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Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

Product Identifier

Perihalan Produk: Cyclopropylmagnesium bromide, 0,5M solution in THF Product Description: Cyclopropylmagnesium bromide, 0,5M solution in THF

**Cat No. :** 397610000; 397611000

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

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# **SECTION 2: HAZARDS IDENTIFICATION**

#### Classification of the substance or mixture

Flammable liquids	Category 2 (H225)
Substances/mixtures which, in contact with water, emit flammable gases	Category 1 (H260)
Acute oral toxicity	Category 4 (H302)
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Carcinogenicity	Category 2 (H351)
Specific target organ toxicity - (single exposure)	Category 3 (H335) (H336)

#### **Label Elements**



Signal Word Danger

#### **Hazard Statements**

- H225 Highly flammable liquid and vapor
- H260 In contact with water releases flammable gases which may ignite spontaneously
- H302 Harmful if swallowed
- H314 Causes severe skin burns and eye damage
- H335 May cause respiratory irritation
- H336 May cause drowsiness or dizziness
- H351 Suspected of causing cancer

#### **Precautionary Statements**

#### Prevention

- P201 Obtain special instructions before use
- P202 Do not handle until all safety precautions have been read and understood
- 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
- P240 Ground and bond container and receiving equipment
- P242 Use non-sparking tools
- P243 Take action to prevent static discharges
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P264 Wash face, hands and any exposed skin thoroughly after handling
- P270 Do not eat, drink or smoke when using this product
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective gloves/protective clothing/eye protection/face protection

#### Response

- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 Immediately call a POISON CENTER or doctor
- P330 Rinse mouth
- P331 Do NOT induce vomiting
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
- P302 + P335 + P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water
- P362 + P364 Take off contaminated clothing and wash it before reuse

#### **Storage**

P402 + P404 - Store in a dry place. Store in a closed container

## Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Other Hazards

EUH014 - Reacts violently with water

EUH019 - May form explosive peroxides

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight %
Cyclopropylmagnesium bromide	23719-80-4	7.5
Tetrahydrofuran	109-99-9	92.5

## **SECTION 4: FIRST AID MEASURES**

#### Description of first aid measures

# Cyclopropylmagnesium bromide, 0,5M solution in THF

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**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Immediate medical attention is required.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Remove and wash

contaminated clothing and gloves, including the inside, before re-use. Call a physician

immediately.

**Ingestion** Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an

unconscious person. Call a physician immediately.

**Inhalation** If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use

mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory

medical device. Call a physician immediately.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Causes central nervous system depression.

#### Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

## **SECTION 5: FIREFIGHTING MEASURES**

## Extinguishing media

## **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

#### Extinguishing media which must not be used for safety reasons

Water.

#### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Hazardous Combustion Products**

Cyclopropane, Magnesium oxides, Hydrogen bromide.

#### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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#### Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

## Environmental precautions

Should not be released into the environment.

#### Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

#### **Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

# **SECTION 7: HANDLING AND STORAGE**

#### Precautions for Safe Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. If peroxide formation is suspected, do not open or move container. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

#### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Store under an inert atmosphere. Store indoors. Keep away from water or moist air. Shelf life 12 months. May form explosive peroxides on prolonged storage. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Corrosives area.

#### Specific End Uses

Use in laboratories.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control Parameters** 

Control i didiffeters				
Component	Malaysia	ACGIH TLV	OSHA PEL	
Tetrahydrofuran	Tetrahydrofuran		(Vacated) TWA: 200 ppm	
		STEL: 100 ppm	(Vacated) TWA: 590 mg/m <sup>3</sup>	
		Skin	(Vacated) STEL: 250 ppm	
			(Vacated) STEL: 735 mg/m <sup>3</sup>	
			TWA: 200 ppm	
			TWA: 590 mg/m <sup>3</sup>	

Component	European Union	The United Kingdom	Germany
Tetrahydrofuran	TWA: 50 ppm (8h)	STEL: 100 ppm 15 min	TWA: 50 ppm (8 Stunden). AGW -
	TWA: 150 mg/m <sup>3</sup> (8h)	STEL: 300 mg/m <sup>3</sup> 15 min	exposure factor 2
	STEL: 100 ppm (15min)	TWA: 50 ppm 8 hr	TWA: 150 mg/m <sup>3</sup> (8 Stunden). AGW
	STEL: 300 mg/m <sup>3</sup> (15min)	TWA: 150 mg/m <sup>3</sup> 8 hr	- exposure factor 2
	Skin	Skin	TWA: 20 ppm (8 Stunden). MAK
			TWA: 60 mg/m³ (8 Stunden). MAK
			Höhepunkt: 40 ppm
			Höhepunkt: 120 mg/m <sup>3</sup>

# Cyclopropylmagnesium bromide, 0,5M solution in THF

Haut

#### **Exposure Controls**

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

**Eye Protection** Goggles

Hand Protection Protective gloves
Skin and body protection Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators

Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371 or Organic gases and

vapours filter Type A Brown conforming to EN14387

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

When RPE is used a face piece Fit Test should be conducted

<u>Hygiene Measures</u> Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** No information available

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### Information on basic physical and chemical properties

**Appearance** 

Physical State Liquid

Odor No information available
Odor Threshold No data available

**pH** No information available

Melting Point/RangeNo data availableSoftening PointNo data availableBoiling Point/RangeNo information available

Flash Point -17 °C / 1.4 °F Method - No information available

Evaporation Rate

No data available

Flammability (solid,gas) Not applicable Liquid

Explosion Limits No data available

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**Vapor Pressure** No data available **Vapor Density** No data available

Specific Gravity / Density 0.968

Not applicable **Bulk Density** 

Water Solubility Reacts violently with water Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

log Pow Component Tetrahydrofuran 0.45

**Autoignition Temperature Decomposition Temperature** 

Viscosity

**Explosive Properties Oxidizing Properties** 

No data available No data available No data available

No information available

Vapors may form explosive mixtures with air

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# **SECTION 10: STABILITY AND REACTIVITY**

Reactivity

Yes. Reacts violently with water.

**Chemical Stability** 

Air sensitive. May form explosive peroxides. Moisture sensitive. Reacts violently with water, liberating extremely flammable gases.

(Air = 1.0)

Liquid

Possibility of Hazardous Reactions

**Hazardous Polymerization** Hazardous Reactions

Hazardous polymerization does not occur.

None under normal processing. Reacts violently with water.

Conditions to Avoid

Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture.

Keep away from open flames, hot surfaces and sources of ignition. Exposure to air.

**Incompatible Materials** 

Strong oxidizing agents.

**Hazardous Decomposition Products** 

Cyclopropane. Magnesium oxides. Hydrogen bromide.

# **SECTION 11: TOXICOLOGICAL INFORMATION**

Information on Toxicological Effects

## Cyclopropylmagnesium bromide, 0,5M solution in THF

#### **Product Information**

(a) acute toxicity;

Oral Category 4

Dermal Based on available data, the classification criteria are not met Inhalation Based on available data, the classification criteria are not met

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrahydrofuran	1650 mg/kg ( Rat )	> 2000 mg/kg (Rabbit)	180 mg/L (Rat) 1 h
·			53.9 mg/L (Rat) 4 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

No data available Respiratory Skin No data available

	Component	Test method	Test species	Study result
Γ	Tetrahydrofuran	Local Lymph Node Assay	mouse	non-sensitising
1	109-99-9 ( 92.5 )	OECD Test Guideline 429		

(e) germ cell mutagenicity; No data available

Component	Test method	Test species	Study result
Tetrahydrofuran	OECD Test Guideline 476	in vivo	negative
109-99-9 ( 92.5 )	Gene cell mutation	Mammalian	-
	OECD Test Guideline 473		
	Chromosomal aberration assay	in vitro	negative
		Mammalian	

(f) carcinogenicity; Category 2

> The table below indicates whether each agency has listed any ingredient as a carcinogen Limited evidence of a carcinogenic effect

Component	EU	UK	Germany	IARC
Tetrahydrofuran				Group 2B

(g) reproductive toxicity; No data available

Component	Test method	Test species / Duration	Study result
Tetrahydrofuran	OECD Test Guideline 416	Rat	NOAEL = 3,000 ppm
109-99-9 ( 92.5 )		2 Generation	

(h) STOT-single exposure; Category 3

Respiratory system, Central nervous system (CNS). Results / Target organs

(i) STOT-repeated exposure; No data available

**Target Organs** No information available.

(j) aspiration hazard; No data available

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Other Adverse Effects

The toxicological properties have not been fully investigated. Tumorigenic effects have been reported in experimental animals.

delayed

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Causes central nervous system depression.

**Endocrine Disrupting Properties** 

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## **SECTION 12: ECOLOGICAL INFORMATION**

**Ecotoxicity effects** 

Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Tetrahydrofuran	2160 mg/l LC50 = 96 h	EC50 48 h 3485 mg/l		
·	Pimephales promelas	EC50: >10000 mg/L/24h		
	Leuciscus idus: LC50:	_		
	2820 mg/L/48h			

Persistence and degradability

No information available **Persistence** Persistence is unlikely, based on information available.

Degradability

Reacts with water.

Degradation in sewage treatment plant

Reacts violently with water.

Bi

<u>sioaccumulative potential</u>	Bioaccumulation is unlikely; Product does not	bioaccumulate due to reaction with water
Component	log Pow	Bioconcentration factor (BCF)
Tetrahydrofuran	0.45	No data available

Mobility in soil Reacts violently with water. . Is not likely mobile in the environment.

**Endocrine Disruptor Information** 

<u>Endocrino Dioraptor information</u>					
	Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated		
			Substances		
	Tetrahydrofuran	Group III Chemical			

No information available Other adverse effects

# **SECTION 13: DISPOSAL CONSIDERATIONS**

Waste treatment methods

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

**Contaminated Packaging** 

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous Keep product and empty container away from heat and sources of ignition

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Other Information

Do not flush to sewer Waste codes should be assigned by the user based on the application for which the product was used Can be landfilled or incinerated, when in compliance with local regulations Do not empty into drains Large amounts will affect pH and harm aquatic organisms

## **SECTION 14: TRANSPORT INFORMATION**

IMDG/IMO

UN-No UN3399
Hazard Class 4.3
Subsidiary Hazard Class 3
Packing Group |

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE

Cyclopropylmagnesium bromide, Tetrahydrofuran

**Road and Rail Transport** 

UN-No UN3399
Hazard Class 4.3
Subsidiary Hazard Class 3
Packing Group |

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE

Cyclopropylmagnesium bromide, Tetrahydrofuran

<u>IATA</u>

UN-No UN3399
Hazard Class 4.3
Subsidiary Hazard Class 3
Packing Group |

Proper Shipping Name Organometallic substance, liquid, water-reactive, flammable Cyclopropylmagnesium

bromide, Tetrahydrofuran

Special Precautions for User No special precautions required

## **SECTION 15: REGULATORY INFORMATION**

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

International Inventories X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Tetrahydrofuran	203-726-8	X	Х	X	X	X	X	X	KE-33454

# **National Regulations**

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance This product does not contain any known or suspected substance

# **SECTION 16: OTHER INFORMATION**

#### Legend

**CAS** - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

Substances/EU List of Notified Chemical Substances

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound)

#### Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

22-Mar-2025 **Revision Date Revision Summary** Not applicable.

In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**