

Material Safety Data Sheets (MSDS)

- The manufacturer develops MSDS
- Occupier should demand to be issued MSDS
- Occupier should review the MSDS before using any new chemical.

MSDS Location



- MSDSs are required to be accessible by / occupier at all times.
- Don't necessarily have to be located in each lab (although it is a good idea)
- Employee need /ask supervisor where they are located for your area.

Example MSDS

FORMALDEHYDE

- What to look for and where on an MSDS for formaldehyde

Product Identification

MSDS <i>Material Safety Data Sheet</i>	24 Hour Emergency Telephone: 908-859-2151 CHEMTREC: 1-800-424-9300
	National Response in Canada CANUTEC: 613-996-6666
From: Mallinckrodt Baker, Inc. 222 Red School Lane Phillipsburg, NJ 08865	Outside U.S. and Canada Chemtrec: 703-527-3887
 	NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.
All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.	

1. Product Identification

Synonyms: Formaldehyde 37%; Formalin; Morbucid Acid;
Methylene Oxide; Methyl aldehyde

CAS No.: 50-00-0

Molecular Weight: 30.03

Chemical Formula: HCHO and CH₃OH in water

Product Codes:

J.T. Baker: 2105, 2106, 2107, 2108

Mallinckrodt: 5014, 5016

CAS number is a unique identifier for each chemical (like a Social Security Number). It eliminates confusion when there are numerous chemical synonyms

Composition/Information on Ingredients

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Formaldehyde	50-00-0	37%	Yes
Methyl Alcohol	67-56-1	10 - 15%	Yes
Water	7732-18-5	48 - 53%	No

It is important to know how much of each ingredient is present to help determine toxicity

A generic determination of the chemical's toxicity. Not supplied on all MSDS's

Hazards Identification

3. Hazards Identification

General overview of
chemicals risks

Emergency Overview

**POISON! DANGER! SUSPECT CANCER HAZARD.
MAY CAUSE CANCER.** Risk of cancer depends on level
and duration of exposure. **VAPOR HARMFUL.
HARMFUL IF INHALED OR ABSORBED THROUGH
SKIN. CAUSES IRRITATION TO SKIN, EYES AND
RESPIRATORY TRACT. STRONG SENSITIZER. MAY
BE FATAL OR CAUSE BLINDNESS IF SWALLOWED.
CANNOT BE MADE NONPOISONOUS.
FLAMMABLE LIQUID AND VAPOR.**

Hazards Identification

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)

Flammability Rating: 2 - Moderate

Reactivity Rating: 2 - Moderate

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

“SAF-T-DATA” is unique to JT Baker.

Color coding system on slide in Section 7 Handling/Storage

Hazards Identification

Potential Health Effects

The perception of formaldehyde by odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. This can lead to overexposure if a worker is relying on formaldehyde's warning properties to alert him or her to the potential for exposure.

Important information to know
signs and symptoms of
overexposure

Inhalation:

May cause sore throat, coughing, and shortness of breath. Causes irritation and sensitization of the respiratory tract. Concentrations of 25 to 30 ppm cause severe respiratory tract injury leading to pulmonary edema and pneumonitis. May be fatal in high concentrations.

Hazards Identification

Skin Contact:

Toxic. May cause irritation to skin with redness, pain, and possibly burns. Skin absorption may occur with symptoms paralleling those from ingestion. Formaldehyde is a severe skin irritant and sensitizer. Contact causes white discoloration, smarting, cracking and scaling.

Eye Contact:

Vapors cause irritation to the eyes with redness, pain, and blurred vision. Higher concentrations or splashes may cause irreversible eye damage.

Important information to know
signs and symptoms of
overexposure

Hazards Identification

Chronic Exposure:

Frequent or prolonged exposure to formaldehyde may cause hypersensitivity leading to contact dermatitis. Repeated or prolonged skin contact with formaldehyde may cause an allergic reaction in some people. Vision impairment and enlargement of liver may occur from methanol component. Formaldehyde is a suspected carcinogen (positive animal inhalation studies).

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function are more susceptible to the effects of the substance. In some persons, persons may have an allergic reaction to

You should know both acute and chronic health effects

First Aid Measures

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

If swallowed and the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Any organic material will inactivate formaldehyde. Keep affected person warm and at rest. Get medical attention immediately. If vomiting occurs, keep head lower than hips.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:

Monitor arterial blood gases and methanol levels after significant ingestion. Hemodialysis may be effective in formaldehyde removal. Use formic acid in urine and formaldehyde in blood or expired air as diagnostic tests.

Fire Fighting Measures

5. Fire Fighting Measures

Fire:

Flash point: 60C (140F) CC

Autoignition temperature: 300C (572F)

Flammable limits in air % by volume:

lel: 7.0; uel: 73

Flammable liquid and vapor! Gas vaporizes readily from solution and is flammable in air.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode when involved in a fire.

Fire Extinguishing Media:

Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:

In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

Accidental Release Measures

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

Handling/ Storage

7. Handling and Storage

Store in a tightly closed container. Protect against physical damage. Store in a cool, dry well-ventilated location, **away from any area where the fire hazard may be acute**. Outside or detached storage is preferred. **Separate from incompatibles**. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Wear special protective equipment for **maintenance break-in or where exposures may exceed established exposure levels**. **Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day**. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Exposure Controls/ Personal Protection

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- ~~Permissible Exposure Limit (PEL):~~

0.75 ppm (TWA), 2 ppm (STEL),
for formaldehyde

200 ppm (TWA) for methanol

-ACGIH Threshold Limit Value (TLV):

0.3 ppm Ceiling formaldehyde, Sensitizer, A2 Suspected Human Carcinogen

PEL is what is required by law.
ACGIH services as good guidance

If you suspect you are exceeding either of these levels methanol

Exposure Controls/ Personal Protection

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Will most likely be a lab
hood

Exposure Controls/ Personal Protection

Personal Respirators:

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with a formaldehyde cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Irritation also provides warning. For Methanol: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.