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.

**CHEMICAL HAZARD RATING**

- **HEALTH:** 3 (high)
- **FIRE:** 2 (moderate)
- **REACTION:** 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.

**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. **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, from air 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. **EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be kept 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 1910.148(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 (impermeable) 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 1910.148(h) Protective Equipment and Clothing and OSHA 29CFR 1910.148(h) Hygiene Protection for other specific requirements based on the form of formaldehyde, the conditions of use, and the hazards to be prevented.

SPIEL 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 is 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 chemicals 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

COLUMBUS CHEMICAL INDUSTRIES INC.
N4335 TEMKIN ROAD
COLUMBUS, WISCONSIN 53295
(414) 623-2140
FAX (414) 623-2577

MATERIAL DATA SAFETY SHEET

Hazard (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: Liquid phenol — 90%
Formula: C₇H₈O + water
Other Designations: Carboxyl Acid, Hydroxybenzene, Phenolic acid

CAS NO. PERCENT PEL/TLV CARCINOGEN
Phenol 106-99-2 90% 5 ppm (skin) no

SECTION 2 — HAZARDOUS INGREDIENTS

SECTION 3 — CHEMICAL AND PHYSICAL PROPERTIES

Appearance: water-white liquid
Odor: medicinal
pH: neutral
Water Solubility: n/a
Auto-Ignition Temperature: n/a

Boiling Pt: >212°F
Freezing Point: 69°F (12°C)
Spec. Gravity (H₂O = 1): 1.065
Vapor Press, mm Hg, 50°C: n/a
Vapor Density (air = 1): 3.24 (phenol)

SECTION 4 — FIRE AND EXPLOSION HAZARDS

Flash Point (Do Cu): 165°F (74°C)
Explosive Limits (Phenol): Lower 1.7% Upper 8.6%
Extinguishing Media: Water, fog, CO₂, 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 unventilated conditions cool with water. Contaminated fire control waters may be corrosive, and should be diluted or collected in ponds if possible. May be 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 benzenesulfonic acids, calcium hypochlorite
 Decomposition Products: CO₂, 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 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. 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. Wash face shield if face contact is likely.
Flush 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, difficulty 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 or surface. 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). Minimize exposure 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.