












EMERGENCY NUMBERS:

 (USA) CHEMTREC : 1(800) 424-9300 (24hrs)
 (CAN) CANUTEC : 1(613) 996-6666 (24hrs)
 (USA) Anachemia : 1(518) 297-4444
 (CAN) Anachemia : 1(514) 489-5711

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: B-3 E D-1A D-2A		TDG CLASS: 3 8 PIN: UN1198 PG: III
   	    	 

Section I. Product Identification and Uses

Product name	FORMALDEHYDE	CI#	Not available.
Chemical formula	Not applicable.	CAS#	50-00-0
Synonyms	Methylene oxide, AC-4553, AC-4554, 41860, 41883	Code	AC-4553
Supplier	Anachemia Canada. 255 Norman. Lachine (Montreal), Que H8R 1A3	Formula weight	Not applicable.
		Supersedes	
Material uses	For laboratory use only.		

Section II. Ingredients

Name	CAS #	%	TLV
1) FORMALDEHYDE	50-00-0	30-40	Exposure limits: ACGIH Ceiling limit 0.3 ppm (0.37 mg/m ³):
2) METHANOL	67-56-1	5-15	Exposure limits: ACGIH TWA 200 ppm (262 mg/m ³) (skin); STEL 250 ppm (328 mg/m ³) (skin)
3) WATER	7732-18-5	Balance	Not established by ACGIH

Toxicity values of the hazardous ingredients

FORMALDEHYDE:
 ORAL (LD50): Acute: 100 mg/kg (Rat). 42 mg/kg (Mouse). 260 mg/kg (Guinea pig).
 ORAL (LDLo): Acute: 108 mg/kg (Woman).
 DERMAL (LD50): Acute: 270 ul/kg (Rabbit).
 VAPOR (LC50): Acute: 203 mg/m³ (Rat). 92 mg/m³ (Mammal). 454 mg/m³ (Mouse) (4 hour(s)).

METHANOL:
 ORAL (LD50): Acute: 7300 mg/kg (Mouse). 14200 mg/kg (Rabbit).
 DERMAL (LD50): Acute: 15800 mg/kg (Rabbit).
 VAPOR (LC50): Acute: 64000 ppm (Rat) (4 hour(s)).

Section III. Physical Data

Physical state and appearance / Odor	Clear, colorless liquid with strong formaldehyde odor.
pH (1% soln/water)	2.8-4.0 (25°C) (37% Solution)
Odor threshold	0.8-1 ppm
Percent volatile	100% (V/V)
Freezing point	Insoluble polymer gradually forms.
Boiling point	90 to 100°C
Specific gravity	1.08 to 1.0975 (Water = 1)
Vapor density	0.62 to 1.04 (Air = 1)
Vapor pressure	~40 mm of Hg (@ 39°C)
Water/oil dist. coeff.	Not available.
Evaporation rate	2.1(n-Butyl acetate = 1) (Methanol).
Solubility	Miscible in water.

Section IV. Fire and Explosion Data

Flash point	CLOSED CUP: 50 to 78°C
Flammable limits	LOWER: 7% (For formaldehyde gas.) UPPER: 73% (For formaldehyde gas.)
Auto-ignition temperature	299°C (For formaldehyde gas.)
Fire degradation products	Oxides of carbon (CO, CO ₂).
Fire extinguishing procedures	Use DRY chemical, carbon dioxide, alcohol-resistant foam or water spray. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out.
Fire and Explosion Hazards	Combustible liquid. Vapor may travel considerable distance to source of ignition and flash back, eliminate all sources of ignition. Vapor forms explosive mixture with air. Container explosion may occur under fire conditions or when heated. Contact with oxidizers may cause fire and/or explosion. Sensitive to static discharge. The sensitivity to impact is not available. Emits toxic fumes under fire conditions.

Section V. Toxicological Properties

Routes of entry	Inhalation and ingestion. Eye contact. Skin contact. Skin absorption.
Effects of Acute Exposure	May be fatal by ingestion, inhalation, or by skin absorption. Corrosive. Severe lachrymator. Target organs: central nervous system, liver, kidneys, spleen, eyes, skin, gastrointestinal system, respiratory system, lungs, reproductive system, peripheral nervous system, pancreas. 20 ppm (FORMALDEHYDE) is immediately dangerous to life or health.
Eye	Vapors causes tearing and severe irritation. Liquid causes severe burns. Eye contact can result in corneal damage or blindness. IRRITATION: EYE-RABBIT 750 ug/24H SEVERE.
Skin	Causes severe burns. Prolonged and repeated contact causes hardening or tanning effect. May cause allergic dermatitis. Liquid can be absorbed in toxic amounts through intact skin (massive skin contact can cause visual impairment and death). IRRITATION: SKIN-RABBIT 2 mg/24H SEVERE.
Inhalation	Highly toxic and corrosive. Vapors are extremely irritating to the nose, throat, lungs and mucous membranes. Bronchitis, bronchopneumonia, pulmonary edema and chemical pneumonitis may occur. Prolonged exposure may result in more severe irritation and tissue damage. Methanol can cause central nervous system depression (signs and symptoms may include headache, dizziness, nausea, vomiting, drowsiness and incoordination), coughing, chest pain and dyspnea. Can affect the optic nerve resulting in blindness. Can cause liver, kidney, and lung damage. See ingestion and chronic effects.
Ingestion	Highly toxic. Vapors, mists, and liquid is corrosive to the mouth and throat and stomach. Swallowing the liquid inflames the tissues, causes severe abdominal pain, nausea, vomiting, hematuria, proteinuria, anuria, acidosis, and possible loss of consciousness. Methanol can affect the optic nerve resulting in blindness. See inhalation and chronic effects.

Section V. Toxicological Properties

Effects of Chronic Overexposure Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancers. Based on animal data and limited epidemiological evidence, NTP, IARC and OSHA have listed formaldehyde as a probable human carcinogen. Possible reproductive disorders from prolonged exposure (embryotoxic). Mutagen. Passes through the placental barrier in animal. May cause sensitization by inhalation (asthma) and skin contact (dermatitis). Can cause central nervous system depression. May cause damage to the central nervous system, respiratory system, lungs, eyes, skin, gastrointestinal tract, liver, spleen, and kidneys. Repeated or prolonged exposure to the substance can produce target organs damage.

Section VI. First Aid Measures

Eye contact Immediate first aid is needed to prevent eye damage. IMMEDIATELY flush eyes with copious quantities of water for at least 20 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention. DO NOT use an eye ointment.

Skin contact Immediate first aid is needed to prevent skin damage. Immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash contaminated clothing before reusing.

Inhalation Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.

Ingestion If conscious, wash out mouth with water. DO NOT induce vomiting. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus.

Section VII. Reactivity Data

Stability Stable. Conditions to avoid: heat, sparks and flame, temperatures below 20°C.

Hazardous decomp. products Not available.

Incompatibility May react violently with: acids, alkalis, anhydrides, isocyanates, urea, phenol, oxidizing agents, oxides, organic oxides, reducing agents, ammonia, aniline, magnesium carbonate, performic acid, alkali metals, amines, hydrogen peroxide, nitromethane, nitrogen dioxide, perchloric acid, perchloric acid-aniline mixtures, bases, monomers, water reactive materials, magnesium carbonate hydroxide.

Reaction Products Reaction with hydrochloric acid may form bis-chloromethyl ether which is a confirmed human carcinogen according to ACGIH and carcinogenic to humans according to IARC. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

FORMALDEHYDE

page 4/4

Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.
Spill and leak	Evacuate and ventilate the area. Stay upwind: Keep out of low areas. Eliminate all sources of ignition. Dyke the area with sand or a natural barrier. Absorb on sand or vermiculite and place in a closed container for disposal. Use non-sparking tools. Transport outdoors. Wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material. Runoff to sewer may create fire or explosion hazard.
Waste disposal	According to all applicable regulations. Harmful to aquatic life at low concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep container tightly closed. Manipulate under an adequate fume hood. Take precautionary measures against electrostatic discharges. Ground the container while dispensing. Ground all equipment containing material. Use only explosion proof equipment. Use non-sparking tools. Watch for accumulation in low confined areas. Do not use pressure to dispense. Storage temperature depends on methanol content and should be controlled to avoid precipitation or vaporization. Low temperature storage results in formation of paraformaldehyde, while high temperature storage produces formic acid. Keep away from direct sunlight or strong incandescent light. Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling.

Section IX. Protective Measures

Protective clothing	Splash goggles. Impervious gloves, apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus. Have available and use as appropriate: face shields, rubber suits, aprons, and boots. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.
Engineering controls	Use only in a chemical fume hood to keep airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Do not use in unventilated spaces.

Section X. Other Information

Special Precautions or comments	Combustible liquid! Corrosive! Highly toxic! Carcinogen! Mutagen! Sensitizer! Embryotoxic! Risk of serious damage to eyes. Lachrymator. Possible risks of irreversible effects. Readily absorbed through skin. Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Keep away from heat, sparks and flame. Use non-sparking tools. Handle and open container with care. Container should be opened only by a technically qualified person. Synergistic materials: Alcohols may interact synergistically with chlorinated solvents (example: carbon tetrachloride, chloroform, bromotrichloromethane), dithiocarbamates (example: disulfiram), dimethylnitrosamine and thioacetamide. Formaldehyde: ethyl acetate. RTECS NO: LP8925000 (Formaldehyde). RTECS NO: PC1400000 (Methanol).
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NFPA

Prepared by MSDS Department/Département de F.S..

Validated 10-Oct-2006

Telephone# (514) 489-5711

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