

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 02.07.2013

Revision: 21.01.2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name

Cyclohexylzinc bromide, 0.5M in THF

Stock number:

H58852

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 Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

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. 2 H225 Highly flammable liquid and vapour.

Water-react. 2 H261 In contact with water releases flammable gases.



GHS08 health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS05 corrosion

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



GHS07

STOT SE 3 H335 May cause respiratory irritation.

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

C; Corrosive

R34 Causes burns.

Xi; Irritant

R37 Irritating to respiratory system.

F; Highly flammable

R11-15 Highly flammable. Contact with water liberates extremely flammable gases.

R19 May form explosive peroxides.

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**

Hazard pictograms

Signal word

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

GHS02, GHS05, GHS07, GHS08

Danger

Hazard-determining components of labelling:

Tetrahydrofuran

Cyclohexylzinc bromide

H225 Highly flammable liquid and vapour.

H261 In contact with water releases flammable gases.

H314 Causes severe skin burns and eye damage.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

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

P231+P232 Handle under inert gas. Protect from moisture.

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.

EUH019 May form explosive peroxides.

Additional information:**2.3 Other hazards**

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Dangerous components:**

CAS: 109-99-9 EINECS: 203-726-8	Tetrahydrofuran	Xn R40; Xi R36/37; F R11 Flam. Liq. 2, H225; Carc. 2, H351; Eye Irrit. 2, H319; STOT SE 3, H335	88,6%
CAS: 7565-57-3	Cyclohexylzinc bromide	C R34; F R15 Water-react. 1, H260; Skin Corr. 1B, H314	11,4%

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Additional information		None known.	(Contd. of page 1)
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.	
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		If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Hydrogen bromide (HBr) 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 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. Do not flush with water or aqueous cleansing agents Keep away from ignition sources. See Section 7 for information on safe handling See section 8 for information on personal protection equipment. See Section 13 for information on disposal.	
Prevention of secondary hazards:			
6.4 Reference to other sections			
SECTION 7: Handling and storage			
7.1 Precautions for safe handling		Handle under dry protective gas. Keep containers tightly sealed. Ensure good ventilation/exhaustion at the workplace. Open and handle container with care.	
Information about protection against explosions and fires:		Protect against electrostatic charges. Fumes can combine with air to form an explosive mixture. Do not distill to dryness. Explosive peroxides may form, handle container cautiously.	
7.2 Conditions for safe storage, including any incompatibilities			
Storage		Refrigerate	
Requirements to be met by storerooms and containers:			
Information about storage in one common storage facility:		Store away from air. Protect from heat. Store away from strong bases. Store away from oxidizing agents.	
Further information about storage conditions:		Store under dry inert gas. This product is air sensitive. Avoid contact with air / oxygen (formation of peroxide). Store in a locked cabinet or with access restricted to technical experts or their assistants. Refrigerate Check container pressure periodically to prevent explosive peroxides.	
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:			
109-99-9 Tetrahydrofuran (88,6%)			
AGW (Germany)	150 mg/m³, 50 ppm 2(I);DFG, EU, H, Y		
PEL (USA)	590 mg/m³, 200 ppm		

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REL (USA)	Short-term value: 735 mg/m ³ , 250 ppm Long-term value: 590 mg/m ³ , 200 ppm
TLV (USA)	Short-term value: 295 mg/m ³ , 100 ppm Long-term value: 147 mg/m ³ , 50 ppm Skin
Ingredients with biological limit values:	
109-99-9 Tetrahydrofuran (88,6%)	
BGW (Germany)	2 mg/l U b Tetrahydrofuran
BEI (USA)	2 mg/L urine end of shift Tetrahydrofuran
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.
Body protection:	Full face protection Protective work clothing.
SECTION 9: Physical and chemical properties	
9.1 Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Liquid
Colour:	Yellow to brown to black
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
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	230 °C
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.
Danger of explosion:	May form explosive peroxides. Do not distill to dryness.
Critical values for explosion:	
Lower:	1,5 Vol %
Upper:	12,0 Vol %
Steam pressure at 20 °C:	200 hPa
Density at 20 °C	0,963 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Contact with water releases flammable gases
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Solvent content:	
Organic solvents:	88,6 %
Solids content:	11,4 %
9.2 Other information	No further relevant information available.
SECTION 10: Stability and reactivity	
10.1 Reactivity	In contact with water releases flammable gases which may ignite spontaneously. May form explosive peroxides.
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	Reacts with strong oxidizing agents Contact with water releases flammable gases Forms peroxides
10.5 Incompatible materials:	Air Bases Oxidizing agents Heat Water/moisture
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide Hydrogen bromide Metal oxide

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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.
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:**109-99-9 Tetrahydrofuran**

Oral	LD50	1650 mg/kg (rat)
Inhalative	LC50/2H	72000 mg/m ³ /2H (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:

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.

Reproductive toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

May cause respiratory irritation.

Aspiration hazard:

No effects known.

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:
Corrosive
Irritant

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**

UN3399

14.2 UN proper shipping name**ADR**

3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE
ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE,
FLAMMABLE

IMDG, IATA**14.3 Transport hazard class(es)****ADR****Class****Label****IMDG, IATA**

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

**Class****Label**

4.3 Substances which, in contact with water, emit flammable gases.
4.3+3

Packing group**ADR, IMDG, IATA**

II

14.5 Environmental hazards:**Marine pollutant:**

No

14.6 Special precautions for user

Warning: Substances which, in contact with water, emit flammable gases.

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Kemler Number:	323
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)	500 ml
Transport category	0
Tunnel restriction code	D/E
UN "Model Regulation":	UN3399, ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE, 4.3 (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**

109-99-9 Tetrahydrofuran

Standard for the Uniform Scheduling of Drugs and Poisons

None of the ingredients is listed.

National regulations**Information about limitation of use:**

For use only by technically qualified individuals.
Employment restrictions concerning young persons must be observed.
Not applicable

Classification according to VbF:**Technical instructions (air):**

Class	Share in %
NK	88.6

Water hazard class:

Water hazard class 1 (Self-assessment): slightly 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

109-99-9 Tetrahydrofuran

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

H225 Highly flammable liquid and vapour.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H314 Causes severe skin burns and eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

R11 Highly flammable.
R15 Contact with water liberates extremely flammable gases.
R19 May form explosive peroxides.
R34 Causes burns.
R36/37 Irritating to eyes and respiratory system.
R40 Limited evidence of a carcinogenic effect.

Department issuing data specification sheet:**Abbreviations and acronyms:**

Health, Safety and Environmental Department.
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

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