

# SAFETY DATA SHEET



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## 24-Hour Emergency Number (CHEMTREC)

USA: 800-424-9300  
International: 703-527-3887

All non-emergency numbers should be directed  
to Customer Service at 800-PURITY1

## FORMAMIDE

SDS No. M0109

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Formamide

Synonyms: Methanamide; Carbamaldehyde

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

### 2. HAZARDS IDENTIFICATION



#### **Classification:**

Carcinogenicity: GHS Category 2

Reproductive Toxicity: GHS Category 1B

Specific Target Organ Toxicity, Repeated Exposure, oral: GHS Category 2 (blood)

#### **Label Elements**

Signal Word: WARNING!

#### Hazard Statements:

H351 – Suspected of causing cancer.

H360 – May damage fertility or the unborn child.

H373 – May cause damage to organs (blood) through prolonged or repeated exposure if swallowed.

#### Precautionary Statements:

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

#### **Emergency Overview**

May be harmful if swallowed inhaled or absorbed through the skin. May cause irritation to eyes, skin, and respiratory tract. May affect the reproductive system. Target Organs: Central nervous system, reproductive system.

#### HMIS Rating:

Health – 2 Flammability – 1 Physical Hazard – 1 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based

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on their needs and conditions.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Formamide	75-12-7	>90%	Yes

### 4. FIRST-AID MEASURES

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

Ingestion: Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation persists.

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

Notes to Physician: Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard.

Auto-ignition Temperature: >500° C (>932° F)

Flash Point: 154° C (309° F)

Flammable Limits: Lower Limit – 2.7 % vol, Upper Limit – 19 % vol

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (hydrogen cyanide, nitrogen oxides, formic acid, ammonia, carbon monoxide and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

Fire Fighting Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam. Water or foam may cause frothing.

National Fire Protective Association: Health - 2, Flammability - 1, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

### 6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

### 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Copper, brass, lead and rubber are attacked by formamide.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 10 ppm TWA (skin – potential significant contribution to overall exposure)

NIOSH – 10 ppm TWA; 15 mg/m<sup>3</sup> TWA

OSHA Final PELs – None established.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Faint, ammonia-like odor.

Molecular Formula: HCONH<sub>2</sub>

Molecular Weight: 45.04

Auto-ignition Temperature: >500° C (>932° F)

Flash Point: 154° C (309° F)

Flammable Limits: Lower Limit – 2.7 % vol, Upper Limit – 19 % vol

pH: 7.1.

Boiling Point: 210° C @ 760 mm Hg

Freezing/Melting Point: 2-3° C

Decomposition Temperature: 180° C

Specific Gravity: 1.13 g/cm<sup>3</sup>

Vapor Density (Air=1): 1.56

Vapor Pressure: 0.06 mm Hg @ 25° C.

Evaporation Rate (Butyl acetate = 1): <1

Viscosity: 3.7644 cP 20° C

Solubility: Soluble

Conductivity (25°C): Conductive; Conductivity = 4x10<sup>8</sup> pS/m; Dielectric Constant = 111.0; Relaxation Time Constant = 2x10<sup>-6</sup> seconds

## 10. STABILITY AND REACTIVITY

Stability: Stable under normal temperature and pressure.

Conditions to Avoid: Light. Moisture, temperatures >180° C.

Incompatibility With Various Substances: Iodine, pyridine, bases, oxidizing agents, hydrogen peroxide, and sulfur oxides.

Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, formic acid, ammonia, carbon monoxide and carbon dioxide.

Hazardous Polymerization: Has not been reported.

## 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

Excessive inhalation of vapor may cause symptoms that parallel ingestion, ranging from headache to unconsciousness, depending upon the duration and level of the exposure.

INGESTION HAZARD: Causes irritation to the gastrointestinal tract. Affects the central nervous system. May cause headache, dizziness, nausea, vomiting, abdominal pain, and unconsciousness. May affect the reproductive system.

SKIN CONTACT HAZARD: Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin; symptoms parallel ingestion.

EYE CONTACT HAZARD: Causes irritation, redness, and pain.

Chronic Exposure Hazards: Repeated or prolonged exposure may cause reproductive effects. May cause fetal effects. Animal effects have shown that small amounts of Formamide, if repeatedly inhaled, ingested, or absorbed through the skin, can cause embryo toxicity. At levels high enough to cause maternal illness, fetal malformations and fetal death have occurred. Chronic exposure may cause liver damage. There is a danger of cumulative effects.

Animal Toxicity:

Eye Damage/irritation, rabbit, Mild;  
Inhalation, rat: LC50 = >21 mg/L, 4H;  
Skin, rat: LD50 = >3000 mg/kg;  
Oral, rat: LD50 = 5325 mg/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: May damage blood with repeated exposure.

Teratogenicity: No information available.

Reproductive Effects: Presumed human reproductive toxicant. Skin exposure in rats resulted in fetal death.

Mutagenicity: Some effects indicated.

Neurotoxicity: No information available.

## 12. ECOLOGICAL INFORMATION

Ecotoxicity: Fish: Golden orfe: LC50 = 6569 mg/L, 96H; Aquatic invertebrates: Water flea: LC50 = >500 mg/L, 48H;

Environmental Fate: No information available.

## 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

Not regulated for transportation.

## 15. REGULATORY INFORMATION

US Federal Regulations:

CERCLA Hazardous Substances: CAS# 75-12-7; 5000 lbs/2270 kg final RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 75-12-7 – immediate, delayed

Section 313: Formamide (CAS# 75-12-7) is not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 75-12-7 is on the following state right-to-know lists: New Jersey, Pennsylvania, and Massachusetts

California Prop 65: This product contains no chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

## 16. OTHER INFORMATION

Originally Prepared: 1/1/2006

Last Revised: 9/24/2014 – Updated pictograms, hazard categories, hazard statements in Section 2. Updated incompatible materials in Section 10. Updated toxicity information in Section 11. Updated ecotoxicity information in Section 12.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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