

Revision Date: September 1, 2004

1. Identification of Product and Manufacturer

Product Name: FORMALDEHYDE SOLUTIONS

Manufacturer: Perstorp Polyols, Inc.
600 Matzinger Road
Toledo, Ohio 43612
(419) 729-5448
800-537-0280

Emergency Telephone Number:
Transportation:
CHEMTREC 1-800-424-9300

2. Composition/Information on Ingredients

Component	wt %	CAS Registry No.
Formaldehyde	22 - 56 %	50-00-0
Methanol	1 - 15%	67-56-1
Water	42 - 77%	7732-18-5

Chemical Family: ALDEHYDE
Trade Name: FORMALIN
Formula: CH₂O

3. Hazards Identification

Emergency overview

	HMIS	NFPA
Health	3	3
Flammability	2	2
Reactivity	0	0

Potential health effects

Inhalation (breathing): Harmful if inhaled.
OSHA PEL: 0.75 ppm, 0.92mg/m³, 8 Hr. TWA (Formaldehyde)
200 ppm, 260 mg/m³ - 8 Hr TWA – Skin (Methanol)

ACGIH TLV: Ceiling: 0.3 ppm, 0.37 mg/m³, A2 (Formaldehyde)
200 ppm, 262 mg/m³ Hr TWA (Methanol)

Skin contact: Harmful if absorbed through skin caused general tissue damage.
Methanol liquid and vapor can penetrate skin and mucous membranes. Skin contact should be avoided.

Eye contact: Causes eye burns.

Ingestion (swallowing): May be fatal or may cause blindness.

Carcinogenicity

Formaldehyde Listed as a carcinogen on the following:
IARC, NTP, OSHA, ACGIH.
Listed on IARC as Group 1 human carcinogen for rare nasopharyngeal cancer in humans

4. First Aid Measures

- Eye contact: Flush eyes immediately with plenty of water (15 minutes), call a physician.
- Skin contact: Flush skin immediately with plenty of water (15 minutes), remove contaminated clothing, call a physician.
- Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult use oxygen.
- Ingestion: Since formaldehyde is highly corrosive, vomiting after oral ingestion should not be induced. Give milk or water by mouth if the patient is alert and responsive. An activated carbon slurry may also be used. Call a physician.

5. Fire Fighting Measures

Flash Point: 54-88°C (129-190°F)

Low Methanol Grade	Deg C	Deg F	High Methanol Grade	Deg C	Deg F
LM 56	73	163	HM 53-7	58	137
LM 52	76	168	HM 46-11	54	129
LM 50	77	171	HM 44-7	65	149
LM 45	80	176	HM 37-7	68	154
LM 44	80	176	HM 37-11	61	142
LM 40	82	180	HM 37-13	58	137
LM 37	83	182	HM 37-15	55	132
LM 22	88	190	HM 27-12	65	149
			HM 27-7	72	161
			HM 49-6	73	164
			HM 48-8	64	148
			HM 48-9	62	144

Extinguishing Media: Water Spray. Foam. Dry Chemical. Carbon Dioxide (CO₂).

Special Fire Fighting Procedures: Cool container with water spray or fog to help absorb escaping fumes. Evacuate affected area. Stay upwind and avoid contact with smoke and fumes. If contact cannot be avoided, wear personal protective equipment (See "Personal Protective Equipment section".) including chemical splash goggles and air mask with breathing air supply. Run-off from fire control may cause pollution.

6. Accidental Release Measures

Spill, Leak, or Release: Review FIRE AND EXPLOSION HAZARDS and SAFETY PRECAUTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Wear self-contained breathing apparatus and chemical-proof suit. Soak up small spills with earth, sand, or other noncombustible absorbent material and remove in covered metal containers. Dike large spills and neutralize with dilute (5%) solutions of ammonia, sodium sulfite, or sodium bisulfite and remove. Flush area with plenty of water. Comply with Federal, State, and local regulations on reporting releases.

7. Handling and Storage

Keep container closed. Keep away from heat and flame. Store in a heated tank or warm room, above minimum storage temperature for grade handled.

8. Exposure Controls/Personal Protection

Splash goggles; full-length face shield; neoprene, nitrile, butyl, or polyvinyl gloves; coveralls with long sleeves. If inhalation exposure, wear respiratory protection.

9. Physical and Chemical Properties

Boiling Point	94.3 to 100°C (201 to 212°F) at 760 mm Hg.
Vapor Pressure	23-26 mm Hg at 25°C (77°F) 39-42 mm Hg at 37.8°C (100°F)
Vapor Density	~1 (Air = 1.0)
Evaporation Rate	>1 (Butyl Acetate = 1.0) (Similar to water)
Water Solubility	100 WT %
pH	2.0-4.0
Odor	Pungent
Form	Liquid
Color	Clear, colorless (turns milky on cooling)
Specific Gravity	1.08-1.13
Melting Point	Polymerizes and separates below 0-67° C. (32-153° F.)

10. Reactivity

Instability: No known hazardous instability.

Incompatibilities: Incompatible with strong oxidizing agents, caustics, strong alkalis, isocyanates, anhydrides, oxides, and inorganic acids. Formaldehyde reacts with hydrochloric acid to form the potent carcinogen, bis-chloromethyl ether. Formaldehyde reacts with nitrogen dioxide, nitromethane, perchloric acid and aniline or peroxyformic acid to yield explosive compounds. A violent reaction occurs when formaldehyde is mixed with strong oxidizers.

11. Toxicological Information

Formaldehyde	
Oral, rats: LD50 = 800 mg/kg	Inhalation, rats: LD50 = 590 mg/kg
Oral, mouse: LD50 = 42 mg/kg	Inhalation, mouse: LCLo = 900 mg/kg
Inhalation, rats: LCLo = 250 mg/kg	

12. Ecological Information

Persistence/degradability	The product is readily biodegradable.
BOD7	0.3 g/g
COD	0.4 g/g
TOC	0.15 g/g

Ecotoxicity	LC50: 10 - 100 mg/l, 96 hours [Fish].
	EC50: 2 mg/l, 48 hours [Daphnia].
	IC50: 0.4 mg/l, 24 hours [Algae].

Bioaccumulative potential: Bioaccumulation in aquatic organisms is not expected.

13. Disposal Considerations

Cleaned up material is an RCRA hazardous waste. Comply with Federal, State, and local regulations.

14. Transportation Information**DOMESTIC SURFACE BULK (DOT)**

	FLASH PT <141 F	FLASH PT >141 <200 F
Proper Shipping Name:	Formaldehyde, solutions, flammable	Formaldehyde, solutions
Hazard Class:	3 (8)	8
UN/NA Number:	UN 1198	UN 2209
Packing Group:	III	III
Placards:	Flammable	Corrosive

DOMESTIC NON-BULK SURFACE (DOT)

	FLASH PT <141 F	FLASH PT >141 <200 F
Proper Shipping Name:	Formaldehyde, solutions	Formaldehyde, solutions
Hazard Class:	3 (8)	8
UN/NA Number:	UN 1198	UN 2209
Labels:	Flammable Liquid, Corrosive	Corrosive

IMO BULK AND NON-BULK

	FLASH PT <141 F	FLASH PT >141 F
Proper Shipping Name:	Formaldehyde, solutions, flammable	Formaldehyde, solutions
Hazard Class:	3 (8)	8
UN/NA Number:	UN 1198	UN 2209
Packing Group:	III	III
Labels:	Flammable Liquid, Corrosive	Corrosive

15. Regulatory Information

OSHA Status: Review the OSHA Formaldehyde Standard (29 CFR 1910.1048) for worker training, workplace monitoring and medical surveillance requirements.

SARA 313 Supplier Notification: This product contains the following EPCRA Section 313 chemicals subject to reporting requirements under section 313 of the Emergency Planning & Community Right to Know Act of 1986 (40 CFR 372).

	<u>Percent by weight</u>
Formaldehyde (CAS 50-00-0)	22 - 56 %
Methanol (CAS 67-56-1)	1 - 15%

LISTS:

SARA Extremely Hazardous Substance	Yes
CERCLA Hazardous Material (RQ – 100 lbs. (100%))	Yes
TSCA Registry	Yes

CANADIAN WHMIS CLASSIFICATIONS:

B-3; D-1A; D-2A; D-2B

16. Other Information

Reason for issue or revision: Revised Section 3 – Carcinogenicity Information.

Prepared by:	A. Sloma
Title:	Env. Health & Safety Mgr.
Approval Date:	September 1, 2004

To the best of our knowledge, the information contained herein is accurate. However, Perstorp Polyols, Inc. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.