

# Material Safety Data Sheet

## General Information

## Pen-Fix

**Date Issued:** 6-1-95  
**Replaces:** 5-16-94

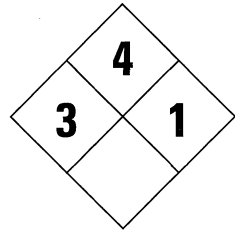
**Manufacturer:** Richard-Allan Scientific  
 225 Parsons Street  
 Kalamazoo, MI 49007  
 800 522 7270

**CHEMTREC:** 800 424 9300 For transportation emergencies

**Chemical Family:** Aldehyde and Alcohol

Pen-Fix

## Hazard Symbology



<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Reactivity</b>	<b>Specific Hazard</b>
4 Deadly	<b>Flash Points</b>	4 May detonate	ACID - Acid
3 Extreme danger	4 Below 73° F	3 Shock & heat may detonate	COR - Corrosive
2 Hazardous	3 Below 100° F	2 Violent chemical change	OXY - Oxidizer
1 Slightly hazardous	2 Above 100° F, not exceeding 200° F	1 Unstable if heated	P - Polymerization
0 Normal material	1 Above 200° F	0 Stable	▲ - Radioactive
	0 Will not burn		W - Use No Water

## Hazardous Ingredients

	CAS No.	PEL 8 hr. TWA	STEL	Agency
Formaldehyde	50-00-0	.75 ppm	2 ppm	OSHA, ACGIH
Ethanol	64-17-5	1000 ppm	—	OSHA, ACGIH
Isopropanol	67-63-0	400 ppm	500 ppm	OSHA, ACGIH
Methanol	67-56-1	200 ppm	250 ppm	OSHA, ACGIH
M.I.B.K.	108-10-1	50 ppm	75 ppm	OSHA, ACGIH

## Physical Data

**Appearance and Odor:** Clear, colorless liquid with characteristic odor.

**Boiling Point:** 76.7 - 98.9° C (170 - 210° F)

**Evaporation Rate:** 1.1 (Butyl Acetate = 1)

**Percent Volatile by Volume:** 100%

**Solubility in Water:** Complete

**Specific Gravity:** 0.889 @ 21° C (Water = 1)

**Vapor Density:** 1.5 (Air = 1)

**Vapor Pressure:** 38 mm Hg

## Spill, Leak and Disposal Procedures

**Emergencies:** If a spill of appreciable quantity occurs, leave the area quickly unless you have specific emergency duties. Do not touch spilled material. Designated person may stop the leak and shut off ignition sources if these procedures can be done without risk. Designated persons should isolate the hazard area and deny entry except for necessary people protected by suitable protective clothing and respirators adequate for the exposure. Use water spray to reduce vapors. Do not smoke, and prohibit all flames or flares in the hazard area.

**Occupational Spill:** Eliminate all sources of ignition. For small containers, place the leaking container in a well ventilated area. Take up small spills with absorbent material and place the waste into properly labeled containers for later disposal. For larger spills, dike the spill to minimize contamination and facilitate salvage or disposal. You may be able to neutralize the spill with sodium hydroxide or sodium sulfite. Your employer must comply with EPA rules regarding the clean-up of toxic waste and notify state and local authorities, if required.

**Waste Disposal:** Your employer must dispose of waste containing alcohol and formaldehyde in accordance with applicable local, state and federal laws (each has unique requirements) and in a manner that minimizes exposure of employees at the site and of the clean-up crew. Pen-Fix is considered to be a hazardous waste - Hazardous waste code D001.

## Shipping Information

**Storage Conditions:** Keep container closed. Keep away from heat and open flame. Store at room temperature: 15 - 30° C (59 - 86° F).

**Transportation:** DOT shipping name is 'Flammable Liquid, N.O.S.'. DOT hazard class is '3'.

**Shipping Containers:** Drums, Bottles.

Richard-Allan Scientific believes the information herein to be correct and factual as of the issue date hereof. This information is furnished on the condition that the person receiving it shall make the determination as to the suitability of the material for his/her particular purpose and on the condition that he/she assume the risk of the use thereof.

6-1-95

Issue date

*Theresa M. Schuster*

Signed

# Material Safety Data Sheet

## Fire and Explosion Hazard Data

**Flammability Class (OSHA):** IB  
**Flash Point (Pensky-Martens):** 21° C (70° F) Closed Cup  
**Flammable Limits in Air; % by Volume:**  
LOWER 3.3  
UPPER 19.0

**Extinguishing Media:** Alcohol foam, dry chemicals, carbon dioxide, water in flooding amounts as a fog. Solid streams may not be effective. Cool fire-exposed containers with water from side until well after fire is out. Use of water spray to flush spills can also dilute the spill to produce non-flammable mixtures. Water runoff, however, should be contained for treatment.

**Special Fire Fighting Procedures:** Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

## Reactivity Data

**Stability:** No known hazardous instability.

**Incompatibility:** Reaction with phenol, strong acids or alkalis may be violent. Formaldehyde and hydrochloric acid may form the potent carcinogen bis-chloromethyl ether. Formaldehyde reacts with nitrogen dioxide, nitro-methane, and perchloric acid to yield explosive compounds. A violent reaction occurs when formaldehyde is mixed with strong oxidizers.

**Hazardous Decomposition:** Occurs slowly at elevated temperatures, releasing formaldehyde gas.

**Hazardous Polymerization:** None.

## Health Hazard Data

**Skin Effects:** Avoid contact. Solution is a severe skin irritant and a sensitizer. Contact with formaldehyde causes white discoloration, smarting, drying, cracking, and scaling. Previously exposed persons may react to future exposures with an allergic eczematous dermatitis or hives.

**Eye Effects:** Solution sprayed in eye can cause injuries ranging from transient discomfort to severe, permanent corneal clouding and loss of vision. The severity of the effect depends on the concentration of the formaldehyde in the solution and whether or not the eyes are flushed with water immediately after the accident. Blindness can occur if solution is swallowed. Vapors may cause discomfort and tearing of the eyes.

### Systemic Effects:

**Ingestion:** Liquids containing formaldehyde may cause severe irritation to mucosal surfaces of mouth, throat and gastro-intestinal tract which may result in nausea and vomiting. Severe stomach pain may follow ingestion with possible loss of consciousness and death. Ingestion of dilute formaldehyde solution (0.03-0.04%) may cause discomfort in the stomach and pharynx.

## Health Hazard Data

**Inhalation:** Formaldehyde is highly irritating to the upper respiratory tract and eyes. Concentrations of 0.5 to 2.0 ppm may irritate the eyes, nose, and throat of some individuals. Concentrations of 3 to 5 ppm also cause tearing of the eyes and are intolerable to some persons.

## Health Hazard Data

Continued

## Chronic Effects of Exposure:

**Carcinogenicity:** Various animal experiments have shown formaldehyde to be a carcinogen in rats. Formaldehyde has potential to cause cancer in humans. Repeated and prolonged exposure increases the risk. In humans, formaldehyde exposure has been associated with cancers of the lung, nasopharynx and oropharynx, and nasal passages.

**Mutagenicity:** Formaldehyde is genotoxic in several in-vitro test systems showing properties of both an initiator and a promoter.

**Toxicity:** Prolonged or repeated exposure to formaldehyde may result in respiratory impairment. Rats exposed to formaldehyde at 2 ppm developed benign nasal tumors and changes of the cell structure in the nose as well as inflamed mucous membranes of the nose. Structural changes in the epithelial cells in the human nose have also been observed. Some persons have developed asthma or bronchitis following exposure to formaldehyde, most often as the result of an accidental spill involving a single exposure to a high concentration of formaldehyde.

## Protective Equipment

**Ventilation:** General mechanical ventilation or fume hood.

**Personal Protective Equipment:** Chemical resistant gloves; chemical splash goggles; and NIOSH/MSHA approved respirators are advised in the absence of proper environmental control.

## Emergency and First Aid Procedures

**Skin Contact:** Remove contaminated clothing (including shoes) immediately. Wash the affected area of your body with soap or mild detergent and large amounts of water until no evidence of the chemical remains – at least 15 to 20 minutes. If there are chemical burns, get first aid to cover the area with sterile, dry dressing and bandages. Get medical attention if you experience appreciable eye or respiratory irritation.

**Eye Contact:** In case of eye contact, immediately flush eye with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Call a physician. If you have appreciable eye irritation from a splash or excessive exposure, you should be referred to an ophthalmologist for evaluation.

**Inhalation:** If affected by vapors, move patient to fresh air immediately. Where the formaldehyde concentration may be very high, each rescuer must put on a self-contained breathing apparatus before attempting to remove the victim, and medical personnel should be informed of the formaldehyde exposure immediately. If not breathing, give artificial respiration, preferably mouth to mouth. Keep the affected person warm and at rest. Qualified first-aid or medical personnel should administer oxygen, if available, and maintain the patient's airways and blood pressure until the victim can be transported to a medical facility. If exposure results in a highly irritated upper respiratory tract and coughing continues for more than 10 minutes, the worker should be hospitalized for observation and treatment.

**Ingestion:** If victim is conscious: Dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, slurry, or water. Keep affected person warm and at rest. Get medical attention immediately. If vomiting occurs, keep head lower than hips.