

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 02.07.2013

Revision: 29.11.2012

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

Trade name

4-Chloro-3-fluorophenylmagnesium bromide, 0.50 M in 2-MeTHF

Stock number:

H54018

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
 Product safety Tel + +049 (0) 7275 988687-0
 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

Informing department:

1.4 Emergency telephone number:**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.



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.



F; Highly flammable

R11: Highly flammable.

R14-19: Reacts violently with water. 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
 Danger

Hazard-determining components of labelling:

Hazard statements

4-Chloro-3-fluorophenylmagnesium bromide
 H225 Highly 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.

Precautionary statements**Additional information:**

EUH014 Reacts violently with water.
 EUH019 May form explosive peroxides.

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: 96-47-9 EINECS: 202-507-4	2-Methyltetrahydrofuran	F R11 Flam. Liq. 2, H225	88,3%
CAS: 170793-00-7	4-Chloro-3-fluorophenylmagnesium bromide	C R34 Skin Corr. 1B, H314	11,7%

Additional information

None known.

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.

After skin contact

Seek immediate medical advice.
 Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.

After swallowing

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

4.2 Most important symptoms and effects, both acute and delayed

Seek medical treatment.

No further relevant information available.

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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
For safety reasons unsuitable extinguishing agents
5.2 Special hazards arising from the substance or mixture
5.3 Advice for firefighters
Protective equipment:
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Water.

Reacts violently with water
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Hydrogen fluoride (HF)
Hydrogen chloride (HCl)
Metal oxide

Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
6.2 Environmental precautions:
6.3 Methods and material for containment and cleaning up:
Prevention of secondary hazards:
6.4 Reference to other sections

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

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.

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.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
Information about protection against explosions and fires:
7.2 Conditions for safe storage, including any incompatibilities
**Storage Requirements to be met by storerooms and containers:
Information about storage in one common storage facility:**
Further information about storage conditions:
7.3 Specific end use(s)

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.
Open and handle container with care.

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.

Store in cool location.

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

Store under dry inert gas.
This product is moisture sensitive.
This product is air sensitive.
Protect from humidity and keep away from water.
Store in cool, dry conditions in well sealed containers.
Avoid contact with air / oxygen (formation of peroxide).
Store in a locked cabinet or with access restricted to technical experts or their assistants.
Check container pressure periodically to prevent explosive peroxides.
No further relevant information available.

SECTION 8: Exposure controls/personal protection
Additional information about design of technical systems:
8.1 Control parameters
Components with critical values that require monitoring at the workplace:
Additional information:
8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
Breathing equipment:
Protection of hands:
Material of gloves
Penetration time of glove material

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

No data

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.

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

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Eye protection: Tightly sealed safety glasses.
Body protection: Full face protection
Protective work clothing.

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SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****General Information****Appearance:**

Form: Liquid
Colour: Yellow to gold to grey
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: Not determined
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: Not determined
Upper: Not determined
Steam pressure: Not determined
Density Not determined
Relative density Not determined.
Vapour density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Reacts violently
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.
kinematic: Not determined.

Solvent content:
Organic solvents: 0,0 %

Solids content: 11,7 %

9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity**10.1 Reactivity**

Reacts violently with water.
May form explosive peroxides.
Stable under recommended storage conditions.

10.2 Chemical stability**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
Reacts violently with water
Forms peroxides

10.5 Incompatible materials:

Air
Oxidizing agents
Bases

10.6 Hazardous decomposition products:

Water/moisture
Carbon monoxide and carbon dioxide
Hydrogen fluoride
Hydrogen chloride (HCl)
Metal oxide

Additional information: This product may form a precipitate.

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:**96-47-9 2-Methyltetrahydrofuran**

Dermal	LD50	4500 mg/kg (rabbit)
Inhalative	LC50/4H	6000 ppm/4H (rat)

Skin irritation or corrosion:

Causes severe skin burns.
Causes serious eye damage.

Sensitization:

No sensitizing effect known.

Germ cell mutagenicity:

No effects known.

Carcinogenicity:

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity:

No effects known.

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.
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

SECTION 12: Ecological information**12.1 Toxicity****Aquatic toxicity:**

No further relevant information available.

12.2 Persistence and degradability

No further relevant information available.

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12.3 Bioaccumulative potential
12.4 Mobility in soil
Additional ecological information:
General notes:

No further relevant information available.
 No further relevant information available.

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:
vPvB:
12.6 Other adverse effects

Not applicable.
 Not applicable.
 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

UN2924

14.2 UN proper shipping name
ADR

2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (4-Chloro-3-fluorophenylmagnesium bromide, METHYLTETRAHYDROFURAN)
 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (4-Chloro-3-fluorophenylmagnesium bromide, METHYLTETRAHYDROFURAN)

IMDG, IATA

14.3 Transport hazard class(es)
ADR



Class
Label
IMDG, IATA

3 (FC) Flammable liquids.
 3+8



Class
Label

3 Flammable liquids.
 3+8

Packing group
ADR, IMDG, IATA

II

14.5 Environmental hazards:
Marine pollutant:

No

14.6 Special precautions for user
Kemler Number:

Warning: Flammable liquids.
 338

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):
Limited quantities (LQ)
Transport category
Tunnel restriction code

E2
 1L
 2
 D/E

UN "Model Regulation":

UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S. (4-Chloro-3-fluorophenylmagnesium bromide, METHYLTETRAHYDROFURAN), 3 (8), II

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances

96-47-9 | 2-Methyltetrahydrofuran

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:

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)

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

96-47-9 | 2-Methyltetrahydrofuran

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.

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Trade name **4-Chloro-3-fluorophenylmagnesium bromide, 0.50 M in 2-MeTHF**

H314 Causes severe skin burns and eye damage. (Contd. of page 4)
R11 Highly flammable.
R14 Reacts violently with water.
R19 May form explosive peroxides.
R34 Causes burns.
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

Department issuing data specification sheet:
Abbreviations and acronyms: