

**COLUMBUS CHEMICAL INDUSTRIES INC.**

N4335 TEMKIN ROAD  
COLUMBUS, WISCONSIN 53925  
(414) 623-2140  
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**MATERIAL SAFETY DATA SHEET  
FOR INDUSTRIAL USE ONLY**

DESCRIPTION: FORMALDEHYDE 37% M11%  
PRODUCT TYPE: FORMALDEHYDE SOLUTION  
APPLICATION: GENERAL PURPOSE

CUR ISS 11-FEB-92

The OSHA hazard communication standard 29 CFR 1910.1200 requires that the information contained on these sheets be made available to your workers. Instruct your workers to handle this product properly. For industrial use only.

**SIGNAL WORD**

**WARNING** This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

**CHEMICAL HAZARD RATING**

HEALTH = 3 (high)  
FIRE = 2 (moderate)  
REACTIVITY = 1 (slight)  
CHRONIC = \*

**29CFR 1910.1200 HAZARDOUS INGREDIENTS/REPORTED HEALTH EFFECTS**

The ingredients listed below have been associated with one or more of the listed immediate and/or delayed (\*) health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING OR HANDLING, READ AND UNDERSTAND THE MSDS.

CAS/REGISTRY NO.	MATERIAL DESCRIPTION	% RANGE
50-00-0	*FORMALDEHYDE	30-50

**POTENTIAL CANCER HAZARD**

Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancers. Such animal data and limited epidemiological evidence indicates that formaldehyde is a probable human carcinogen.

May cause allergic skin reaction. Some reports suggest that formaldehyde may cause asthma and that preexisting respiratory and skin disorders may be aggravated by exposure.

OSHA has identified 0.5 ppm as the "Action Level", 29CFR 1910.1048. Please refer to the OSHA Standard for guidance applicable to your specific operations.

OSHA has stated that a concentration of 100 ppm is immediately dangerous to life and health and that the odor threshold for formaldehyde is 0.8-1 ppm, OSHA Occupational Exposure to Formaldehyde, 52 Fed. Reg. 46168, et seq.

ACGIH TLV: 1 PPM (1.2 MG/M3) TWA; 2 PPM (2.5 MG/M3) 15 MIN STEL  
OSHA PEL: 1 PPM (1.2 MG/M3) TWA; 2 PPM (2.5 MG/M3) 15 MIN STEL  
NIOSH DOCUMENT NUMBER: 77-126  
OTHER: OSHA PEL: 29CFR 1910.1048

67-56-1	*METHANOL	10-30
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**NOTE REVISED OSHA PEL**

Possible reproductive disorders from prolonged exposure.  
May cause lung damage based on animal data. Preexisting respiratory disorders may be aggravated by exposure.

May cause liver damage based on animal data.  
May cause kidney damage based on animal data.  
May cause blindness if swallowed.

Can cause central nervous system depression. Signs and symptoms may include headache, dizziness, nausea, vomiting, unconsciousness and asphyxiation. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

--See Footnote C.

ACGIH TLV: SKIN 200PPM (262 MG/M3) TWA; 250PPM (328 MG/M3) STEL  
OSHA PEL: 200 PPM (260 MG/M3) TWA; 250 PPM (310 MG/M3) STEL  
NIOSH DOCUMENT NUMBER: 76-148

Footnote C: As of the date of issuance of this document, this material has not been listed by NTP, IARC or OSHA as a carcinogen.

**PHYSICAL DATA**

FORM ASSAY, SULFITE	37.0%
METH IN FORMAL BY PYCNO	11.0%
STG. LIFE	30 DAYS @ 60F
APPEARANCE	CLEAR LIQUID
COLOR	COLORLESS
ODOR	PURGENT
Dot 49CFR-173.115 COMBUSTIBLE LQD	RQ FORMALDEHYDE/METHANOL

**PHYSICAL DATA continued**

BOILING POINT	100C
EVAPORATION RATE	SIMILAR TO WATER
FLASH POINT	130F (54C)
FREEZING POINT	SEE STORAGE SECTION
AUTOIGNITION TEMPERATURE	420C
LOWER EXPLOSION LIMIT	7%
SOLUBILITY IN WATER	INFINITE
SPECIFIC GRAVITY	1.08
UPPER EXPLOSION LIMIT	70%
VAPOR DENSITY	1 (AIR = 1)
VAPOR PRESSURE	40MM HG @ 39C

**IMMEDIATE HEALTH HAZARD DATA**

**SKIN ABSORPTION:** May be harmful if absorbed through skin.  
**INGESTION:** Not expected to be harmful under normal conditions of use.  
If accidentally swallowed, burns or irritation to mucous membranes, esophagus or GI tract can result.  
Ingestion may cause blindness.  
Can cause central nervous system depression.  
**INHALATION:** May be harmful if inhaled. Liquid or vapor may cause irritation of nose, throat and lungs. Can cause central nervous system depression.  
**SKIN:** Causes irritation.  
**EYES:** Cause burns.

**HANDLING PRECAUTIONS**

**SKIN ABSORPTION:** Avoid contact with eyes, skin or clothing.  
**INHALATION:** Avoid breathing vapor. Use with adequate ventilation.  
**SKIN:** Avoid contact with skin.  
**EYES:** Do not put in eyes. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin, and clothing. Wash thoroughly after handling.

**EMERGENCY AND FIRST AID PROCEDURES**

**SKIN ABSORPTION:** In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse.  
**INGESTION:** If accidentally swallowed, dilute by drinking large quantities of water. Immediately contact poison control center or hospital emergency room for any other additional treatment directions.  
**INHALATION:** If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Call a physician.  
**SKIN CONTACT:** Flush skin with plenty of water. Remove contaminated clothing. Call a physician if irritation persists.  
**EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to insure water contact with entire surface of eyes and lids. Call a physician.

**FIRE AND EXPLOSION HAZARD DATA**

**COMBUSTIBLE.**  
Keep away from heat and flame. In case of fire, use water spray, dry chemical, "alcohol" foam or CO2. Use water to keep fire-exposed containers cool.

**REACTIVITY DATA**

Normally stable, but may become unstable at high temperatures.  
Hazardous polymerization:  
Will not occur.  
Incompatibilities:  
Reacts with many compounds. Reaction with phenol, strong acids or alkalis may be violent.  
Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen.  
Decomposition products may include:  
CO, CO2.

**CONTROL MEASURES**

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.

**ENGINEERING CONTROLS:** The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

**PERSONAL PROTECTION INFORMATION**

Where air contaminants can exceed acceptable criteria, use NIOSH/MSHA approved full facepiece respiratory protection equipment. Respirators should be selected based on the form and concentration of contaminants in air in accordance with OSHA 29CFR 1910.1048(g) Respiratory Protection, OSHA 29CFR 1910.134 or other applicable standards or guidelines.

Wear chemical splash goggles or some other type of complete protection for the eye if contact is likely. Wear protective (impervious) gloves as required to prevent skin contact. Where high concentrations of hazardous ingredients may be present, such as in an emergency, full body protection should be worn.

Other protective equipment: Eye wash fountain, safety shower. Reusable protective clothing should be cleaned and ventilated after any formaldehyde contamination.

See OSHA 29CFR 1910.1048(h) Protective Equipment and Clothing and OSHA 29CFR 1910.1048(i) Hygiene Protection for other specific requirements based on the form of formaldehyde, the conditions of use and the hazards to be prevented.

**SPILL OR LEAK PROCEDURES**

Eliminate all ignition sources.  
Large quantities: Enclose with diking material to prevent seepage into natural bodies of water. Small quantities: Soak up with absorbent material and remove to a chemical disposal area.

**WASTE DISPOSAL**

Recover free liquid. Absorb residue and dispose of according to local, state/provincial, and federal requirements.  
Empty container: May contain explosive vapors. DO NOT cut, puncture or weld on or nearby.

**STORAGE PRECAUTIONS**

Storage temperature depends on methanol content and should be controlled to avoid precipitation or vaporization. See technical bulletin for recommended storage temperatures. Remove plug slowly to relieve pressure.  
Formaldehyde solutions will start to precipitate paraformaldehyde if stored below their recommended storage temperatures making the freezing point difficult to determine.

**DOT CLASSIFICATION**

FORMALDEHYDE SOLUTION, COMBUSTIBLE LIQUID,  
UN 1198, RQ FORMALDEHYDE/METHANOL,  
METHAFORM.

PREVIOUS ISSUE: 19-APR-91 CURRENT ISSUE: 11-FEB-92

While Columbus Chemical Industries, Inc. believes that the data contained herein are factual, they are not to be taken as a warranty or representation for which Columbus Chemical Industries, Inc. assumes legal responsibility. They are offered solely for your consideration, investigation. Any use of these data and information must be determined by the user to be in accordance with the applicable Federal, State, and Local laws and regulations.

**SARA TITLE III SECTION 313  
AND 40 CFR PART 372  
TOXIC CHEMICAL NOTIFICATION SHEET**

**FORMALDEHYDE 37% M11%**

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

CAS Registry Number	Chemical Name	Pct. By Weight
50-00-0	FORMALDEHYDE	37.00
67-56-1	METHANOL	11.00

This Toxic Chemical Notification Sheet must not be detached from the Material Safety Data Sheet (MSDS). Any copying and redistribution of the MSDS shall include copying and redistribution of this notification sheet attached to copies of the MSDS subsequently redistributed.

PRINT DATE: 24-JUN-92 05:00 PM

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**MATERIAL SAFETY DATA SHEET**

**Hazards (NFPA)**  
4 = Extreme  
3 = High  
2 = Moderate  
1 = Slight  
0 = Least

Emergency Phones: CHEMTREC: 800-424-9300

June 20, 1991

**SECTION 1 — MATERIAL IDENTIFICATION**

**PRODUCT NAME:** Liquified Phenol — 90% **Formula:** C<sub>6</sub>H<sub>5</sub>OH + water  
**Other Designations:** Carboic Acid, Hydroxybenzene, Phenylic acid

**SECTION 2 — HAZARDOUS INGREDIENTS**

CAS NO.	PERCENT	PEL/TWA	CARCINOGEN (OSHA, NTP, IARC)
Phenol 108-95-2	90%	5 ppm (skin)	no

**SECTION 3 — CHEMICAL AND PHYSICAL PROPERTIES**

**Appearance:** water white liquid  
**Odor:** medicinal  
**pH:** neutral  
**Water Solubility:** n/av  
**Auto-ignition Temperature:** n/av  
**Boiling Pt:** >212°F  
**Freezing Point:** 55°F (12.6°C)  
**Spec. Gravity (H<sub>2</sub>O = 1):** 1.065  
**Vapor Press, mm Hg, 50°C:** n/av  
**Vapor Density (air = 1):** 3.24 (phenol)

**SECTION 4 — FIRE AND EXPLOSION HAZARDS**

**Flash Point (Op Cup):** 165°F (74°C) **Explosive Limits (Phenol):** Lower 1.7% Upper 8.6%  
**Extinguishing Media:** water fog, CO<sub>2</sub>, foam (alcohol), halogens, dry chemicals  
**Special Fire Fighting Procedures and Hazards:** Treat as combustible liquid. Vapors can be explosive if liquid is heated above its flash point. Keep unignited containers cool with water. Contaminated fire control waters may be corrosive, and should be diked or collected in ponds if possible, then disposed of properly. Use eye and skin protection and self-contained breathing apparatus.

**SECTION 5 — REACTIVITY INFORMATION**

**Stable:** X **Unstable:** **Precautions:** n/a  
**Incompatibility:** Alkyl benzene sulfonic acids, calcium hypochlorite.  
**Hazardous Decomposition Products:** CO<sub>2</sub>, CO, hydrocarbons (when burned)  
**Hazardous Polymerization Occurs:** **Does Not occur:** X

**SECTION 6 — HEALTH HAZARDS — PROTECTIVE MEASURES — FIRST AID**

**Inhalation:** Excessive or repeated inhalation of concentrations over the PEL can cause irritation, other symptoms, and death (see other medical information below).  
Wear NIOSH approved respirator or SCBA appropriate for concentration of phenol vapors or mist. Remove to fresh air. Use artificial respiration if needed.  
**Skin:** Corrosive. Pain numbness, whitening, and burns occur unless promptly removed. Readily absorbed. See Other Medical Information.  
Wear protective phenol-resistant gloves, clothing, boots, and/or head covering as needed to prevent exposure. Have convenient safety showers.  
Wash affected skin for 15 minutes with soap and water while removing contaminated clothing. Treat any burns.  
**Eyes:** Causes severe eye irritation, with possible damage and blindness.  
Wear splash- and dust-proof goggles. Have convenient eye-wash stations.  
Flush with water for 15 minutes. Get prompt medical attention.  
**Ingestion:** Irritating and corrosive to mouth and throat. Also see Other Medical Information.  
Avoid swallowing. Wear face shield if face contact is likely.  
Rinse mouth immediately. Drink large amounts of water. Do not induce vomiting, but if vomiting occurs drink more water. Do not give liquids to a very drowsy, convulsive, or unconscious person. Get medical attention immediately. See Other Medical information.  
**Other Medical Information:** Phenol is readily absorbed into body through inhalation, skin contact, and ingestion, particularly when in liquid solutions. When sufficient amounts are absorbed, the effects can be increased and irregular heart rate, low blood pressure, difficult breathing, cough, and skin discoloration. Death can occur in minutes, usually due to respiratory failure. Effects may be aggravated for persons with kidney or hepatic diseases.  
**IN ALL CASES: GET PROMPT MEDICAL ATTENTION IF EFFECTS OCCUR.**  
**Most likely routes of entry:** skin, eyes, inhalation.

**SECTION 7 — PRECAUTIONS FOR SAFE HANDLING AND USE**

**Spills and Leaks:** Remove all sources of ignition, and provide ventilation. Small spills: take up with absorbent and put in closed container. Large spills: dike around flow. Stop leak if possible. Do not flush residual liquid to ground if there is potential for surface or ground water pollution (use absorbents or remove soil to proper disposal). Do not flush to sewers. Personnel should wear eye, skin, and respiratory protection. RQ Phenol = 1000 lb. (= 1111 lb. of product).  
**Storage and Handling:** Store in closed containers in a cool, well-ventilated area away from heat or ignition sources. Do not heat above 140°F (60°C). Prohibit eating or smoking where phenol is being used or handled. Wear impervious clothing as needed to prevent exposure when transferring material from drum or bulk containers.  
**Waste Disposal:** In selecting the method of disposal, applicable local, state, and federal regulations should be consulted.  
**Empty Containers:** Do not cut or weld on empty containers, or expose them to ignition sources before thorough cleaning. Clean before disposal.