# **Premium Cavity Fluid**

# Frigid Fluid Company

Chemwatch: **5184-02** Version No: **4.1.1.1** 

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

Chemwatch Hazard Alert Code: 3

Issue Date: 28/05/2015 Print Date: 01/06/2015 Initial Date: Not Available S.GHS.USA.EN

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

#### **Product Identifier**

Product name	Premium Cavity Fluid			
Synonyms	ot Available			
Proper shipping name	Flammable liquid, toxic, corrosive, n.o.s. (contains methanol,ethylene dichloride,formaldehyde and glutaraldehyde)			
Other means of identification	Not Available			

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

Relevant identified uses	Cavity embalming fluid.

#### Details of the manufacturer/importer

The state of the s					
Registered company name	rigid Fluid Company				
Address	1 W Grand Ave Melrose Park 60164 IL United States				
Telephone	+1 708-836-1215				
Fax	Not Available				
Website	Not Available				
Email	Not Available				

# Emergency telephone number

Association	/ Organisation	Not Available
Emerg	ency telephone numbers	1-800-424-9300
Other emerg	ency telephone numbers	Not Available

## **SECTION 2 HAZARDS IDENTIFICATION**

# Classification of the substance or mixture

Considered a Hazardous Substance by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). Classified as Dangerous Goods for transport purposes.



GHS Classification

Flammable Liquid Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Acute Toxicity (Inhalation) Category 2, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Respiratory Sensitizer Category 1, Skin Sensitizer Category 1, Carcinogen Category 1B, STOT - SE Category 1, Acute Aquatic Hazard Category 2

# Label elements

**GHS** label elements









SIGNAL WORD

DANGER

# Hazard statement(s)

H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H330	Fatal if inhaled

Chemwatch: 5184-02 Version No: 4.1.1.1

# Page 2 of 11

**Premium Cavity Fluid** 

Issue Date: 28/05/2015 Print Date: 01/06/2015

H314	Causes severe skin burns and eye damage				
H318	uses serious eye damage				
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled				
H317	May cause an allergic skin reaction				
H350	May cause cancer				
H370	Causes damage to organs				
H401	Toxic to aquatic life				

# Precautionary statement(s) Prevention

P201	Obtain special instructions before use.			
P210	eep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.			
P260	not breathe dust/fume/gas/mist/vapours/spray.			
P270	Do not eat, drink or smoke when using this product.			
P271	Use only outdoors or in a well-ventilated area.			
P280	Wear protective gloves/protective clothing/eye protection/face protection.			

# Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311	IF exposed: Call a POISON CENTER/doctor/physician/first aider

# Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.				
P403+P235	Store in a well-ventilated place. Keep cool.				
P405	Store locked up.				

# Precautionary statement(s) Disposal

Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

# **SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

# Substances

See section below for composition of Mixtures

# Mixtures

CAS No	%[weight]	Name
67-56-1	40-60	<u>methanol</u>
107-06-2	10-15	ethylene dichloride
50-00-0	5-10	<u>formaldehyde</u>
111-30-8	2-5	glutaraldehyde

# **SECTION 4 FIRST AID MEASURES**

Description of first aid me	asures
Eye Contact	If this product comes in contact with the eyes:  ► Immediately hold eyelids apart and flush the eye continuously with running water.  ► Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.  ► Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.  ► Transport to hospital or doctor without delay.  ► Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs:  Immediately flush body and clothes with large amounts of water, using safety shower if available.  Quickly remove all contaminated clothing, including footwear.  Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.  Transport to hospital, or doctor.
Inhalation	<ul> <li>If fumes or combustion products are inhaled remove from contaminated area.</li> <li>Lay patient down. Keep warm and rested.</li> <li>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>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.</li> <li>Transport to hospital, or doctor, without delay.</li> </ul>

#### **Premium Cavity Fluid**

Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (vet) manifested. ▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. This must definitely be left to a doctor or person authorised by him/her.

(ICSC13719)

- Avoid giving milk or oils.
- Avoid giving alcohol.
- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Urgent hospital treatment is likely to be needed.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

#### Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise

▶ INDUCE vorniting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

#### Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours. for intoxication due to Freons/ Halons;

A: Emergency and Supportive Measures

Ingestion

- 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

For acute or short-term repeated exposures to formaldehyde:

## INGESTION:

- ▶ Patients present early with severe corrosion of the gastro-intestinal tract and systemic effects.
- Inflammation and ulceration may progress to strictures
- ▶ Severe acidosis results from rapid conversion of formaldehyde to formic acid. Coma, hypotension, renal failure and apnoea complicate ingestion.
- Decontaminate by dilution with milk or water containing ammonium acetate; vomiting should be induced. Follow with gastric lavage using a weak ammonia solution (converts formaldehyde to relatively inert pentamethylenetetramine)
- Gastric lavage is warranted only in first 15 minutes following ingestion.

# SKIN:

Formaldehyde can combine with epidermal protein to produce a hapten-protein couple capable of sensitising T-lymphocytes. Subsequent exposures cause a type IV hypersensitivity reaction (i.e. allergic contact dermatitis). [Ellenhorn & Barceloux: Medical Toxicology]

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 seizure.

[Ellenhorn Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

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

Chemwatch: 5184-02 Version No: 4.1.1.1

### Page 4 of 11

Issue Date: 28/05/2015 Print Date: 01/06/2015 **Premium Cavity Fluid** 

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

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential. Immediate administration of an appropriate spray, by a doctor or a person authorised by him/her should be considered. (ICSC24419/24421

#### **SECTION 5 FIREFIGHTING MEASURES**

#### **Extinguishing media**

Water may be an ineffective extinguishing media for methanol fires; static explosions are reported for aqueous solutions as dilute as 30%. Water may be used to

- Alcohol stable 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.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- ▶ Fight fire from a safe distance, with adequate cover.

## 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 (CO2) formaldehyde hydrogen chloride phosgene nitrogen oxides (NOx) other pyrolysis products typical of burning organic material

# **SECTION 6 ACCIDENTAL RELEASE MEASURES**

### Personal precautions, protective equipment and emergency procedures

### Minor Spills

- 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.

## Major Spills

- ▶ Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).

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

### **SECTION 7 HANDLING AND STORAGE**

# Precautions for safe handling

# ▶ Containers, even those that have been emptied, may contain explosive vapours.

- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with ma
- 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.

# Other information

Safe handling

- 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.
  - |Store between 10 to 38 deg C.

### Conditions for safe storage, including any incompatibilities

#### ▶ DO NOT use aluminium or galvanised containers Glass container is suitable for laboratory quantities

# Packing as supplied by manufacturer.

# Suitable container

- 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.

# Page 5 of 11 Premium Cavity Fluid

Issue Date: **28/05/2015**Print Date: **01/06/2015** 

Storage incompatibility

- ▶ For materials with a viscosity of at least 2680 cSt.
- Avoid reaction with oxidising agents
- Avoid strong acids, bases.

# PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

# **SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

# **Control parameters**

# OCCUPATIONAL EXPOSURE LIMITS (OEL)

# INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	methanol	Methyl alcohol	260 mg/m3 / 200 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	methanol	Methanol	200 ppm	250 ppm	Not Available	TLV® Basis: Headache; eye dam; dizziness; nausea; BEI
US NIOSH Recommended Exposure Limits (RELs)	methanol	Carbinol, Columbian spirits, Methanol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit	260 mg/m3 / 200 ppm	325 mg/m3 / 250 ppm	Not Available	[skin]
US OSHA Permissible Exposure Levels (PELs) - Table Z1	ethylene dichloride	Ethylene dichloride (1,2-Dichloroethane)	Not Available	Not Available	Not Available	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	ethylene dichloride	Ethylene dichloride	50 ppm	Not Available	100 ppm	(Z37.21–1969)
US ACGIH Threshold Limit Values (TLV)	ethylene dichloride	Ethylene dichloride	10 ppm	Not Available	Not Available	TLV® Basis: Liver dam; nausea
US NIOSH Recommended Exposure Limits (RELs)	ethylene dichloride	1,2-Dichloroethane; Ethylene chloride; Glycol dichloride	4 mg/m3 / 1 ppm	8 mg/m3 / 2 ppm	Not Available	Ca See Appendix A See Appendix C (Chloroethanes)
US OSHA Permissible Exposure Levels (PELs) - Table Z1	formaldehyde	Formaldehyde	0.75 ppm	2 ppm	Not Available	see 1910.1048
US OSHA Permissible Exposure Levels (PELs) - Table Z2	formaldehyde	Formaldehyde	0.75 ppm	2 ppm	Not Available	see 1910.1048
US ACGIH Threshold Limit Values (TLV)	formaldehyde	‡ Formaldehyde	Not Available	Not Available	0.3 ppm	TLV® Basis: URT & eye irr
US NIOSH Recommended Exposure Limits (RELs)	formaldehyde	Methanal, Methyl aldehyde, Methylene oxide / Formaldehyde solution [Note: Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol.]	0.016 ppm	Not Available	0.1 ppm	Ca See Appendix A
US ACGIH Threshold Limit Values (TLV)	glutaraldehyde	‡ Glutaraldehyde, activated or unactivated	Not Available	Not Available	0.05 ppm	TLV® Basis: URT, skin, & eye irr; CNS impair
US NIOSH Recommended Exposure Limits (RELs)	glutaraldehyde	Glutaric dialdehyde; 1,5-Pentanedial	Not Available	Not Available	0.8 mg/m3 / 0.2 ppm	See Appendix C (Aldehydes)

# EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
methanol	Methyl alcohol; (Methanol)	Not Available	Not Available	Not Available
ethylene dichloride	Ethylene dichloride; (1,2-Dichloroethane)	Not Available	Not Available	Not Available
formaldehyde	Formaldehyde	Not Available	Not Available	Not Available
glutaraldehyde	Gluteraldehyde	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
methanol	25,000 ppm	6,000 ppm
ethylene dichloride	1,000 ppm	50 ppm
formaldehyde	30 ppm	20 ppm
glutaraldehyde	Not Available	Not Available

# **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.

# Issue Date: **28/05/2015**Print Date: **01/06/2015**

#### **Premium Cavity Fluid**

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.

Personal protection

# Eye and face protection

- Chemical goggles.
  Full face shield may be required for supplementary but never for primary protection of eyes.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be

# 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. Skin protection See Hand protection below

- ▶ Wear chemical protective gloves, e.g. PVC.
- ▶ Wear safety footwear or safety gumboots, e.g. Rubber
- ▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. **NOTE:**

# Hands/feet protection

- ► 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.

#### Body protection

Other protection

#### See Other protection below

- ▶ 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.

#### Thermal hazards

#### Not Available

# Recommended material(s) GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

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

Premium Cavity Fluid

Material	CPI
BUTYL	С
BUTYL/NEOPRENE	С
NAT+NEOPR+NITRILE	С
NATURAL RUBBER	С
NATURAL+NEOPRENE	С
NEOPRENE	С
NEOPRENE/NATURAL	С
NITRILE	С
PE	С
PE/EVAL/PE	С
PVA	С
PVC	С
PVDC/PE/PVDC	С
SARANEX-23	С
SARANEX-23 2-PLY	С
TEFLON	С
VITON	С
VITON/NEOPRENE	С
##ethylene	dichloride

# \* 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

 $\mbox{NOTE}:$  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

# Respiratory protection

Type BAX 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	BAX-AUS	-	BAX-PAPR-AUS / Class 1
up to 50 x ES	-	BAX-AUS / Class 1	-
up to 100 x ES	-	BAX-2	BAX-PAPR-2 ^

### ^ - Full-face

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

**Premium Cavity Fluid** 

Issue Date: 28/05/2015 Print Date: 01/06/2015

be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

# SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

# Information on basic physical and chemical properties

Appearance	Clear, colourless liquid with pungent odour; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	<1
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	64	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	11 (PMCC)	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	73	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	6	Volatile Component (%vol)	>90
Vapour pressure (kPa)	~7	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	>1	VOC g/L	Not Available

# **SECTION 10 STABILITY AND REACTIVITY**

Reactivity	See section 7
Chemical stability	<ul> <li>Static induced flash fires have happened when filling plastic containers with methanol / water solutions with as low as 30% methanol content.</li> <li>Unstable in the presence of incompatible materials.</li> <li>Product is considered stable.</li> <li>Hazardous polymerisation will not occur.</li> </ul>
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**

ormation on toxicologic	eal effects
Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects.  There is strong evidence to suggest that this material can cause, if inhaled once, serious, irreversible damage of organs.  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.
Ingestion	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.  Strong evidence exists that exposure to the material may produce serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by swallowing.  Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)
Skin Contact	The material can produce chemical burns following direct contact with the skin.  There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs.  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.  There is some evidence to suggest that the material may cause moderate 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	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.  If applied to the eyes, this material causes severe eye damage.
Chronic	Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.  Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.  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.
Bromium Covity Eluid	TOXICITY IRRITATION

Drawium Carity Flyid	TOXICITY	IRRITATION
Premium Cavity Fluid	Not Available	Not Available

Chemwatch: **5184-02**Version No: **4.1.1.1** 

# Page 8 of 11 Premium Cavity Fluid

Issue Date: **28/05/2015**Print Date: **01/06/2015** 

extracted from RTECS - Register of Toxic Effect of chemical Substances

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.

ETHYLENE DICHLORIDE

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

FORMALDEHYDE & GLUTARALDEHYDE

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. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact.

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	0
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	<b>~</b>
Respiratory or Skin sensitisation	<b>✓</b>	STOT - Repeated Exposure	0
Mutagenicity	0	Aspiration Hazard	0

Legend:

Data required to make classification available

— Data available but does not fill the criteria for classification

Data Not Available to make classification

# CMR STATUS

REPROTOXIN	ethylene dichloride ILO Chemicals in the electronics industry that have toxic effects on reproduction		
CARCINOCEN	ethylene dichloride  US NIOSH Recommended Exposure Limits (RELs) - Carcinogens US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors US Environmental Defense Scorecard Recognized Carcinogens  US NIOSH Recommended Exposure Limits (RELs) - Carcinogens US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors US Environmental (Chloroethanes) 2B P65		
CARCINOGEN	US Environmental Defense Scorecard Recognized Carcinogens US Air Toxics Hot  Spots TSD for Describing Available Cancer Potency Factors US NIOSH  Recommended Exposure Limits (RELs) - Carcinogens	κA	
EYE	formaldehyde US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Eye Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.  FORMALDEHYDE X		
DECDID ATORY	formaldehyde US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	(	
RESPIRATORY	glutaraldehyde US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	(	
SKIN	US - Hawaii Air Contaminant Limits - Skin Designation US - Alaska Limits for Air Contaminants - Skin Designation US NIOSH Recommended Exposure Limits (RELs) - Skin US - Washington Permissible exposure limits of air contaminants - Skin US - Michigan Exposure Limits for Air Contaminants - Skin US - Tennessee Occupational Exposure Limits - For Air Contaminants - Skin US ACGIH Threshold Limit Values (TLV) - Skin US - California Permissible Exposure Limits for Chemical Contaminants - Skin US - North Carolina Permissible Exposure Limits (PELs) for Air Contaminants - Skin Designation [NLV] US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin US - Minnesota Permissible Exposure Limits (PELs) - Skin	X [skin] Yes	
SKIN	US - Hawaii Air Contaminant Limits - Skin Designation US - Alaska Limits for Air Contaminants - Skin Designation US NIOSH Recommended Exposure Limits (RELs) - Skin US - Washington Permissible exposure limits of air contaminants - Skin US - Michigan Exposure Limits for Air Contaminants - Skin US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin US ACGIH Threshold Limit Values (TLV) - Skin US - California Permissible Exposure Limits for Chemical Contaminants - Skin US - North Carolina Permissible Exposure Limits (PELs) for Air Contaminants - Skin Designation [NLV] US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin US - Minnesota Permissible Exposure Limits (PELs) - Skin	X [skin] Yes	

# **SECTION 12 ECOLOGICAL INFORMATION**

## Toxicity

Toxic to aquatic organisms.

DO NOT discharge into sewer or waterways

Persistence and degradability

# Issue Date: **28/05/2015**Print Date: **01/06/2015**

# **Premium Cavity Fluid**

Ingredient	Persistence: Water/Soil	Persistence: Air
methanol	LOW	LOW
ethylene dichloride	HIGH (Half-life = 360 days)	MEDIUM (Half-life = 121.54 days)
formaldehyde	LOW (Half-life = 14 days)	LOW (Half-life = 2.97 days)
glutaraldehyde	LOW	LOW

# Bioaccumulative potential

Ingredient	Bioaccumulation
methanol	LOW (BCF = 10)
ethylene dichloride	LOW (BCF = 6)
formaldehyde	LOW (LogKOW = 0.35)
glutaraldehyde	LOW (LogKOW = -0.1821)

# Mobility in soil

Ingredient	Mobility
methanol	HIGH (KOC = 1)
ethylene dichloride	LOW (KOC = 43.79)
formaldehyde	HIGH (KOC = 1)
glutaraldehyde	HIGH (KOC = 1.094)

# **SECTION 13 DISPOSAL CONSIDERATIONS**

# Waste treatment methods

- ▶ Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible. Otherwise:

# Product / Packaging disposal

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- ▶ Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- ▶ 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.

# **SECTION 14 TRANSPORT INFORMATION**

# Labels Required







Marine Pollutant

nt NO

# Land transport (DOT)

UN number	3286
Packing group	П
UN proper shipping name	Flammable liquid, toxic, corrosive, n.o.s. (contains methanol,ethylene dichloride,formaldehyde and glutaraldehyde)
Environmental hazard	No relevant data
Transport hazard class(es)	Class 3 Subrisk 6.1,8
Special precautions for user	Special provisions   IB2, T11, TP2, TP13, TP27

# Air transport (ICAO-IATA / DGR)

UN number	3286	
Packing group		
UN proper shipping name	Flammable liquid, toxic, corrosive, n.o.s. * (contains methanol,ethylene dichloride,formaldehyde and glutaraldehyde)	
Environmental hazard	No relevant data	
Transport hazard class(es)	ICAO/IATA Class   3	
Special precautions for user	Special provisions  Cargo Only Packing Instructions	Not Applicable 363

Chemwatch: 5184-02 Page 10 of 11 Issue Date: 28/05/2015 Print Date: 01/06/2015 Version No: 4.1.1.1

# **Premium Cavity Fluid**

Cargo Only Maximum Qty / Pack	5 L
Passenger and Cargo Packing Instructions	352
Passenger and Cargo Maximum Qty / Pack	1 L
Passenger and Cargo Limited Quantity Packing Instructions	Y340
Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

#### Sea transport (IMDG-Code / GGVSee)

UN number	3286
Packing group	П
UN proper shipping name	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (contains methanol,ethylene dichloride,formaldehyde and glutaraldehyde)
Environmental hazard	Not Applicable
Transport hazard class(es)	IMDG Class 3 IMDG Subrisk 6.1,8
Special precautions for user	EMS Number F-E , S-C Special provisions 274 Limited Quantities 1 L

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

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	methanol	Υ
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	ethylene dichloride	Υ
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	formaldehyde	Υ
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	glutaraldehyde	Υ

### **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

"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants"."US - Hawaii Air Contaminant Limits"."US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US - Idaho - Limits for Air Contaminants", "US - California Proposition 65 - Reproductive Toxicity", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure 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 - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values","US - Alaska Limits for Air Contaminants", "US NIOSH Recommended Exposure Limits (RELs)", "US - Washington Permissible exposure limits of air contaminants", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "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 Minnesota Permissible Exposure Limits (PELs)","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"

ethylene dichloride(107-06-2) is found on the following regulatory lists

"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)". "US -Hawaii Air Contaminant Limits", "US National Toxicology Program (NTP) 13th Report Part B. Reasonably Anticipated to be a Human Carcinogen", "US -California Permissible Exposure Limits for Chemical Contaminants", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens"."US - Idaho - Limits for Air Contaminants"."US ACGIH Threshold Limit Values (TLV) - Carcinogens","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Oregon Listing", "US - Oregon Permissible Exposure Limits (Z-2)", "US - Oregon Permissible Exposure Limits (Z-1)", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "US - Michigan Exposure Limits for Air Contaminants", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Mutagens", "US - California Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values". "US - Alaska Limits for Air Contaminants". "US NIOSH Recommended Exposure Limits (RELs)". "US Washington Permissible exposure limits of 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 OSHA Permissible Exposure Levels (PELs) - Table Z2", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants","US - Minnesota Permissible Exposure Limits (PELs)","US - California Proposition 65 - Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Idaho - Acceptable Maximum Peak Concentrations", "US ACGIH Threshold Limit Values (TLV)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) Chemical Substance Inventory", "US OSHA Permissible Exposure Levels (PELs) - Table Z1", "US TSCA New Chemical Exposure Limits (NCEL)", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens'

formaldehvde(50-00-0) is found on the following regulatory lists

"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)", "US -Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US - Idaho - Limits for Air Contaminants", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - California Proposition 65 - Reproductive Toxicity", "US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US EPA Carcinogens Listing", "US - Oregon Permissible Exposure Limits (Z-2)","US - Oregon Permissible Exposure Limits (Z-1)","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","US - Michigan Exposure Limits for Air Contaminants","US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL):

Chemwatch: 5184-02 Page 11 of 11 Issue Date: 28/05/2015 Version No: 4.1.1.1

#### **Premium Cavity Fluid**

Print Date: 01/06/2015

Mutagens", "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 - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US - Alaska Limits for Air Contaminants", "US NIOSH Recommended Exposure Limits (RELs)", "US OSHA Carcinogens Listing", "US -Washington Permissible exposure limits of 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 OSHA Permissible Exposure Levels (PELs) - Table Z2", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "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 - Minnesota Permissible Exposure Limits (PELs)", "US - California Proposition 65 - Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Idaho - Acceptable Maximum Peak Concentrations", "US ACGIH Threshold Limit Values (TLV)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US OSHA Permissible Exposure Levels (PELs) - Table Z1", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens"

#### glutaraldehyde(111-30-8) is found on the following regulatory lists

"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Michigan Exposure Limits for Air Contaminants", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US - Alaska Limits for Air Contaminants", "US NIOSH Recommended Exposure Limits (RELs)", "US - Washington Permissible exposure limits of air contaminants", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "US - Minnesota Permissible Exposure Limits (PELs)","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US ACGIH Threshold Limit Values (TLV)","US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)","US Toxic Substances Control Act (TSCA) Chemical Substance Inventory'

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Υ
China - IECSC	Υ
Europe - EINEC / ELINCS / NLP	Υ
Japan - ENCS	Y
Korea - KECI	Υ
New Zealand - NZIoC	Y
Philippines - PICCS	Υ
USA - TSCA	Υ
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

# Ingredients with multiple cas numbers

Name	CAS No
ethylene dichloride	107-06-2, 1300-21-6, 52399-93-6
formaldehyde	112068-71-0, 50-00-0, 8005-38-7, 8006-07-3, 8013-13-6

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

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

www.chemwatch.net

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

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