

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

Printing date 02.07.2013

Revision: 17.10.2007

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

#### 1.1 Product identifier

Trade name

Stock number:

CAS Number:

EC number:

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

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 Department

Product safety Tel +049 (0) 7275 988687-0  
Call Carechem 24 at +44 (0) 1865 407333  
Carechem 24: +44 (0) 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. 3 H226 Flammable liquid and vapour.

 GHS05 corrosion

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

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

 C; Corrosive

R34: Causes burns.

R10: Flammable.

#### Information concerning particular hazards for human and environment:

Other hazards that do not result in classification

Not applicable

No information known.

#### 2.2 Label elements

#### Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Hazard statements

#### Precautionary statements

The substance is classified and labelled according to the CLP regulation.

GHS02, GHS05

Danger

H226 Flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

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.

#### 2.3 Other hazards

#### Results of PBT and vPvB assessment

PBT:

vPvB:

Not applicable.

Not applicable.

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

#### 3.1 Substances

CAS# Designation:

Identification number(s):

EC number:

5856-77-9 2,2-Dimethylbutyryl chloride

227-478-5

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

#### 4.1 Description of first aid measures

##### General information

After inhalation

Instantly remove any clothing soiled by the product. Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

Rinse opened eye for several minutes under running water. Then consult doctor.

Seek medical treatment.

No further relevant information available.

No further relevant information available.

### **SECTION 5: Firefighting measures**

#### 5.1 Extinguishing media

Suitable extinguishing agents

5.2 Special hazards arising from the substance or mixture

CO2, sand, extinguishing powder. Do not use water.

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

#### 5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

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Wear full protective suit.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

**6.2 Environmental precautions:**

Keep away from ignition sources  
Do not allow material to be released to the environment without proper governmental permits.  
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:**

Keep away from ignition sources.  
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.

**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:**

No special requirements.

**Information about storage in one common storage facility:**

Store away from oxidizing agents.  
Store away from strong bases.  
Store away from water.

**Further information about storage conditions:**

Store under dry inert gas.  
This product is moisture sensitive.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and keep away from water.

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.

**8.1 Control parameters****Components with critical values that require monitoring at the workplace:**

Not required.  
No data

**Additional information:****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.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Use breathing protection with high concentrations.

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.

Impervious gloves

Not determined

Tightly sealed safety glasses.

Full face protection

Protective work clothing.

**Breathing equipment:****Protection of hands:****Material of gloves****Penetration time of glove material****Eye protection:****Body protection:****SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

Form: 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: 133 °C  
Sublimation temperature / start: Not determined

**Flash point:**

29 °C

**Inflammability (solid, gaseous)**

Not determined.

**Ignition temperature:**

Not determined

**Decomposition temperature:**

Not determined

**Self-inflammability:**

Not determined.

**Critical values for explosion:**

Not determined

**Lower:**

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Upper:	Not determined
Steam pressure:	Not determined
Density at 20 °C	0,98 g/cm <sup>3</sup>
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Reacts
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
9.2 Other information	No further relevant information available.

**SECTION 10: Stability and reactivity**

10.1 Reactivity	No information known.
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	No dangerous reactions known
10.5 Incompatible materials:	Oxidizing agents Bases Water/moisture Carbon monoxide and carbon dioxide Hydrogen chloride (HCl)
10.6 Hazardous decomposition products:	

**SECTION 11: Toxicological information**

11.1 Information on toxicological effects	
Acute toxicity:	Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
LD/LC50 values that are relevant for classification:	No data
Skin irritation or corrosion:	Causes severe skin burns.
Eye irritation or corrosion:	Irritant effect.
Sensitization:	Causes serious eye damage.
Germ cell mutagenicity:	No sensitizing effect known.
Carcinogenicity:	No effects known.
Reproductive toxicity:	No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Specific target organ system toxicity - repeated exposure:	No effects known.
Specific target organ system toxicity - single exposure:	No effects known.
Aspiration hazard:	No effects known.
Additional toxicological information:	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

**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 material to be released to the environment without proper governmental permits. Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system. 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	UN2920
14.2 UN proper shipping name	
ADR	2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2,2-Dimethylbutyryl chloride)
IMDG, IATA	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2,2-Dimethylbutyryl chloride)
14.3 Transport hazard class(es)	
ADR	8 (CF1) Corrosive substances. 8+3
Class Label	 DE/E

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**IMDG, IATA****Class Label**8 Corrosive substances.  
8+3**Packing group**  
ADR, IMDG, IATA

II

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

Warning: Corrosive substances.

**Kemler Number:**

83

**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):**

E2

**Limited quantities (LQ)**

1L

**Tunnel restriction code**

D/E

**UN "Model Regulation":**

UN2920, CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2,2-Dimethylbutyryl chloride), 8 (3), II

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

Substance is not listed.

**Standard for the Uniform Scheduling of Drugs and Poisons**

Substance is not listed.

**National regulations**

For use only by technically qualified individuals.

Employment restrictions concerning young persons must be observed.

**Information about limitation of use:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Water hazard class:**

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

Substance is not listed.

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

Substance is not listed.

REACH - Pre-registered substances

Substance is 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.

**Department issuing data specification sheet:** 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

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

DE/E