



## Material Safety Data Sheet Formamide

### Section 1 - Chemical Product and Company Identification

**MSDS Name:**

Formamide

**Catalog Numbers:**

LC14700

**Synonyms:**

Carbamaldehyde, methanamide

**Company Identification:**

LabChem, Inc.  
200 William Pitt Way  
Pittsburgh, PA 15238

**Company Phone Number:**

(412) 826-5230

**Emergency Phone Number:**

(800) 424-9300

**CHEMTREC Phone Number:**

(800) 424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
75-12-7	Formamide	100

### Section 3 - Hazards Identification

#### Emergency Overview

**Appearance:** Clear, colorless liquid

**Caution!** Harmful if swallowed, inhaled, or absorbed through the skin. May cause harm to the unborn child. Causes eye and skin irritation. May cause respiratory tract irritation. May cause central nervous system effects. May cause liver damage. Hygroscopic (absorbs moisture from the air).

**Target Organs:** Central nervous system, liver, eyes, reproductive system, skin.

#### Potential Health Effects

**Eye:**

Causes eye irritation.

**Skin:**

Causes skin irritation. Harmful if absorbed through the skin. Not expected to cause an allergic skin reaction. Studies have shown that formamide can be absorbed through the skin in quantities sufficient to produce systemic toxicity even though it is not very acutely toxic via this route and effective doses were relatively high.



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### **Ingestion:**

Harmful if swallowed. May cause irritation of the digestive tract. May cause central nervous system effects.

### **Inhalation:**

Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Material has a very low vapor pressure at room temperature; inhalation exposures are not expected unless material is heated or misted.

### **Chronic:**

Prolonged or repeated exposure may cause adverse reproductive effects. May cause fetal effects. Chronic exposure may cause liver damage. There is a danger of cumulative effects. Animal experiments show that small amounts of formamide, if repeatedly inhaled, ingested, or absorbed through the skin, can cause embryotoxicity. At levels sufficiently high to result in maternal illness, fetal malformations and fetal death have occurred. Rats exposed (occluded doses to intact skin) to dose level of 3000 mg/kg/day for 6 hrs/day, 5 days/week for 3 months had a decrease in the absolute weight of the testes.

## Section 4 - First Aid Measures

### **Eyes:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

### **Skin:**

In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

### **Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

### **Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

### **Notes to Physician:**

Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

### **General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool.

### **Extinguishing Media:**

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

### **Autoignition Temperature:**

>500° C (>932° F)

### **Flash Point:**

154° C (309° F)



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**NFPA Rating:**

H:2; F:1; I:0

**Explosion Limits:**

Lower: 2.7 Upper: 19

### Section 6 - Accidental Release Measures

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches that lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Wear a self-contained breathing apparatus and appropriate personal protection. Provide ventilation.

### Section 7 - Handling and Storage

**Handling:**

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Pregnant workers should keep exposure to a minimum.

**Storage:**

Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture. Refrigeration has been recommended.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits:**

Chemical Name:	ACGIH	NIOSH	OSHA
Formamide	10 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	10 ppm TWA; 15 mg/m <sup>3</sup> TWA	none listed

**OSHA Vacated PELs:**

Formamide: 20 ppm TWA; 30 mg/m<sup>3</sup> TWA

**Personal Protective Equipment****Eyes:**

Wear chemical splash goggles.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.



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### Clothing:

Wear appropriate protective clothing to prevent skin exposure.

### Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

<b>Physical State:</b>	Liquid
<b>Color:</b>	Clear, colorless
<b>Odor:</b>	Faint ammonia-like
<b>pH:</b>	7.1 (0.5 M aq. soln.)
<b>Vapor Pressure:</b>	0.06 mm Hg @ 25°C
<b>Vapor Density:</b>	1.56 (air=1)
<b>Evaporation Rate:</b>	<1.0 (butyl acetate=1)
<b>Viscosity:</b>	3.764 cps @ 20°C
<b>Boiling Point:</b>	210°C
<b>Freezing/Melting Point:</b>	2-3°C
<b>Decomposition Temperature:</b>	180°C
<b>Solubility in water:</b>	Soluble
<b>Specific Gravity/Density:</b>	1.13 (water=1)
<b>Molecular Formula:</b>	CH <sub>3</sub> NO
<b>Molecular Weight:</b>	45.04

## Section 10 - Stability and Reactivity

### Chemical Stability:

Stable at room temperature in closed containers under normal storage and handling conditions.

### Conditions to Avoid:

Light, moisture, temperatures >180°C as formamide will begin to partially decompose into carbon monoxide and ammonia.

### Incompatibilities with Other Materials:

Strong oxidizing agents, strong acids, ammonia, phenols and cresols, iodine, pyridine, sulfur trioxide, isocyanates, carbon steel.

### Hazardous Decomposition Products:

Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide, formic acid, ammonia.

### Hazardous Polymerization:

Has not been reported.

## Section 11 - Toxicological Information

### RTECS:

CAS# 75-12-7: LQ0525000

### LD50/LC50:

CAS# 75-12-7:

Draize test, rabbit, eye: 100 mg Severe;



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Inhalation, rat: LC50 = >3900 ppm/6H;  
Oral, mouse: LD50 = 3150 mg/kg;  
Oral, rat: LD50 = 5577 mg/kg;  
Skin, rabbit: LD50 = 17 gm/kg

**Carcinogenicity:**

CAS# 75-12-7: Not listed by ACGIH, IARC, NTP, or California Proposition 65.

**Epidemiology:**

No information available.

**Teratogenicity:**

Embryo or Fetus: Death, skin-rat TDLo=1200mg/kg; Stunted fetus, oral-rat TDLo=2g/kg. Specific Developmental Abnormalities: Craniofacial and Musculoskeletal, oral-rat TDLo=7980mg/kg.

**Reproductive:**

Fertility: Post-implantation mortality, oral-rat TDLo=2g/kg.

**Mutagenicity:**

Please refer to RTECS LQ0525000 for mutation data.

**Neurotoxicity:**

No information available.

### Section 12 - Ecological Information

**Ecotoxicity:**

No data available. Minnow LC50=>500mg/L/48H

### Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

### Section 14 - Transport Information

**US DOT**

**Shipping Name:** Not regulated.

**Hazard Class:**

**UN Number:**

**Packing Group:**

### Section 15 - Regulatory Information

**US Federal**

**TSCA:**

CAS# 75-12-7 is listed on the TSCA inventory.

**SARA Reportable Quantities (RQ):**

None of the components have an RQ.

**CERCLA/SARA Section 313:**

None of the components are on this list.



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**OSHA - Highly Hazardous:**

None of the components are on this list.

**US State**

**State Right to Know:**

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

**California Regulations:**

None.

**European/International Regulations**

**Canadian DSL/NDSL:**

CAS# 75-12-7 is listed on Canada's DSL List.

**Canada Ingredient Disclosure List:**

CAS# 75-12-7 is listed on the Canadian Ingredient Disclosure List.

### Section 16 - Other Information

MSDS Creation Date: March 15, 2007

Revision Date: None

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