

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

1.1 Product identifier
Trade name **Dodecacarbonyltriiron, stabilized with 5-10%methanol**
Stock number: 13059
CAS Number: 17685-52-8

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. Sol. 1 H228 Flammable solid.

 GHS06 skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.

 GHS08 health hazard

STOT SE 2 H371 May cause damage to the eyes and the brain. Route of exposure: Oral and Inhalative, Dermal.

 GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

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

 T; Toxic

R23: Toxic by inhalation.

 Xn; Harmful

R21/22-68/20/21/22: Harmful in contact with skin and if swallowed. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

 F; Highly flammable

R11: Highly flammable.

Information concerning particular hazards for human and environment:

Not applicable

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

Hazard statements

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

GHS02, GHS06, GHS08

Danger

H228 Flammable solid.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H331 Toxic if inhaled.

H371 May cause damage to the eyes and the brain. Route of exposure: Oral and Inhalative, Dermal.

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

P280 Wear protective gloves / protective clothing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER or doctor/physician.

P404 Store in a closed container.

Precautionary statements

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation: 17685-52-8 Dodecacarbonyltriiron, stabilized with 5-10%methanol

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Instantly remove any clothing soiled by the product.

Remove breathing apparatus only after soiled clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After inhalation

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.

After skin contact

After eye contact

After swallowing

4.2 Most important symptoms and effects, both acute and delayed

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 Extinguishing powder. Do not use 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
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.
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.
Ensure good ventilation/exhaustion at the workplace.
Open and handle container with care.

Information about protection against explosions and fires: Protect against electrostatic charges.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: Refrigerate

Information about storage in one common storage facility: Store away from oxidizing agents.
Store away from air.
Protect from heat.

Further information about storage conditions: Store under dry inert gas.
This product is air sensitive.
Avoid contact with air / oxygen.
Keep container tightly sealed.
Store in a locked cabinet or with access restricted to technical experts or their assistants.
Refrigerate

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:

Methyl alcohol
ppm

ACGIH TLV	200; 250-STEL (skin)
Austria MAK	200 (skin)
Belgium TWA	200; 250-STEL, (skin)
Denmark TWA	200 (skin)
Finland TWA	200; 250-STEL (skin)
France VME	200; 1000-VLE
Hungary TWA	50 mg/m ³ ; 100 mg/m ³ -STEL (skin)
Japan OEL	200 (skin)
Korea TLV	200; 250-STEL (skin)
Netherlands MAC-TGG	200 (skin)
Norway TWA	100
Poland TWA	100 mg/m ³ ; 300 mg/m ³ -STEL
Russia TWA	200; 5 mg/m ³ -STEL (skin)
Sweden NGV	200; 250-KTV (skin)
United Kingdom TWA	200; 250-STEL (skin)
OSHA PEL	200

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.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.
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

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Penetration time of glove material: Not determined
Eye protection: Safety glasses
 Face protection
Body protection: Protective work clothing.

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

Form: Crystalline
Colour: Black
Smell: Not determined
Odour threshold: Not determined.

pH-value: Not applicable.**Change in condition**

Melting point/Melting range: 150 °C (dec)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined

Flash point: Not applicable
Inflammability (solid, gaseous): Highly flammable.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Critical values for explosion:

Lower: Not determined
Upper: Not determined

Steam pressure: Not applicable.**Density at 20 °C:** 2 g/cm³**Relative density:** Not determined.**Vapour density:** Not applicable.**Evaporation rate:** Not applicable.**Solubility in / Miscibility with****Water:** Insoluble**Partition coefficient (n-octanol/water):** Not determined.**Viscosity:****dynamic:** Not applicable.**kinematic:** Not applicable.**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

Air

Heat

10.6 Hazardous decomposition products:

Carbon monoxide

Carbon monoxide and carbon dioxide

Metal oxide

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity:**

Harmful in contact with skin.

Harmful if swallowed.

Danger by skin resorption.

Fatal if inhaled.

LD/LC50 values that are relevant for classification:

Methanol (CAS# 67-56-1)

ORL-RAT LD50: 5628 MG/KG

ORL-MUS LD50: 7300 MG/KG

SKN-RBT LD50: 15800 MG/KG

ORL-HMN LDLo: 143 MG/KG

Skin irritation or corrosion:

May cause irritation

Eye irritation or corrosion:

May cause irritation

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.

No effects known.

Reproductive toxicity:

No effects known.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

May cause damage to the eyes and the brain. Route of exposure: Oral and Inhalative, Dermal.

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:**

No further relevant information available.

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.(Contd. on page 4)
DE/E

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12.6 Other adverse effects No further relevant information available.

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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**

UN3179

14.2 UN proper shipping name ADR

3179 FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.

IMDG, IATA(Dodecacarbonyltriiron/Methanol)
FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Dodecacarbonyltriiron/Methanol)**14.3 Transport hazard class(es) ADR****Class**4.1 (FT2) Flammable solids, self-reactive substances and solid desensitised explosives.
4.1+6.1**Label IMDG, IATA****Class**

4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Label

4.1+6.1

Packing group ADR, IMDG, IATA

II

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

Warning: Flammable solids, self-reactive substances and solid desensitised explosives.

Kemler Number:

46

EMS Number:

F-A,S-G

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)

1 kg

Transport category

2

Tunnel restriction code

E

UN "Model Regulation":

UN3179, FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Dodecacarbonyltriiron/Methanol), 4.1 (6.1), II

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

Substance is not listed.

Substances**Standard for the Uniform Scheduling of**

Substance is not listed.

Drugs and Poisons**National regulations****Information about limitation of use:**For use only by technically qualified individuals.
Employment restrictions concerning young persons must be observed.**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**

Substance is not listed.

Substances)**Substances of very high concern (SVHC)**

Substance is not listed.

according to REACH, Article 57**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:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent