



Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Harmful compound, minimize exposure. Light sensitive. Moisture sensitive material. Teratogenic material. CARCINOGEN. MINIMIZE EXPOSURE.	

Section I. Chemical Product and Company Identification

Chemical Name	Furosemide	
Catalog Number	F0182	Supplier
Synonym	Aluzine	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Chemical Formula	C ₁₂ H ₁₁ ClN ₂ O ₅ S	
CAS Number	54-31-9	
		In case of Emergency Call Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Furosemide	54-31-9	Min. 99.0 (T)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 2600mg/kg Rabbit LD ₅₀ (oral) 800mg/kg Infant TDLo (intravenous) 1mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic: rat (oral) 2112mg/kg/2 years continuous. Tumorigenic- Equivocal tumorigenic by RTECS criteria. DEVELOPMENTAL TOXICITY Reproductive: rat (oral) 122mg/kg. Duration: male 6 weeks prior to mating. Paternal effects- Spermatogenesis. Paternal effects- Testes, epididymis, sperm duct. 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. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂), halogenated compounds. WARNING: Highly toxic HCl gas is produced during combustion.		
Fire Hazards	Not available.		
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.		

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Emergency phone number (800) 424-9300

Section VI. Accidental Release Measures**Spill Cleanup
Instructions**

Harmful material. Teratogenic material.
In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Use a shovel to put material into a convenient waste disposal container. Consult federal, state and/or local authorities for assistance on disposal.

Section VII. Handling and Storage**Handling and Storage
Information**

HARMFUL. 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 ingest. Do not breathe dust. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively.
Always store away from incompatible compounds such as oxidizing agents, moisture.

Section VIII. Exposure Controls/Personal Protection**Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Splash goggles. Lab coat. Dust 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**

This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties**Physical state @ 20°C**

White powder.

Solubility

Soluble in acetone, methanol, dimethylformamide, AQ solvent above pH8.0.
Less soluble in ethanol.
Slightly soluble in water, chloroform, ether.

Specific Gravity

Not available.

Molecular Weight

330.75

Partition Coefficient

Not available.

Boiling Point

Not available.

Vapor Pressure

Not applicable.

Melting Point

220°C (428°F)

Vapor Density

Not available.

Refractive Index

Not available.

Volatility

Not available.

Critical Temperature

Not available.

Odor

Odorless.

Viscosity

Not available.

Taste

Practically tasteless.

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.

Incompatibilities

Reactive with oxidizing agents, moisture.

Section XI. Toxicological Information**RTECS Number**

CB2625000

Routes of Exposure

Eye Contact. Ingestion. inhalation.

Toxicity Data

Rat LD₅₀ (oral) 2600mg/kg
Rabbit LD₅₀ (oral) 800mg/kg
Infant TDLo (intravenous) 1mg/kg

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Tumorigenic: rat (oral) 2112mg/kg/2 years continuous.
Tumorigenic- Equivocal tumorigenic by RTECS criteria.
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Paternal effects- Spermatogenesis.
Paternal effects- Testes, epididymis, sperm duct.
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects

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Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Not available.

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 available

Proper Shipping Name not available

Packing Group (PG) Not available.

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This product is **NOT** on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list:
 (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et seq.
 (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.

WHMIS Classification (Canada) CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

EINECS Number (EEC) 200-203-6

EEC Risk Statements not available

Japanese Regulatory Data Not available.

Section XVI. Other Information**Version 1.0****Validated on 12/21/2000.****Printed 2/18/2005.****Notice to Reader**

TCI 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.