Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 11.07.2013 *Revision: 09.07.2013*

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name ***Sodium bis(2-methoxyethoxy)aluminum hydride, 70% w/w in toluene***
Stock number: A13292
1.2 Relevant identified uses of the substance or mixture and uses advised against. No further relevant information available.
Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0
1.4 Emergency telephone number: Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008


GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.
Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.


GHS08 health hazard

Repr. 2 H361d Suspected of damaging the unborn child.
STOT RE 2 H373 May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.
Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.


GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.


GHS07

Acute Tox. 4 H332 Harmful if inhaled.
STOT SE 3 H336 May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC


C; Corrosive

R34: Causes burns.


Xn; Harmful

R20-48/20-63-65: Harmful by inhalation. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of harm to the unborn child. Harmful: may cause lung damage if swallowed.


F; Highly flammable

R11-14/15: Highly flammable. Reacts violently with water, liberating extremely flammable gases.

Information concerning particular hazards for human and environment: The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Other hazards that do not result in classification No information known.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.
Hazard pictograms GHS02, GHS05, GHS07, GHS08
Signal word Danger

Hazard-determining components of labelling:
Sodium bis(2-methoxyethoxy)aluminum hydride
Toluene

Hazard statements
H225 Highly flammable liquid and vapour.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H332 Harmful if inhaled.
H314 Causes severe skin burns and eye damage.
H361d Suspected of damaging the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.
H304 May be fatal if swallowed and enters airways.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information: EUH014 Reacts violently with water.
2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

(Contd. on page 2)

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(Contd. of page 1)

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Dangerous components:

CAS: 22722-98-1 EINECS: 245-178-2	Sodium bis(2-methoxyethoxy)aluminum hydride C R34; Xn R20; F R11-14/15 Flam. Liq. 1, H224; Water-react. 1, H260; Skin Corr. 1B, H314; Acute Tox. 4, H332	70,0%
CAS: 108-88-3 EINECS: 203-625-9	Toluene Xn R48/20-63-65; Xi R38; F R11 R67 Repr. Cat. 3 Flam. Liq. 2, H225; Repr. 2, H361d; STOT RE 2, H373; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336	30,0%

Additional information None known.

SECTION 4: First aid measures

4.1 Description of first aid measures
General information Instantly remove any clothing soiled by the product.
After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.
After skin contact Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing Seek medical treatment.
4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
For safety reasons unsuitable extinguishing agents Water.
5.2 Special hazards arising from the substance or mixture Reacts violently with water
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Sodium oxide
Metal oxide
5.3 Advice for firefighters
Protective equipment: Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.
Do not allow to enter the ground/soil.
6.3 Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Prevention of secondary hazards: Keep away from ignition sources.
6.4 Reference to other sections See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Handle under dry protective gas.
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires: Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: Store in cool location.
Information about storage in one common storage facility: Store away from water.
Further information about storage conditions: Store under dry inert gas.
This product is moisture sensitive.
Protect from humidity and keep away from water.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store in a locked cabinet or with access restricted to technical experts or their assistants.
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)

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(Contd. of page 2)

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

108-88-3 Toluene (30,0%)

AGW (Germany)	190 mg/m³, 50 ppm 4(II);DFG, EU, H, Y
PEL (USA)	Short-term value: C 300; 500* ppm Long-term value: 200 ppm *10-min peak per 8-hr shift
REL (USA)	Short-term value: 560 mg/m³, 150 ppm Long-term value: 375 mg/m³, 100 ppm
TLV (USA)	75 mg/m³, 20 ppm BEI

Ingredients with biological limit values:

108-88-3 Toluene (30,0%)

BGW (Germany)	1,0 mg/l B b Toluol 3,0 mg/l U c, b o-Kresol
BEI (USA)	0,02 mg/L blood prior to last shift of workweek Toluene 0,03 mg/L urine end of shift Toluene 0,3 mg/g creatinine urine end of shift o-Cresol with hydrolysis (background)

Additional information: No data

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Do not inhale dust / smoke / mist.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use breathing protection with high concentrations.
Protection of hands: Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Material of gloves Impervious gloves
Penetration time of glove material Not determined
Eye protection: Tightly sealed safety glasses.
Full face protection
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Viscous liquid
Colour: Colourless
Smell: Not determined
Odour threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined

Flash point: 4 °C
Inflammability (solid, gaseous) Not determined.
Ignition temperature: 535 °C
Decomposition temperature: Not determined
Self-inflammability: Product is not selfigniting.
Critical values for explosion:
Lower: 1,2 Vol %
Upper: 7,0 Vol %
Steam pressure at 20 °C: 29 hPa
Density at 20 °C 1,02 g/cm³
Relative density Not determined.
Vapour density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Reacts violently
Contact with water releases flammable gases
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.
kinematic: Not determined.

Solvent content:
Organic solvents: 30,0 %

(Contd. on page 4)

Safety data sheet
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(Contd. of page 3)

9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity Reacts violently with water.
In contact with water releases flammable gases which may ignite spontaneously.

10.2 Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions Contact with water releases flammable gases
Reacts violently with water

10.5 Incompatible materials: Water/moisture

10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide
Sodium oxide
Metal oxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: Harmful if inhaled.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

LD/LC50 values that are relevant for classification:

108-88-3 Toluene

Oral	LD50	636 mg/kg (rat)
		14100 µL/kg (rabbit)
Inhalative	LC50	10000 mg/m3 (mouse)
	LC50/4H	49000 mg/m3/4H (rat)

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effect known.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.

Carcinogenicity: EPA-II: Inadequate information to access carcinogenic potential.
IARC-3: Not classifiable as to carcinogenicity to humans.
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.

Specific target organ system toxicity - repeated exposure: May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: May be fatal if swallowed and enters airways.

Experience with humans: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Harmful
Corrosive

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:

General notes: Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): hazardous for water.
Danger to drinking water if even small quantities leak into soil.
Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA UN3399

14.2 UN proper shipping name

ADR 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Sodium bis(2-methoxyethoxy)aluminum hydride, TOLUENE)

IMDG, IATA ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Sodium bis(2-methoxyethoxy)aluminum hydride, TOLUENE)

(Contd. on page 5)

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(Contd. of page 4)

14.3 Transport hazard class(es)

ADR

Class	4.3 (WF1) Substances which, in contact with water, emit flammable gases.
Label	4.3+3

IMDG, IATA

Class	4.3 Substances which, in contact with water, emit flammable gases.
Label	4.3+3
Packing group	
ADR, IMDG, IATA	I
14.5 Environmental hazards:	
Marine pollutant:	No
14.6 Special precautions for user	Warning: Substances which, in contact with water, emit flammable gases.
Kemler Number:	X323
EMS Number:	F-G,S-M
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
ADR	
Excepted quantities (EQ):	E0
Limited quantities (LQ)	0
Transport category	0
Tunnel restriction code	B/E
UN "Model Regulation":	UN3399, ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Sodium bis(2-methoxyethoxy)aluminum hydride, TOLUENE), 4.3 (3), I

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory of Chemical Substances

All ingredients are listed.

Standard for the Uniform Scheduling of Drugs and Poisons

108-88-3	Toluene	S6

National regulations

Information about limitation of use: Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.

Classification according to VbF: A I

Technical instructions (air):

Class	Share in %
NK	30,0

Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

None of the ingredients is listed.

Substances of very high concern (SVHC) according to REACH, Article 57

None of the ingredients are listed.

REACH - Pre-registered substances

All ingredients are listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Relevant phrases

H224 Extremely flammable liquid and vapour.
H225 Highly flammable liquid and vapour.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H304 May be fatal if swallowed and enters airways.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
H361d Suspected of damaging the unborn child.
H373 May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.

R11 Highly flammable.
R14/15 Reacts violently with water, liberating extremely flammable gases.
R20 Harmful by inhalation.
R34 Causes burns.
R38 Irritating to skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R63 Possible risk of harm to the unborn child.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

Department issuing SDS: Health, Safety and Environmental Department.

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent