulging containers. ▸ Vent periodically ▸ Always release caps or seals slowly to ensure slow dissipation of vapours ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ **DO NOT** use aluminium or galvanised containers ▸ Lined metal can, lined metal pail/ can. ▸ Plastic pail. ▸ Polyliner drum. ▸ Packing as recommended by manufacturer. For low viscosity materials ▸ Drums and jerricans must be of the non-removable head type. ▸ Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.): ▸ Removable head packaging; ▸ Cans with friction closures and ▸ low pressure tubes and cartridges may be used.
Storage incompatibility	Dichloroethyl ether: ▸ tends to form unstable peroxides on standing; elevated temperatures can cause explosive polymerisation. ▸ is a strong reducing agent which reacts violently with oxidisers, chlorosulfonic acid, metal powders, permanganates, peroxides, ammonium persulfate, bromine dioxide, strong acids, sulfuric acid and nitric acid, acyl halides. ▸ produces hydrochloride fumes on contact with water ▸ is incompatible with aluminium, copper, iron, mild steel, epoxy coatings, some plastics and rubber . Methylene chloride ▸ is a combustible liquid under certain circumstances even though there is no measurable flash point and it is difficult to ignite ▸ its is flammable in ambient air in the range 12-23%; increased oxygen content can greatly enhance fire and explosion potential ▸ contact with hot surfaces and elevated temperatures can form fumes of hydrogen chloride and phosgene ▸ reacts violently with active metals, aluminium, lithium, methanol,, peroxydisulfuryl difluoride, potassium, potassium tert-butoxide, sodium ▸ forms explosive mixtures with nitric acid ▸ is incompatible with strong oxidisers, strong caustics, alkaline earths and alkali metals ▸ attacks some plastics, coatings and rubber

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- may generate electrostatic charge due to low conductivity

Phthalates:
- react with strong acids, strong oxidisers, permanganates and nitrates
- attack some form of plastics

Segregate from:
- powdered metals such as aluminium, zinc and
- alkali metals such as sodium, potassium and lithium.

May attack, soften or dissolve rubber, many plastics, paints and coatings
- Segregate from alcohol, water.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	methylene chloride	Methylene chloride	50 ppm / 174 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	dimethyl phthalate	Dimethylphthalate	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	dibutyl phthalate	Dibutyl phthalate	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	dichloroethyl ether	Dichloroethyl ether	5 ppm / 29 mg/m3	58 mg/m3 / 10 ppm	Not Available	Not Available
Australia Exposure Standards	diethyl phthalate	Diethyl phthalate	5 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
methylene chloride	Not Available	Not Available	Not Available
dimethyl phthalate	15 mg/m3	1,600 mg/m3	9300* mg/m3
dibutyl phthalate	15 mg/m3	1,600 mg/m3	9300* mg/m3
4-bromodiphenyl ether	0.33 mg/m3	3.6 mg/m3	21 mg/m3
dichloroethyl formal	0.04 ppm	0.44 ppm	2.7 ppm
dichloroethyl ether	10 ppm	25 ppm	250 ppm
bis(2-chloroisopropyl)ether	0.15 ppm	1.6 ppm	22 ppm
di-n-octyl phthalate	41 mg/m3	450 mg/m3	11000* mg/m3
N-nitrosodiphenylamine	5.5 mg/m3	60 mg/m3	360 mg/m3
N-nitrosodimethylamine	0.082 mg/m3	0.9 mg/m3	10 mg/m3
N-nitrosodi-n-propylamine	5.6 mg/m3	62 mg/m3	95 mg/m3
p-chlorodiphenyl oxide	1.5 mg/m3	35 mg/m3	210 mg/m3
butyl benzyl phthalate	15 mg/m3	77 mg/m3	460 mg/m3
diethyl phthalate	15 mg/m3	300 mg/m3	1,800 mg/m3

Ingredient	Original IDLH	Revised IDLH
methylene chloride	2,300 ppm	Not Available
dimethyl phthalate	2,000 mg/m3	Not Available
dibutyl phthalate	4,000 mg/m3	Not Available
4-bromodiphenyl ether	Not Available	Not Available
dichloroethyl formal	Not Available	Not Available
dichloroethyl ether	100 ppm	Not Available
bis(2-chloroisopropyl)ether	Not Available	Not Available
di-n-octyl phthalate	Not Available	Not Available
N-nitrosodiphenylamine	Not Available	Not Available
N-nitrosodimethylamine	Not Available	Not Available
N-nitrosodi-n-propylamine	Not Available	Not Available
p-chlorodiphenyl oxide	Not Available	Not Available
butyl benzyl phthalate	Not Available	Not Available
diethyl phthalate	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
4-bromodiphenyl ether	E	≤ 0.1 ppm
dichloroethyl formal	E	≤ 0.1 ppm
bis(2-chloroisopropyl)ether	E	≤ 0.1 ppm
di-n-octyl phthalate	E	≤ 0.1 ppm
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

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Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
N-nitrosodiphenylamine	E	≤ 0.01 mg/m³
N-nitrosodimethylamine	E	≤ 0.1 ppm
N-nitrosodi-n-propylamine	E	≤ 0.1 ppm
p-chlorodiphenyl oxide	E	≤ 0.1 ppm
butyl benzyl phthalate	D	> 0.1 to ≤ 1 ppm
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

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.
Individual protection measures, such as personal protective equipment	
Eye and face protection	‣ Safety glasses with side shields. ‣ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] ‣ 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.
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.
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.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Base/Neutrals - Mix 1

Material	CPI
BUTYL	C
CPE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

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

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur

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PE/EVAL/PE	C
PVA	C
TEFLON	C
VITON	C
VITON/BUTYL	C
VITON/CHLOROBUTYL	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- 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.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

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	AX-AUS / Class 1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+		-	Airline**

** - 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	The phthalates have a clear syrupy liquid consistency and show low water solubility, high oil solubility, and low volatility. The polar carboxyl group contributes little to the physical properties of the phthalates, except when R and R' are very small (such as ethyl or methyl groups). Phthalates are colourless, odourless liquids produced by reacting phthalic anhydride with an appropriate alcohol (usually 6- to 13-carbon). Phthalate esters are the dialkyl or alkyl aryl esters of phthalic acid (also called 1,2-benzenedicarboxylic acid). When added to plastics, phthalates allow the long polyvinyl molecules to slide against one another. Clear liquid with ether-like odour; partly mixes with water.

Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	40	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	>110	**Taste**	Not Available
Evaporation rate	27.5 BuAC = 1	**Explosive properties**	Not Available
Flammability	Not Applicable	**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	Partly miscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	2.93	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Continued...

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 can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of dichloroethyl ether vapour causes irritation and injury to the cells of the airway lining. In humans, a concentration of 0.055% or more causes extreme irritation and cannot be tolerated for more than a few moments. 0.026% is highly irritating but is tolerable for brief periods. Irritation is mild at 0.01% and minimal at 0.0035%. Inhalation hazard is increased at higher temperatures. Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated. Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.
Ingestion	The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum. The toxicity of phthalates is not excessive due to slow oral absorption and metabolism. Absorption is affected by fat in the diet. Repeated doses can cause cumulative toxic effects, and symptoms include an enlarged liver which often reverses if exposure is maintained. Carbohydrate metabolism is disrupted, and cholesterol and triglyceride levels in the blood falls. Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Skin Contact	Skin contact with the material may be harmful; systemic effects may result following absorption. The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. The material may cause severe inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye	Direct eye contact with dichloroethyl ether causes moderate pain, irritation of the conjunctiva and injury to the cornea which generally heals within a day. Immediate flushing of the eye limits the damage. There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.
Chronic	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information. 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. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Exposure to phthalates over years leads to pain, numbness and spasms in the hands and feet. Many people have developed multiple disorders in the nervous system and the balancing system. Dichloroethyl ether possibly causes effects similar to carbon tetrachloride. Exposure to large amounts or repeated exposure may cause liver and kidney injury. In animal studies, liver cancer occurred with long-term administration by mouth. A low incidence of sarcomas occurred at the site of injection if given in this method under the skin. Dichloromethane exposures cause liver and kidney damage in animals and this justifies consideration before exposing persons with a history of impaired liver function and/or renal disorders.

Base/Neutrals - Mix 1	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
methylene chloride	**TOXICITY**	**IRRITATION**
	Not Available	Eye(rabbit): 162 mg - moderate
		Eye(rabbit): 500 mg/24hr - mild

Continued...

		Skin (rabbit): 100mg/24hr-moderate
		Skin (rabbit): 810 mg/24hr-SEVERE
dimethyl phthalate	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 119 mg
dibutyl phthalate	**TOXICITY**	**IRRITATION**
	Not Available	Eye: no adverse effect observed (not irritating)[1]
		Skin: no adverse effect observed (not irritating)[1]
4-bromodiphenyl ether	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
dichloroethyl formal	**TOXICITY**	**IRRITATION**
	Not Available	Eye: adverse effect observed (irritating)[1]
		Skin (rabbit): 10 mg/24h
		Skin: no adverse effect observed (not irritating)[1]
dichloroethyl ether	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 100 mg SEVERE
		Eye: no adverse effect observed (not irritating)[1]
		Skin (rabbit): 10 mg/24h (open)
		Skin (rabbit): 500 mg (open) mild
bis(2-chloroisopropyl)ether	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 500 mg (open)
		Eye (rabbit): 500 mg/24h - mild
		Skin (rabbit): 500 mg/24h -mild
di-n-octyl phthalate	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 20 mg - SEVERE
		Eye (rabbit): 500 mg/24h - mild
		Skin (rabbit): 500 mg/24h - mild
N-nitrosodiphenylamine	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 500 mg/24h - mild
N-nitrosodimethylamine	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
N-nitrosodi-n-propylamine	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
p-chlorodiphenyl oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
butyl benzyl phthalate	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
diethyl phthalate	**TOXICITY**	**IRRITATION**
	Not Available	Eye (rabbit): 112 mg - mild
		Skin (g. pig): slight ** [Eastman]
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

METHYLENE CHLORIDE	Inhalation (human) TCLo: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. 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. Repeated exposures may produce severe ulceration.
DIMETHYL PHTHALATE	Bacterial mutagen Reproductive effector in rats For low molecular weight phthalate esters) **Acute toxicity:** Dimethyl phthalate (DMP) and diethyl phthalate (DEP) exhibit low acute toxicity by oral, dermal and inhalation routes of exposure. Although acute oral toxicity data on DEP are based on older, inadequate studies by current guidelines, the lack of lethality at doses > 5 g/kg/ day is consistent with that seen with other phthalate esters and subchronic studies on DEP.

Continued...

	Repeated Dose Toxicity. High dietary doses (5 % or -3,750 mg/ kg/ day) of DEP resulted in decreased body weights and tissue weights; no effects were seen in males at 1 % (-750 mg/ kg/ day) or in females at 0.2 % (~150 mg/ kg/ day). These results are similar to that seen following dermal administration of DMP to rabbits for 90 days at 4 g/ kg/ day.
DIBUTYL PHTHALATE	For dibutyl phthalate (DBP): In studies on rats, DBP is absorbed through the skin, although studies have shown human skin is less permeable. Animal testing shows DBP is rapidly absorbed from the gastrointestinal tract, distributed mainly in the liver and kidneys and excreted in urine as breakdown products if given orally or through a vein. Accumulation has not been observed in any organ. The profile of effects following exposure to DBP is similar to that of other phthalate esters, which, in susceptible species, can cause enlarged liver, toxicity to the foetus, birth defects, and damage to the testicles. Acute toxicity: Animal testing shows that acute toxicity of DBP is low. Available data indicate that phthalate esters are minimally toxic by swallowing, inhalation and skin contact. Repeated exposure may result in weight gain, liver enlargement and induction of liver enzymes. They may also cause shrinking of the testicles and other structural malformations. They may reduce male and female fertility and number of live births, according to animal testing.
4-BROMODIPHENYL ETHER	For monobromodiphenyl ether (MBDE): MBDE does not appear to cause reproductive toxicity, birth defects or harm to the embryo. It has not been shown to increase the risk of cancer.
DICHLOROETHYL ETHER	.
BIS(2-CHLOROISOPROPYL)ETHER	Iritis, dyspnea, liver changes, changes in spleen, reproductive system tumours recorded. **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.
DI-N-OCTYL PHTHALATE	High Molecular Weight Phthalate Esters (HMWPEs) Category The HMWPE group includes chemically similar substances produced from alcohols. These substances have been demonstrated to have few biological effects. They demonstrate minimal acute toxicity, with effect on the liver and kidney at high doses. They also cause reproductive and developmental toxicity, also, liver cancer. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
N-NITROSODI-N-PROPYLAMINE	For N-nitrosodi-n-propylamine: Although, at lethal doses, in animals, this substance causes liver toxicity and bleeding in the lungs, stomach, kidney and heart, there is only limited information regarding the threshold for these effects following acute exposure and there is no information regarding these effects occurring with longer exposure. Although data in humans is not available, there have been case reports of human deaths due to intentional swallowing and accidental inhalation, where bleeding, tissue death and hardening occurred in the liver and there was widespread internal bleeding. In animals, N-nitroso-n-propylamine caused genetic damage, and is known to cause cancer, with cancers of the liver, nose, oesophagus all occurring. While it did not cause birth defects, offspring of pregnant animals exposed to N-nitrosodi-n-propylamine also developed cancers. **WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
BUTYL BENZYL PHTHALATE	Reproductive effector in rats. For benzyl butyl phthalate (BBP): Repeat dose toxicity: Animal studies show that BBP may affect the pancreas, kidney, liver and blood, and the testes at higher doses. Reproductive toxicity and birth defects: Animal studies suggest that BBP may reduce fertility. Developmental toxicity: BBP causes significant developmental effects but only at levels that would be toxic to the mother. Cancer-causing potential: Animal studies show that there is some evidence of cancer-causing potential for BBP. Genetic toxicity: Animal studies results are conflicting, with some negative results and others showing that BBP can cause chromosomal aberrations. Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
DIETHYL PHTHALATE	When diethyl phthalate is applied to the skin, it is widely distributed in the body but it does not accumulate in tissue. It causes mild irritation to the eye and skin and rarely causes skin sensitisation. Animal testing has shown slight increases in liver and kidney weights; results regarding its potential to cause cancer, mutations and genetic damage were inconclusive. It has caused some minor bone abnormalities in the foetus in animal testing and also, changes to testis and reduced sperm count.
Base/Neutrals - Mix 1 & DIMETHYL PHTHALATE & DI-N-OCTYL PHTHALATE & P-CHLORODIPHENYL OXIDE & DIETHYL PHTHALATE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
Base/Neutrals - Mix 1 & 4-BROMODIPHENYL ETHER & BIS(2-CHLOROISOPROPYL)ETHER & P-CHLORODIPHENYL OXIDE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.
Base/Neutrals - Mix 1 & DICHLOROETHYL ETHER	For dichloroethyl ether: One fatal case in humans due to inhaling BCEE has occurred but no details were provided. In animal testing, BCEE causes respiratory distress and acute lung injury seems to be the main cause of death. Inhalation causes irritation and injury to the cells of the airway. BCEE also depresses the central nervous system.
Base/Neutrals - Mix 1 & METHYLENE CHLORIDE	
Base/Neutrals - Mix 1 & DIMETHYL PHTHALATE & DIBUTYL PHTHALATE & DI-N-OCTYL PHTHALATE & BUTYL BENZYL PHTHALATE & DIETHYL PHTHALATE	The material may produce peroxisome proliferation. Peroxisomes are single, membrane limited organelles in the cytoplasm that are found in the cells of animals, plants, fungi, and protozoa.
METHYLENE CHLORIDE & N-NITROSODIMETHYLAMINE	**WARNING:** This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans.
4-BROMODIPHENYL ETHER & P-CHLORODIPHENYL OXIDE	No significant acute toxicological data identified in literature search.
DICHLOROETHYL FORMAL & BIS(2-CHLOROISOPROPYL)ETHER	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
DICHLOROETHYL ETHER & BIS(2-CHLOROISOPROPYL)ETHER & BUTYL BENZYL	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.

Continued...

PHTHALATE	
BIS(2-CHLOROISOPROPYL)ETHER & DI-N-OCTYL PHTHALATE	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.
N-NITROSODIMETHYLAMINE & N-NITROSODI-N-PROPYLAMINE	Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [*National Toxicology Program: U.S. Dep. of Health & Human Services 2002*]

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 either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

SECTION 12 Ecological information

Toxicity

Base/Neutrals - Mix 1

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

methylene chloride

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

dimethyl phthalate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

dibutyl phthalate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

4-bromodiphenyl ether

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

dichloroethyl formal

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

dichloroethyl ether

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

bis(2-chloroisopropyl)ether

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

di-n-octyl phthalate

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

N-nitrosodiphenylamine

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

N-nitrosodimethylamine

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

N-nitrosodi-n-propylamine

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Continued...

p-chlorodiphenyl oxide	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
butyl benzyl phthalate	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
diethyl phthalate	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 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 available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.
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.
Environmental Fate: Dichloroethyl ether or Bis(2-chloroethyl)ether (BCEE) may be released to the environment from the use of products containing the chemical.
Terrestrial Fate: If released to soil, BCEE is expected to be highly mobile in soil and is soluble in water but is not likely to adsorb onto soil thus will likely leach extensively to groundwater. BCEE will undergo volatilization from moist and dry soil surfaces based upon its physico-chemical properties. However, the compound is found to be resistant to biodegradation based on the screening test conducted.
For Methylene Chloride: Log Kow: 1.25; Log Koc: 1.68; Log Kom: 1.44; Henry's atm m3 /mol: 2.68E-03; Henry s Law Constant: 0.002 atm/m3/mol; BCF: 5.
Atmospheric Fate: Methylene chloride is a volatile liquid that tends to evaporate to the atmosphere from water and soil. The main degradation pathway for methylene chloride in air is via reactions with hydroxyl radicals the average atmospheric lifetime is estimated to be 130 days. Because this degradation pathway is relatively slow, methylene chloride may become widely dispersed but, is not likely to accumulate in the atmosphere.
For Phthalate Esters:
Terrestrial Fate: Phthalate esters have been observed to broken down by a wide range of bacteria. Biodegradation is, therefore, expected to be the dominant fate in surface soils and sediments.
Little information is available on the fate of phthalate esters in soil, even though the primary point of entry, (landfills). The migration of phthalate esters out of plastics is slow.
The UK Department of Environment have established that methylene chloride is not a greenhouse gas and the Organisation for Economic Cooperation and Development (OECD) in a Monograph have affirmed that there was no single international view that risk reduction measures are required for the solvent. The Monograph suggests that alternatives may pose a greater risk to the environment.
In the atmosphere methylene chloride degrades by reaction with photochemically produced hydroxy radicals (half-life 6 months). Methylene chloride rapidly volatilises from water and soil to the atmosphere (estimated half-life for volatilisation from water 3-5.6 hours).
for N-Nitrosodimethylamine (NDMA): Log Kow: -0.57; Henry's Law Constant: 2.63x10-7 atm-m3/mol @ 20C; Vapor Pressure: 2.7 mm Hg @ 20C; BCF: 0.2.
Atmospheric Fate: NDMA is an organic compound that is expected to exist almost entirely as a vapor in the atmosphere. This compound should not partition to particles in the atmosphere. NDMA vapor rapidly degrades by direct breakdown in sunlight to form dimethylnitramine.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
methylene chloride	LOW (Half-life = 56 days)	HIGH (Half-life = 191 days)
dimethyl phthalate	LOW (Half-life = 14 days)	LOW (Half-life = 46.58 days)
dibutyl phthalate	LOW (Half-life = 23 days)	LOW (Half-life = 3.08 days)
4-bromodiphenyl ether	HIGH	HIGH
dichloroethyl formal	HIGH	HIGH
dichloroethyl ether	HIGH (Half-life = 360 days)	LOW (Half-life = 4.02 days)
bis(2-chloroisopropyl)ether	HIGH (Half-life = 360 days)	LOW (Half-life = 1.92 days)
di-n-octyl phthalate	HIGH (Half-life = 365 days)	LOW (Half-life = 1.87 days)
N-nitrosodiphenylamine	MEDIUM (Half-life = 68 days)	LOW (Half-life = 0.29 days)
N-nitrosodimethylamine	HIGH (Half-life = 360 days)	LOW (Half-life = 10.58 days)
N-nitrosodi-n-propylamine	HIGH (Half-life = 360 days)	LOW (Half-life = 1.11 days)
p-chlorodiphenyl oxide	HIGH	HIGH
butyl benzyl phthalate	HIGH (Half-life = 180 days)	LOW (Half-life = 2.5 days)
diethyl phthalate	MEDIUM (Half-life = 112 days)	LOW (Half-life = 8.83 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
methylene chloride	LOW (BCF = 40)
dimethyl phthalate	LOW (BCF = 57)
dibutyl phthalate	LOW (BCF = 176)
4-bromodiphenyl ether	HIGH (LogKOW = 4.9393)
dichloroethyl formal	LOW (LogKOW = 1.2953)
dichloroethyl ether	LOW (BCF = 10)
bis(2-chloroisopropyl)ether	LOW (BCF = 12)
di-n-octyl phthalate	LOW (LogKOW = 8.1)
N-nitrosodiphenylamine	LOW (BCF = 42)

Continued...

Ingredient	Bioaccumulation
N-nitrosodimethylamine	LOW (LogKOW = -0.57)
N-nitrosodi-n-propylamine	LOW (LogKOW = 1.36)
p-chlorodiphenyl oxide	HIGH (LogKOW = 4.7)
butyl benzyl phthalate	MEDIUM (BCF = 663)
diethyl phthalate	LOW (BCF = 117)

Mobility in soil

Ingredient	Mobility
methylene chloride	LOW (KOC = 23.74)
dimethyl phthalate	LOW (KOC = 37.09)
dibutyl phthalate	LOW (KOC = 1460)
4-bromodiphenyl ether	LOW (KOC = 4160)
dichloroethyl formal	MEDIUM (KOC = 2.767)
dichloroethyl ether	LOW (KOC = 14.95)
bis(2-chloroisopropyl)ether	LOW (KOC = 21.4)
di-n-octyl phthalate	LOW (KOC = 195500)
N-nitrosodiphenylamine	LOW (KOC = 6154)
N-nitrosodimethylamine	LOW (KOC = 38.21)
N-nitrosodi-n-propylamine	LOW (KOC = 485.3)
p-chlorodiphenyl oxide	LOW (KOC = 4160)
butyl benzyl phthalate	LOW (KOC = 9359)
diethyl phthalate	LOW (KOC = 126.2)

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. ▸ **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 or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	NO
HAZCHEM	2Z

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

Air transport (ICAO-IATA / DGR)

UN number	1593
UN proper shipping name	Dichloromethane

Continued...

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

Sea transport (IMDG-Code / GGVSee)

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

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

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
methylene chloride	Not Available
dimethyl phthalate	Not Available
dibutyl phthalate	Not Available
4-bromodiphenyl ether	Not Available
dichloroethyl formal	Not Available
dichloroethyl ether	Not Available
bis(2-chloroisopropyl)ether	Not Available
di-n-octyl phthalate	Not Available
N-nitrosodiphenylamine	Not Available
N-nitrosodimethylamine	Not Available
N-nitrosodi-n-propylamine	Not Available
p-chlorodiphenyl oxide	Not Available
butyl benzyl phthalate	Not Available
diethyl phthalate	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
methylene chloride	Not Available
dimethyl phthalate	Not Available
dibutyl phthalate	Not Available
4-bromodiphenyl ether	Not Available
dichloroethyl formal	Not Available
dichloroethyl ether	Not Available
bis(2-chloroisopropyl)ether	Not Available
di-n-octyl phthalate	Not Available
N-nitrosodiphenylamine	Not Available
N-nitrosodimethylamine	Not Available
N-nitrosodi-n-propylamine	Not Available

Continued...

Product name	Ship Type
p-chlorodiphenyl oxide	Not Available
butyl benzyl phthalate	Not Available
diethyl phthalate	Not Available

SECTION 15 Regulatory information

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

methylene chloride is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

dimethyl phthalate is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

dibutyl phthalate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List

4-bromodiphenyl ether is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List

dichloroethyl formal is found on the following regulatory lists

Not Applicable

dichloroethyl ether is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

bis(2-chloroisopropyl)ether is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

di-n-octyl phthalate is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

N-nitrosodiphenylamine is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

N-nitrosodimethylamine is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

N-nitrosodi-n-propylamine is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

p-chlorodiphenyl oxide is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

butyl benzyl phthalate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

diethyl phthalate is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (dichloroethyl formal; bis(2-chloroisopropyl)ether; N-nitrosodi-n-propylamine)
Canada - DSL	No (4-bromodiphenyl ether; dichloroethyl formal; bis(2-chloroisopropyl)ether; N-nitrosodimethylamine; N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
Canada - NDSL	No (methylene chloride; dimethyl phthalate; dibutyl phthalate; dichloroethyl ether; di-n-octyl phthalate; N-nitrosodiphenylamine; butyl benzyl phthalate; diethyl phthalate)

Continued...

National Inventory	Status
China - IECSC	No (4-bromodiphenyl ether; N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (N-nitrosodimethylamine; N-nitrosodi-n-propylamine)
Korea - KECI	No (4-bromodiphenyl ether; dichloroethyl formal; N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
New Zealand - NZIoC	No (4-bromodiphenyl ether; dichloroethyl formal; bis(2-chloroisopropyl)ether; N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
Philippines - PICCS	No (4-bromodiphenyl ether; dichloroethyl formal; N-nitrosodiphenylamine; N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (N-nitrosodi-n-propylamine; p-chlorodiphenyl oxide)
Vietnam - NCI	No (p-chlorodiphenyl oxide)
Russia - FBEPH	No (dichloroethyl formal; p-chlorodiphenyl oxide)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	06/07/2023
Initial Date	27/08/2015

SDS Version Summary

Version	Date of Update	Sections Updated
3.4	06/07/2023	Toxicological information - Acute Health (eye), Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), First Aid measures - Advice to Doctor, Physical and chemical properties - Appearance, Toxicological information - Chronic Health, Hazards identification - Classification, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, First Aid measures - First Aid (swallowed), Exposure controls / personal protection - Personal Protection (Respirator)

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
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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end of SDS