

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Irritating to skin, eyes, and the respiratory system. Hygroscopic -- keep container tightly sealed. TERATOGEN. MINIMIZE EXPOSURE.	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Formamide</b>		
Catalog Number	F0045	Supplier	TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	CH <sub>3</sub> NO		
CAS Number	75-12-7	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Formamide	75-12-7	Min. 98.5 (GC)	Not available.	Rat LD <sub>50</sub> (oral) 4000 mg/kg Rabbit LD <sub>50</sub> (dermal) 17 gm/kg Rat LD <sub>50</sub> (inhalation) >3900 ppm/6H

## Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Reproductive effects. Rat TDLo Oral 7980 mg/kg, female 7-12 days of pregnancy TOXIC EFFECTS: Specific Developmental Abnormalities - Craniofacial (including nose and tongue) Specific Developmental Abnormalities - Musculoskeletal system Mouse TDLo Oral 14.6 gm/kg, male 91 days prior to mating TOXIC EFFECTS: Paternal Effects - Testes, epididymis, sperm duct Rabbit TDLo Oral 2.88 gm/kg, female 6-29 days of pregnancy TOXIC EFFECTS: Effects on Fertility - Abortion Effects on Embryo or Fetus - Fetotoxicity Effects on Newborn - Stillbirth Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

## Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	>500°C (932°F)
Flash Points	175°C (347°F)	Flammable Limits	LOWER: 2.7% UPPER: 19.0%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ), ammonia.		
Fire Hazards	Not available.		

Continued on Next Page

Emergency phone number (800) 424-9300

Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.

### Section VI. Accidental Release Measures

Spill Cleanup Instructions	Irritating material. Hygroscopic material. Teratogenic material. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.
----------------------------	---

### Section VII. Handling and Storage

Handling and Storage Information	IRRITANT. HYGROSCOPIC. TERATOGEN. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, metals, acids, alkalis (bases), moisture.
----------------------------------	--

### Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	Not available.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Miscible with water, methanol, phenol, dioxane, acetic acid, ethylene glycol, ethanol, acetone. Very slightly soluble in benzene, ether.
Specific Gravity	1.14 (water=1)		
Molecular Weight	45.04	Partition Coefficient	LOG P <sub>ow</sub> : -1.51
Boiling Point	210°C (410°F) (dec.)	Vapor Pressure	2 Pa (@ 20°C)
Melting Point	2°C (35.6°F) (freezing point)	Vapor Density	1.6 (Air = 1)
Refractive Index	1.45	Volatility	Not available.
Critical Temperature	Not available.	Odor	Nearly odorless.
Viscosity	Not available.	Taste	Not available.

### Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light. Hygroscopic; keep container tightly closed.
Incompatibilities	Reactive with oxidizing agents, metals, acids, alkalis (bases), moisture.

### Section XI. Toxicological Information

RTECS Number	LQ0525000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 4000 mg/kg Rabbit LD <sub>50</sub> (dermal) 17 gm/kg Rat LD <sub>50</sub> (inhalation) >3900 ppm/6H
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Reproductive effects. Rat TDLo Oral 7980 mg/kg, female 7-12 days of pregnancy <b>TOXIC EFFECTS</b> : Specific Developmental Abnormalities - Craniofacial (including nose and tongue) Specific Developmental Abnormalities - Musculoskeletal system Mouse TDLo Oral 14.6 gm/kg, male 91 days prior to mating <b>TOXIC EFFECTS</b> : Paternal Effects - Testes, epididymis, sperm duct Rabbit TDLo Oral 2.88 gm/kg, female 6-29 days of pregnancy <b>TOXIC EFFECTS</b> : Effects on Fertility - Abortion Effects on Embryo or Fetus - Fetotoxicity Effects on Newborn - Stillbirth

Continued on Next Page

Emergency phone number (800) 424-9300

Acute Toxic Effects	Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

## Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Formamide's production and use as an intermediate in the chemical industry; to produce heterocyclic compounds, pharmaceuticals, crop protection agents, fungicides, and pesticides; as a solvent in the manufacture and processing of plastics; to produce formic acid; to remove coating from copper conductors; in the spinning of acrylonitrile copolymers; in the antistatic finishing of plastics or formation of conductive coatings on plastic particles; may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 6.1X10 <sup>-2</sup> mm Hg at 25 deg C indicates formamide will exist solely as a vapor in the ambient atmosphere. Vapor-phase formamide will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 8.0 days. If released to soil, formamide is expected to have very high mobility based upon a Koc of 3.6. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.4X10 <sup>-9</sup> atm-cu m/mole. If released into water, formamide is not expected to adsorb to suspended solids and sediment based upon the Koc. Several biodegradation screening studies have observed significant biodegradation of formamide which suggests that biodegradation may be important. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis is expected to be slow. Occupational exposure to formamide may occur through inhalation and dermal contact with this compound at workplaces where formamide is produced or used.

## Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
----------------	---

## Section XIV. Transport Information

DOT Classification	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	



## Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	On DSL.
EINECS Number (EEC)	200-842-0
EEC Risk Statements	R36/37/38- Irritating to eyes, respiratory system and skin. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	ENCS No. 2-681; 2-684

## Section XVI. Other Information

**Version 1.0**  
**Validated on 7/21/2010.**  
**Printed 7/21/2010.**

### Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.