

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product: FORMAZol
Cat. No: FO 121

Molecular Research Center
5645 Montgomery Rd.
Cincinnati, Ohio 45212
USA 1-888-841-0900

Product Name: FORMAZol
Chemical Name: A formulation
Molecular Weight: 45.04
Synonyms: Carbamaldehyde, Methanamide

NFPA RATINGS: (Scale 0-4) Health=2 Fire=1 Reactivity=0 PPE=D*
HMIS RATINGS: (Scale 0-4) Health=2 Fire=1 Reactivity=0
Use chemical fume hood for adequate ventilation.

CHEMTREC EMERGENCY NUMBER Only in the event of an emergency involving a spill, leak, fire exposure or accident. USA: 1-800-424-9300; International: 1-703-527-3887

2. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	CAS No.	EINECS/ELINCS	Percent
Formamide	75-12-7	200-842-0	Proprietary Information

3. HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE: May cause respiratory and digestive tract irritation. May cause eye and skin irritation. May cause reproductive and fetal effects. **Target organs:** Central nervous system, liver, eyes, reproductive system, skin, mucous membranes.

ROUTES OF ENTRY: Inhalation Yes
Skin Yes
Ingestion Yes

ACUTE EFFECTS

EYE EXPOSURE: May cause eye irritation, redness and pain. Eye contact may result in serious damage to eyes.

SKIN EXPOSURE: May cause skin irritation and mucus membrane irritation. Symptoms include redness, itching and pain. Harmful if exposed through skin. Studies have shown that formamide can be absorbed through the skin in quantities sufficient to produce systemic toxicity.

INGESTION: May cause irritation of the digestive tract. Affects the central nervous system. May cause headache, dizziness, nausea, vomiting, abdominal pain, and unconsciousness. May affect reproductive system.

INHALATION: May cause respiratory tract irritation. Symptoms may include coughing and shortness of breath. Inhalation of high concentrations of vapor may cause central nervous system effects including headache, dizziness, unconsciousness and coma depending on the duration of exposure.

CHRONIC EFFECTS

Prolonged and repeated exposure may cause birth defects including congenital malformation in the fetus. Chronic exposure may cause liver damage. There is a danger of cumulative effects.

4. FIRST AID

EYE CONTACT: Remove any contact lenses. Immediately flush eyes with copious amounts of water for 15 minutes while lifting upper and lower lids. Get medical attention.

SKIN CONTACT: Remove contaminated clothing and thoroughly wash and clean items before reuse. Flush skin with soap and water for 15 minutes. Get medical treatment if irritation develops and persists.

INHALATION: Remove to fresh air. Get medical aid immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

INGESTION: If victim is conscious, wash mouth out with water. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Loosen tight clothing such as collar, tie, belt, etc. Get medical attention immediately.

5. FIRE AND EXPLOSION HAZARD DATA

Emits toxic fumes under fire conditions such as carbon monoxide, and ammonia. Wear self-contained breathing apparatus and MSHA/NIOSH approved protective gear.

Flash point:	Open cup 154 C (309 F) Moderate fire hazard when heated.
Explosion limits:	Explosive mixtures may be formed when heated above the flash point.
Auto-Ignition Temp:	499 C (930 F)

EXTINGUISHING MEDIA: Water spray, water foam, carbon dioxide, dry chemicals. Do not use water jet. Wear self-contained breathing apparatus or approved respirator. Fires involving formamide will likely produce very toxic gases that should not be inhaled.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Use gloves, boots, safety glasses, other impervious clothing to avoid skin contact.

SPILLS OR LEAKS: Ventilate area of leak or spill. Wear self-contained breathing apparatus and MSHA/NIOSH approved protective gear. Absorb spill with earth, sand, vermiculite or other non-combustible material and place in sealed containers. Do not use combustible materials such as sawdust and do not flush into sewer.

7. HANDLING AND STORAGE

Use with adequate ventilation and wash hands thoroughly after handling. Store the reagent in a cool, dry and well-ventilated area. Refrigeration may be appropriate for long-term storage or sporadic use. Keep container tightly closed to avoid exposure. Do not store in direct sunlight. Empty containers pose a fire risk, allow residue to evaporate in a fume hood before disposal of container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT: Wear appropriate eye protection, gloves and lab coat for routine operations. Do not eat or drink in area where reagent is used. Avoid contact with skin and eyes. Do not breathe vapor. Laboratory should be equipped with an eye wash station and appropriate exhaust ventilation. Keep away from oxidizing agents, acids and alkali.

EXPOSURE LIMITS:

ACGIH: 10 ppm TWA; Skin-potential significant contribution to overall exposure by the cutaneous route.

NIOSH: 10 ppm TWA; 15 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Description:	Clear, colorless liquid with weak ammonia-like odor
Chemical formula:	CH ₃ NO
Molecular weight:	45.04
Melting point:	2.55 C (36.6 F)
Boiling point:	210 C (410 F)
	Density 1.132 g/cm ³ (water =1)
Vapor pressure:	.06 mm Hg @ 25 C
Solubility:	Infinitely soluble with water
	Sol. in ethanol, acetone
pH value:	4-5 (20% in water, 20 C)

10. STABILITY AND REACTIVITY

STABILITY: Stable at room temperature and pressure. Avoid ignition sources, excess heat. Avoid light, moisture and temperatures above 180 C. Keep container tightly closed to avoid uptake of water from air.

INCOMPATIBILITIES: Aluminum, acids, bases, strong oxidizing agents, calcium nitrate, iodine, pyridine and sulfur trioxide. Copper, brass, lead and rubber are attacked by formamide.

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides, carbon monoxide and carbon dioxide. At the boiling point, ammonia, carbon dioxide and hydrogen cyanide are liberated.

CONDITIONS TO AVOID: Heat, flames and ignition sources.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Rat: Oral acute LD₅₀ = 5570mg/kg; Inhalation >3900 ppm / 6h. **Mouse:** Oral LD₅₀ = 3150 mg/kg. Draize test, rabbit, eye: 100 mg Severe. Skin rabbit: LD 50 =17 gm / kg. Investigated as a tumorigen, mutagen and reproductive effector.

Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, or OSHA.

Teratogenicity: Embryo or fetus: Death, skin-rat = 1200 mg / kg; stunted fetus growth. Oral-rat TDLO = 2 g / kg;

Specific Developmental Abnormalities: craniofacial and musculoskeletal, oral-rat TDLO = 7980 mg/kg.

Mutagenicity: RTECS # LQ0525000 for mutation data.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: When released into the soil, formamide may be biodegradable but it is expected to leach into the ground water. The chemical has an estimated bioconcentration factor (BCF) of less than 100. When released into the air, this material is expected to readily degrade by reaction with photochemically produced hydroxyl radicals with a half-life of less than 1 day. Minnow LC50 =500 mg / L / 48 h.

13. DISPOSAL CONSIDERATIONS

Observe all federal, state and local regulations. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3.

14. TRANSPORT INFORMATION

DOT Not a DOT controlled material (United States).

IMO Not regulated as hazardous material.

IATA Not regulated as hazardous material.

RID/ADR Not regulated as hazardous material.

15. REGULATORY INFORMATION

FEDERAL AND STATE REGULATIONS:

CAS # 75-12-7 can be found on the following state right to know lists: California, Illinois, Rhode Island, Pennsylvania, Minnesota, Massachusetts and New Jersey.

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

TSCA: CAS#75-12-7

TSCA 8(b) inventory: Formamide

TSCA 8(a) PAIR: Formamide

TSCA 8(d) H and S data reporting: Formamide

WHMIS(Canada): CLASS D-2A: Material causing other toxic effects (very toxic)

SARA CODES: CAS#75-12-7 immediate, delayed.

EINECS NO: 200 842 0

RISK PHRASES: 36/37/38/47

SAFETY PHRASES: 23/26/36/53

16. OTHER INFORMATION Reviewed by BW, MJ

Creation date 6/30/99

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This information is believed to be accurate and represents the information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

Abbreviations:

N/A Not Applicable

N.D.A. No data available

TLV-STEL Threshold Limit Values (Short-Term Exposure Limit)

TLV-TWA Threshold Limit Values (Time-Weighted Average)

OSHA PEL-TWA OSHA Permissible Exposure Level