



MATERIAL SAFETY DATA SHEET

AQUEOUS FORMALDEHDYE SOLUTION (AF- 37 - 40)

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: AF-37

Synonym: Formalin

Empirical Formula: HCHO

RTECS: LP 8925000

UN No : 2209 , Corrosive Liquid

CAS #: 50-00-0 Formaldehyde

Hazchem Code: 2 Z

EINECS : 200-001- 8

Contact Information:

Methanol Chemicals Company (CHEMANOL)

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SECTION 2: COMPOSITION AND INFORMATION ON MAJOR INGREDIENTS

Composition:

Name	CAS#	% by weight
Formaldehyde	50-00-0	37 - 40
Methanol[METHYLALCOHOL]	67-56-1	3 - 10

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Hazardous in cases of eye contact, ingestion as it is irritant and corrosive. Upon skin contact (irritant, sensitizer, penetrant). Causes digestive and respiratory tract burns. Target Organs: Kidneys, central nervous system, liver, eyes, and skin. Repeated or prolonged exposure to the substance can produce target organs damage. Severe over-exposure can result in death.

POTENTIAL HEALTH EFFECTS

Eye: Causes eye burns. Inflammation of the eye is characterized by redness, watering, and itching.

Skin: Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May cause liver and kidney damage. May cause burns to the digestive tract. May cause central nervous system depression. May be fatal or cause blindness if swallowed.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause asthmatic attacks due to allergic sensitization of the respiratory tract.

Chronic: There is evidence that formaldehyde causes nasopharyngeal cancer in humans, cancer of the nasal cavity, para-nasal sinuses and leukemia. Repeated exposure may cause skin discoloration and thickening and nail decay.

SECTION 4: FIRST AID MEASURES

Eyes: Flush eyes immediately with plenty of water for at least 15 minutes until no evidence of chemical remains, keeping eyelids open. Remove any contact lenses. Do NOT allow victim to rub eyes or keep eyes closed. Continue irrigating with normal saline until pH has returned to normal (30 – 60 min). Get medical aid immediately.

Skin: Immediately flush skin with plenty of running water until no evidence of chemical remains (for at least 15 minutes) while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Get medical aid if irritation develops or persists. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water and activated charcoal to dilute, inactivate or absorb ingested formaldehyde. Any organic material will inactivate formaldehyde. Do not use gastric lavage or induce vomiting. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Treat symptomatically & supportively. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

SECTION 5: FIRE AND EXPLOSION DATA

General Information:

Moderately flammable as 37% solution. Vapors can travel to a source of ignition and flash back. Toxic vapors are generated during decomposition in fire (e.g. Formic Acid). Keep upwind. Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. CAUTION: MAY BURN WITH NEAR

INVISIBLE FLAME (Methyl alcohol). Reaction with peroxide, nitrogen dioxide, and perm formic acid can cause an explosion. (Formaldehyde gas)

Auto ignition Temperature : ~430°C
Flash Point (closed cup) : 50°C - 85°C
Explosive Limits: Lower : 6.0 % Upper: 36.5% (Methyl alcohol)
Explosive Limits : Lower : 7.0 vol. % Upper: 73.0 vol. % (Formaldehyde gas)
NFPA Rating (estimated) : Health: 3; Flammability: 2; Instability: 0

Extinguishing Media:

SMALL FIRE: Use dry chemical powder, carbon dioxide, etc.

LARGE FIRE: Use alcohol-resistant foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto-ignition or explosion. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

SECTION 6: ACCIDENT RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Flammable & Poisonous liquid. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all sources of ignition and use only spark-proof tool. A vapor suppressing foam may be used to reduce vapors. Provide ventilation. Absorb spill with dry inert material (e.g. vermiculite, sand or earth), then place in suitable container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate. Avoid runoff into storm sewers and ditches which lead to waterways.

SECTION 7: HANDLING AND STORAGE

Handling: Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mist. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Empty containers retain product residue (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Use only with adequate ventilation.

Storage: Packaging in 30 litre HDPE canisters/ polycans (32.5 kgs net.), 220 litre HDPE drums(225 kgs. net.), IBCs and 20000 – 25000 litre IMO-1 type isothermal tank containers (20-25 MT) .Storable under controlled temperature conditions in a dry, well-ventilated area away from incompatible substances and all possible sources of ignition (spark or flame). Keep container tightly closed and sealed until ready for use.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. See 29CFR 1910.1048 for regulatory requirements pertaining to all occupational exposures to formaldehyde. Ventilation equipment must be explosion proof. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA – Final PELs
Formaldehyde	0.3 ppm Ceiling	0.016 ppm TWA; 20 ppm IDLH	0.5 ppm Action Level; 0.75 ppm TWA; 2 ppm STEL (Irritant and potential cancer hazard - see 29 CFR 1910.1048)
Methyl alcohol	200ppmTWA;250 ppm STEL; Skin – potential significant contribution to overall <i>exposure</i> by the cutaneous route	200 ppm TWA; 6000 ppm IDLH	200 ppm TWA; 260 mg/m ³ TWA

OSHA Vacated PELs: Formaldehyde: 3 ppm TWA (unless specified in 1910.1048) Methyl alcohol: 200 ppm TWA; 260 mg/m³

PERSONAL PROTECTIVE EQUIPMENT:

Eyes: Wear chemical splash goggles and face shield as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear protective gloves, apron & boots.

Clothing: PVC, Nitrile, Neoprene, Natural rubber or any other type of glove, apron or splash suit.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Physical state : Clear aqueous solution

Color : (APHA scale) 5 – 10 max

Odor : Pungent

Taste : Not available.

Molecular weight: 30.03

pH : 2.8 – 3.0

Specific Gravity: 1.08 @ 25 °C

Vapor Pressure: 67 – 88 mm Hg at 20°C

Flash Point (closed cup): 50°C - 85°C

Solubility in water: Complete

Boiling Point: 91 – 101° @ 760 mm Hg

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperature and pressure. But on exposure to very low temperatures appearance may become cloudy due to formation of a precipitate of trioxymethylene, which slowly oxidizes to formic acid in the air.

Conditions to Avoid: Ignition sources, excess heat, incompatibles.

Incompatibilities with Other Materials: Inorganic Acids, Strong Alkali, Phenols and strong oxidizers.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS: CAS# 50-00-0: LP8925000

Routes of Entry:

Absorbed through skin, Dermal contact, Eye contact & Inhalation.

Toxicity to Animals:

Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde)
Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol).
Draize test, rabbit, skin: 2 mg/24H Severe; (Formaldehyde)
Inhalation, mouse (LC50):505 mg/m3/2H; (Formaldehyde)

Epidemiological studies and case reports indicate an excess occurrence of a number of cancers in rat, but evidence for involvement for formaldehyde is strongest for nasal and nasopharyngeal cancer.

Toxicity to Human (Chronic Effects):

CARCINOGENIC EFFECTS: (Formaldehyde) –

ACGIH: A2 - Suspected Human Carcinogen

NTP: Suspect carcinogen

IARC: Group 2A (probable)

MUTAGENIC EFFECTS: Exposure to Formaldehyde & Methanol may affect genetic material.

TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. [Formaldehyde].

DEVELOPMENTAL TOXICITY: Not available.

REPRODUCTIVE EFFECTS (Formaldehyde): Studies produced a weak association (limited evidence) between adverse human female reproductive effects and occupational exposure.

SECTION 12: ECOLOGICAL INFORMATION

Formaldehyde:

It is harmful to aquatic life in very low concentrations.

It may be dangerous if it enters water intakes.

Notify local health & wildlife officials and operators of nearby water intakes.

Aquatic Toxicity : 25 mg/1/96 hours channel catfish TLM in fresh H2O.

Algae and some invertebrates seem to be more susceptible to formaldehyde, however responses differ widely:

Bacteria (E.Coli): 1mg/L

Algae (Scenedesmus): 0.3-0.5 mg/L

Methanol:

Aquatic Toxicity:

Trout LC50 (48 hrs): 8000 mg/L

SECTION 13: DISPOSAL CONSIDERATION

Waste must be disposed of in a manner consistent with local environmental control regulations or USEPA guidelines using a registered waste disposal contractor.

SECTION 14: TRANSPORT INFORMATION

US DOT

Shipping Name : Aqueous Formaldehyde Solution
UN No. : 2209
Hazard Class : 8- Corrosive
Packaging Group : III
IMDG Code (Version 1994) : Page 8176-1
Subsidiary risk : None allocated
Haz-chem Code : 2Z

SECTION 15: REGULATORY INFORMATION

HMIS (U.S.A)

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: G

NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A):

Health: 3

Flammability: 2

Reactivity: 0

US Federal

TSCA

CAS# 50-00-0 is listed on the TSCA Inventory

SARA TITLE III (Superfund Amendment & Reauthorization Act):

Section 302 & 304 - Extremely Hazardous Substance List (40 CFR 355) - Listed

Section 313 - Toxic Chemicals Listing (40 CFR 372.65) - Listed as a toxic chemical

CERCLA (Comprehensive Environmental Response, Compensation & Liability Act):

Section 102(A) - Hazardous Substances (40 CFR 302.4) - Listed Reportable Quantity - 1,000 lbs

Health Hazard	3
Fire Hazard	2
Physical Hazard	0
Personal Protection	G



European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 10 Flammable.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 34 Causes burns

R 40 Limited evidence of a carcinogenic effect.

R 43 May cause sensitization by skin contact.

Safety Phrases:

S 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S 51 Use only in well-ventilated areas.

WGK (Water Danger/Protection)

CAS# 50-00-0: 2

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Poison Schedule(Australia): S6

SECTION 16: OTHER INFORMATION

References: Not available.

Other Special considerations: Not available.

Last Updated: August 2014.

Information Contact: Technical Services Department.

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