TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**Corrosive to eyes and skin on contact.** **Flammable material; avoid heat and sources of ignition.** **Water-reactive. May ignite or generate flammable gas in the presence of moisture.** **Spontaneously Combustible. May spontaneously ignite on contact with air.** **Store under nitrogen.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Sodium Bis(2-methoxyethoxy)aluminum Dihydride**
(70% in Toluene, ca.3.6mol/L)

Catalog Number	S0467
Synonym	Aluminate(1-), dihydrobis[2-(methoxy-κO)ethanolato-κO]-sodium (9CI)
Chemical Formula	$C_6H_{16}AlNaO_4$
CAS Number	22722-98-1 108-88-3 (Toluene)

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

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
Sodium Bis(2-methoxyethoxy)aluminum Dihydride (70% in Toluene, ca.3.6mol/L)	22722-98-1 108-88-3 (Toluene)	Min. 70.0%(Tit.) Min. 30.0%(Tit.) (Toluene)	Not available.	Rat LD_{50} (oral) 636 mg/kg (Toluene) Rabbit LD_{50} (dermal) 14100 uL/kg (Toluene) Rat LD_{50} (inhalation) 49 mg/m^3/4H (Toluene)

Section III. Hazards Identification

Acute Health Effects

Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested.
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 : Not available.
DEVELOPMENTAL TOXICITY:REPRODUCTIVE EFFECTS
Rat TCLo Inhalation 800 mg/ m3/6H; femal 14-20 days of pregnancy
TOXIC EFFECTS
Effects on Embryo or Fetus - Fetotoxicity (excepte death, e.g., stunted fetus)
Effects on Newborn - Behavioral
Mouse TCLo Inhalation 440 ppm/7Hours; female 7-16 days of pregnancy
TOXIC EFFECTS
Specific Developmental Abnormalities - Musculoskeletal systems
Effects on Newborn - Biochemical and metabolic
Mouse TDLo Oral 9gm/ kg; female 6-15days of pregnancy
TOXIC EFFECTS
Effects on Embryo or Fetus - Fetal death
Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

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

DO NOT INDUCE VOMITING. 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.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	535°C (995°F) (Toluene)
Flash Points	4°C (39.2°F). (Toluene)	Flammable Limits	LOWER: 1.2% UPPER: 7% (Toluene)

Combustion Products: These products are toxic carbon oxides (CO, CO_2), Some metallic oxides.

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: Flammable liquid.
Do NOT Use WATER.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions: Corrosive Material. Flammable Material. Water Reactive Material. Spontaneously Combustible Material.
Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information: CORROSIVE. FLAMMABLE. WATER REACTIVE. SPONTANEOUSLY COMBUSTIBLE. STORE UNDER NITROGEN. Keep locked up.. Keep under inert atmosphere. Keep container dry. Keep away from heat. Mechanical exhaust required. Keep away from direct sunlight or strong incandescent light. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Avoid shock and friction. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively.
Always store away from incompatible compounds such as oxidizing agents.

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: Face shield. 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 Viscous.)	Solubility	Miscible in a variety of inert solvents. Immiscible in paraffinic hydrocarbons.
Specific Gravity	0.865 (Toluene) (water=1)		
Molecular Weight	202.16	Partition Coefficient	Log P_{ow} 2.69 (Toluene)
Boiling Point	110.6°C (231.1°F) (Toluene)	Vapor Pressure	4.9 kPa (@ 30°C)
Melting Point	-93°C (-135.4°F) (Toluene)	Vapor Density	3.2 (Air = 1)
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
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.

Incompatibilities: Reactive with strong oxidizing agents, alcohol, water.

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Section XI. Toxicological Information

RTECS Number	Not available.
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD_{50} (oral) 636 mg/kg (Toluene) Rabbit LD_{50} (dermal) 14100 uL/kg (Toluene) Rat LD_{50} (inhalation) 49 mg/m^3/4H (Toluene)
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**:REPRODUCTIVE EFFECTS Rat TCLo Inhalation 800 mg/ m3/6H; femal 14-20 days of pregnancy TOXIC EFFECTS Effects on Embryo or Fetus - Fetotoxicity (excepte death, e.g., stunted fetus) Effects on Newborn - Behavioral Mouse TCLo Inhalation 440 ppm/7Hours; female 7-16 days of pregnancy TOXIC EFFECTS Specific Developmental Abnormalities - Musculoskeletal systems Effects on Newborn - Biochemical and metabolic Mouse TDLo Oral 9gm/ kg; female 6-15days of pregnancy TOXIC EFFECTS Effects on Embryo or Fetus - Fetal death Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Toluene is released into the atmosphere principally from the volatilization of petroleum fuels and toluene-based solvents and thinners and from motor vehicle exhaust. Toluene's production and use as an intermediate in the production of benzoic acid, benzaldehyde, benzene, explosives, dyes and many other organic compounds may also result in its release to the environment through various waste streams. Toluene has been detected in emissions from volcanos, forest fires and crude oil. If released to air, a vapor pressure of 28.4 mm Hg at 25 deg C indicates toluene will exist solely as a vapor in the ambient atmosphere. Vapor-phase toluene 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 3 days. Toluene may also be degraded in the atmosphere by reaction with nitrate radicals and ozone molecules, but these reactions are too slow to be environmentally important. If released to soil, toluene is expected to have high to moderate mobility based upon Koc values in the range of 37-178. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 6.64X10-3 atm-cu m/mole. Toluene may volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation is expected to occur rapidly in soil surfaces, with half-lives in the range of several hours to 71 days. If released into water, toluene is not expected to adsorb to suspended solids and sediment based upon a Koc of 166 measured in lake sediment. Biodegradation is expected to occur rapidly in water, with reported half-lives of 4 and 56 days in aerobic and anaerobic water, respectively. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 1 hour and 4 days, respectively. Measured BCF values of 13 and 90 in fish suggest bioconcentration in aquatic organisms is low to moderate. Hydrolysis is not expected to be an important environmental fate process for toluene due to lack of hydrolyzable functional groups. Exposure to toluene may occur occupationally during its production or subsequent use, particularly as a solvent or in gasoline, via dermal and respiratory routes. The main route of exposure for the general population will be through inhalation from contaminated air and handling of gasoline as well as ingestion of contaminated drinking water and food, and exposure to some consumer products.

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	DOT Class 4.3: Dangerous when Wet. DOT Class 3: Flammable liquid.
PIN Number	UN3399
Proper Shipping Name	Organometallic substanance, liquid, water reactive, flammable.
Packing Group (PG)	I
DOT Pictograms	

Continued on Next Page Emergency phone number (800) 424-9300

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS E: Corrosive liquid. On DSL.
EINECS Number (EEC)	245-178-2
EEC Risk Statements	R10- Flammable. R14- Reacts violently with water. R18- In use, may form flammable/explosive vapor-air mixture. R34- Causes burns. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	ENCS No. (2)-3011

Section XVI. Other Information

Version 1.0
Validated on 10/17/2006.
Printed 10/17/2006.

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.