Sigma-Aldrich

## SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Version 6.14 Revision Date 24.02.2023 Print Date 07.04.2023 GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

#### **1.1 Product identifiers**

Product name

<sup>:</sup> Alane *N*,*N*-dimethylethylamine complex solution

: Laboratory chemicals, Manufacture of substances

Product Number	:	400386
Brand	:	Aldrich
REACH No.	:	

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses

## **1.3** Details of the supplier of the safety data sheet

	Company	:	Sigma-Aldrich (Shanghai) Trading Co.Ltd. 509 Renqing Road Zhangjiang High Tech East Park, Pudong SHANGHAI 201201 SHANGHAI CHINA
	Telephone	:	+86 21 6141-5566
	Fax	:	+86 21 6141-5567
1.4	Emergency telephone		
	Emergency Phone #	:	+86 532 83889090

## **SECTION 2: Hazards identification**

## 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 Flammable liquids (Category 2), H225 Pyrophoric liquids (Category 1), H250 Substances and mixtures which in contact with water emit flammable gases (Category 2), H261 Skin corrosion (Sub-category 1B), H314 Serious eye damage (Category 1), H318 Reproductive toxicity (Category 2), H361d Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336 Specific target organ toxicity - repeated exposure (Category 2), Central nervous system, H373

Aspiration hazard (Category 1), H304

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Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 Label elements

Labelling according Reg Pictogram	ulation (EC) No 1272/2008
Signal Word	Danger
Hazard statement(s) H225 H250 H261 H304 H314 H336 H361d H373	Highly flammable liquid and vapor. Catches fire spontaneously if exposed to air. In contact with water releases flammable gas. May be fatal if swallowed and enters airways. Causes severe skin burns and eye damage. May cause drowsiness or dizziness. Suspected of damaging the unborn child. May cause damage to organs (Central nervous system) through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s) P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P231 + P232	Handle and store contents under inert gas. Protect from moisture.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P331	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.
P301 + P330 + P331 P303 + P361 + P353	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Supplemental Hazard Statements	none

## Reduced Labeling (<= 125 ml)

Pictogram

Danger

Signal Word Hazard statement(s) H250 H314 H304 H412 H361d

Catches fire spontaneously if exposed to air. Causes severe skin burns and eye damage. May be fatal if swallowed and enters airways. Harmful to aquatic life with long lasting effects. Suspected of damaging the unborn child.

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Precautionary statement(s)	
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P331	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Supplemental Hazard Statements	none

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### **SECTION 3: Composition/information on ingredients**

#### 3.2 Mixtures

Formula	:	$C_4H_{14}AIN$
Molecular weight	:	103,14 g/mol

Component		Classification	Concentration
Toluene			
CAS-No. EC-No. Index-No. Registration number	108-88-3 203-625-9 601-021-00-3 01-2119471310-51- XXXX	Flam. Liq. 2; Skin Irrit. 2; Repr. 2; STOT SE 3; STOT RE 2; Asp. Tox. 1; Aquatic Chronic 3; H225, H315, H361d, H336, H373, H304, H412 Concentration limits: 20 %: STOT SE 3, H336;	>= 90 - <= 100 %
N,N-Dimethylethyla	amine alane		
CAS-No.	124330-23-0 *	Pyr. Liq. 1; Water-react 2; Skin Corr. 1B; H250, H261, H314	>= 5 - < 10 %

\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## **SECTION 4: First aid measures**

#### 4.1 Description of first-aid measures

#### **General advice**

Consult a physician. Show this material safety data sheet to the doctor in attendance.

#### 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

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.

## 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed** No data available

## **SECTION 5: Firefighting measures**

#### 5.1 Extinguishing media

**Suitable extinguishing media** Dry powder Dry sand

**Unsuitable extinguishing media** Do NOT use water jet.

- 5.2 Special hazards arising from the substance or mixture Carbon oxides Nitrogen oxides (NOx) Aluminum oxide
- **5.3** Advice for firefighters Wear self-contained breathing apparatus for firefighting if necessary.
- **5.4 Further information** No data available

## **SECTION 6: Accidental release measures**

# **6.1 Personal precautions, protective equipment and emergency procedures** 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 vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

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## 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## 6.3 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.

## 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

#### Advice on protection against fire and explosion

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

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. For precautions see section 2.2.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

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.

Handle and store under inert gas.

#### Storage class

Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

#### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

Ingredients with workplace control parameters

## 8.2 Exposure controls

## **Personal protective equipment**

## Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact

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with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact Material: Fluorinated rubber Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact Material: Fluorinated rubber Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### **Body Protection**

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a fullface 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).

## **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: Physical and chemical properties 9.1 Information on basic physical and chemical properties

- a) Physical state liquid
- b) Color No data available
- c) Odor No data available
- d) Melting No data available point/freezing point
- e) Initial boiling point No data available and boiling range

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f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	-20 °C
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	рН	No data available
I)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	No data available
n)	Partition coefficient: n-octanol/water	No data available
o)	Vapor pressure	< 10 hPa at 25 °C
p)	Density	0,760 g/cm3
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available

- s) Explosive properties Not classified as explosive.
- t) Oxidizing properties none
- 9.2 Other safety information No data available

## **SECTION 10: Stability and reactivity**

## 10.1 Reactivity

No data available

**10.2 Chemical stability** Stable under recommended storage conditions.

## **10.3** Possibility of hazardous reactions

Reacts violently with water.

## **10.4** Conditions to avoid

Heat, flames and sparks. Exposure to moisture.

## **10.5** Incompatible materials

Water, Bases, Oxidizing agents, Strong oxidizing agents, Oxygen, Alcohols, acids

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## **10.6** Hazardous decomposition products

In the event of fire: see section 5

## **SECTION 11: Toxicological information**

## **11.1 Information on toxicological effects**

## Mixture

## Acute toxicity

Oral: No data available Inhalation: No data available Dermal: No data available

## Skin corrosion/irritation

Remarks: No data available

Serious eye damage/eye irritation Remarks: No data available

#### **Respiratory or skin sensitization** No data available

**Germ cell mutagenicity** No data available

Carcinogenicity No data available

**Reproductive toxicity** No data available

Specific target organ toxicity - single exposure No data available

Specific target organ toxicity - repeated exposure No data available

#### **Aspiration hazard** No data available

## **11.2 Additional Information**

## **Endocrine disrupting properties**

## Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

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### Components

#### Toluene

#### **Acute toxicity**

LD50 Oral - Rat - male - 5.580 mg/kg (Tested according to Directive 92/69/EEC.) LC50 Inhalation - Rat - male and female - 4 h - 25,7 mg/l - vapor (OECD Test Guideline 403) LD50 Dermal - Rabbit - > 5.000 mg/kg Remarks: (ECHA)

## Skin corrosion/irritation

Skin - Rabbit Result: irritating - 4 h Remarks: (ECHA)

#### Serious eye damage/eye irritation

Eyes - Rabbit Result: slight irritation (OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

Maximization Test - Guinea pig Result: negative (Regulation (EC) No. 440/2008, Annex, B.6)

#### Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: Mouse lymphoma test Result: negative Test Type: Ames test Test system: S. typhimurium Result: negative Species: Rat - Bone marrow Result: negative Remarks: (ECHA)

## Carcinogenicity

No data available

#### **Reproductive toxicity**

Suspected of damaging the unborn child.

## Specific target organ toxicity - single exposure

May cause drowsiness or dizziness. - Central nervous system

#### Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure. - Central nervous system

#### **Aspiration hazard**

Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

#### N,N-Dimethylethylamine alane

## Acute toxicity

Oral: No data available Inhalation: No data available

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Dermal: No data available

**Skin corrosion/irritation** Remarks: No data available

Serious eye damage/eye irritation Remarks: No data available

**Respiratory or skin sensitization** No data available

Germ cell mutagenicity No data available

#### Carcinogenicity No data available

#### **Reproductive toxicity** No data available

#### **Specific target organ toxicity - single exposure** No data available

Specific target organ toxicity - repeated exposure No data available

**Aspiration hazard** 

No data available

## **SECTION 12: Ecological information**

## 12.1 Toxicity

Mixture No data available

- 12.2 Persistence and degradability No data available
- **12.3 Bioaccumulative potential** No data available
- **12.4 Mobility in soil** No data available

## 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### 12.6 Endocrine disrupting properties Product:

Assessment

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## 12.7 Other adverse effects

Toxic to aquatic life.

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## Components

#### Toluene

I UIUCIIC	
Toxicity to fish	flow-through test LC50 - Oncorhynchus kisutch (coho salmon) - 5,5 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Ceriodaphnia dubia (water flea) - 3,78 mg/l - 48 h (US-EPA)
Toxicity to bacteria	static test EC50 - Bacteria - 84 mg/l - 24 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Oncorhynchus kisutch (coho salmon) - 1,39 mg/l - 40 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	NOEC - Ceriodaphnia dubia (water flea) - 0,74 mg/l - 7 d (US-EPA)
N,N-Dimethylethylamine No data available	alane

## SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

## Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transport information

## 14.1 UN number

A	DR/RID:	3399	IMDG: 3399	IATA: 3399
14.2 U	N prope	r shipping name		
AI	DR/RID:		SUBSTANCE, LIQUID, WATER ethylethylamine alane) (Toluer	
IM	1DG:		SUBSTANCE, LIQUID, WATER ethylethylamine alane) (Toluer	

IATA: Organometallic substance, liquid, water-reactive, flammable (Toluene, N,N-

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Dimethylethylamine alane) (Toluene, N,N-Dimethylethylamine alane)

14.3	Transport hazard class(es) ADR/RID: 4.3 (3)	) IMDG: 4.3 (3)	IATA: 4.3 (3)
14.4	<b>Packaging group</b> ADR/RID: II	IMDG: II	IATA: II
14.5	Environmental hazards ADR/RID: no	IMDG Marine pollutant: no	IATA: no
14.6	<b>Special precautions for use</b> Tunnel restriction code :	er (D/E)	
	Further information :	No data available	

## SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

: Toluene

#### Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

## **National legislation**

Seveso III: Directive 2012/18/EU of the European : PYROPHORIC LIQUIDS AND SOLIDS Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

## **15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out

## **SECTION 16: Other information**

## Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H250	Catches fire spontaneously if exposed to air.
H261	In contact with water releases flammable gas.
H304	May be fatal if swallowed and enters airways.
H314	Highly flammable liquid and vapor.
H315	May be fatal if swallowed and enters airways.
H318	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs (Central nervous system) through prolonged
	or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

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## Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM -American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIOC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS -Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Classification of the mi	xture
Flam. Liq.2	H225
Pyr. Liq.1	H250

H261

H314

H318

H361d

H336

H373

H304

H412

Based on product data or assessment
Calculation method

Calculation method

**Classification procedure:** 

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Water-react2

Skin Corr.1B

Eye Dam.1

STOT SE3

STOT RE2

Asp. Tox.1

Aquatic Chronic3

Repr.2

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## **Further information**

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