

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Red-Al® sodium bis(2-methoxyethoxy)aluminum hydride solution

Product Number : 196193

Brand : Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832

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Emergency Phone # : (314) 776-6555

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Flammable liquid, Water Reactive, Toxic by ingestion, Toxic by skin absorption, Corrosive, Target Organ Effect, Teratogen, Reproductive hazard

##### Target Organs

Bladder, Liver, Kidney, Brain.

##### GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H301 + H311	Toxic if swallowed or in contact with skin.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to organs.
H401	Toxic to aquatic life.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311	Call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.

#### HMIS Classification

Health hazard: 3

**Chronic Health Hazard:** \*  
**Flammability:** 3  
**Physical hazards:** 2

**NFPA Rating**

**Health hazard:** 3  
**Fire:** 3  
**Reactivity Hazard:** 2  
**Special hazard.:** W

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Vapours may cause drowsiness and dizziness.

**Skin** Toxic if absorbed through skin. Causes skin burns.

**Eyes** Causes eye burns.

**Ingestion** Toxic if swallowed. Causes burns. Aspiration hazard if swallowed - can enter lungs and cause damage.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Vitride®, Sodium bis(2-methoxyethoxy) aluminum hydride solution  
SBAH  
Sodium dihydrido-bis(2-methoxyethoxy)aluminate  
Sodium bis(2-methoxyethoxy)aluminum dihydride

Formula :  $C_6H_{16}AlNaO_4$

CAS-No.	EC-No.	Index-No.	Concentration
<b>Sodium dihydridobis(2-methoxyethanolato)aluminate(1-)</b>			
22722-98-1	245-178-2	-	>= 65 - <= 70 %
<b>Toluene</b>			
108-88-3	203-625-9	601-021-00-3	>= 30 - <= 35 %

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**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIRE-FIGHTING MEASURES**

**Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>) Dry powder

**Extinguishing media which shall not be used for safety reasons**

Water

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush with water.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Never allow product to get in contact with water during storage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Toluene	108-88-3	TWA	100 ppm 375 mg/m <sup>3</sup>	1989-01-19	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	150 ppm 560 mg/m <sup>3</sup>	1989-01-19	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	200 ppm	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z2
Remarks	Z37.12-1967				
		CEIL	300 ppm	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z2
	Z37.12-1967				
		Peak	500 ppm	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z2
	Z37.12-1967				
		TWA	20 ppm	2008-01-01	USA. ACGIH Threshold Limit Values (TLV)
	Visual impairment Female reproductive Pregnancy loss 2008 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.				

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves.

### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	light yellow

### Safety data

pH	no data available
Melting point	no data available
Boiling point	110 °C (230 °F)
Flash point	4 °C (39 °F) - closed cup
Ignition temperature	no data available
Lower explosion limit	1.27 %(V)
Upper explosion limit	7 %(V)
Vapour pressure	28 hPa (21 mmHg) at 20 °C (68 °F)
Density	1.036 g/mL at 25 °C (77 °F)
Water solubility	no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Vapours may form explosive mixture with air.  
Reacts violently with water.

### Conditions to avoid

Heat, flames and sparks. Exposure to moisture.

### Materials to avoid

Water, Oxidizing agents, Combustible material

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Hydrogen gas, Carbon oxides, Aluminum oxide, Sodium oxides

Reacts with water to form: - Hydrogen gas

**Thermal decomposition**

205 °C

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

LD50 Oral - rat - > 50 mg/kg

LD50 Dermal - rabbit - > 200 mg/kg

**Skin corrosion/irritation**

Skin - rabbit - Severe skin irritation

**Serious eye damage/eye irritation**

Eyes: no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure (GHS)**

no data available

**Specific target organ toxicity - repeated exposure (GHS)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Vapours may cause drowsiness and dizziness.
<b>Ingestion</b>	Toxic if swallowed. Causes burns. Aspiration hazard if swallowed - can enter lungs and cause damage.
<b>Skin</b>	Toxic if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN-Number: 3399 Class: 4.3 (3) Packing group: I  
Proper shipping name: Organometallic substance, liquid, water-reactive, flammable (Sodium dihydridobis(2-methoxyethanolato)aluminate(1-))  
Reportable Quantity (RQ): 2857 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN-Number: 3399 Class: 4.3 (3) Packing group: I EMS-No: F-G, S-N  
Proper shipping name: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Sodium dihydridobis(2-methoxyethanolato)aluminate(1-))  
Marine pollutant: No

**IATA**

UN-Number: 3399 Class: 4.3 (3) Packing group: I  
Proper shipping name: Organometallic substance, liquid, water-reactive, flammable (Sodium dihydridobis(2-methoxyethanolato)aluminate(1-))  
IATA Passenger: Not permitted for transport

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**15. REGULATORY INFORMATION****OSHA Hazards**

Flammable liquid, Water Reactive, Toxic by ingestion, Toxic by skin absorption, Corrosive, Target Organ Effect, Teratogen, Reproductive hazard

**DSL Status**

All components of this product are on the Canadian DSL list.

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

Toluene

CAS-No.  
108-88-3

Revision Date  
2007-07-01

**SARA 311/312 Hazards**

Fire Hazard, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Toluene	108-88-3	2007-07-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Toluene	108-88-3	2007-07-01
Sodium dihydridobis(2-methoxyethanolato)aluminate(1-)	22722-98-1	

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Toluene	108-88-3	2007-07-01
Sodium dihydridobis(2-methoxyethanolato)aluminate(1-)	22722-98-1	

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	108-88-3	2007-09-28
Toluene		

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**16. OTHER INFORMATION****Further information**

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