

# Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 13.07.2010

Revision: 13.07.2010

## 1 Identification of substance

### Product details

Trade name

**Dodecacarbonyltetracobalt**

Stock number:

13055

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon: +49(0)6131/19240

## 2 Hazards identification

Hazard designation:

T Toxic  
F Highly flammable

Information pertaining to particular dangers for man and environment

R 11 Highly flammable.  
R 23/25 Toxic by inhalation and if swallowed.  
R 40 Limited evidence of a carcinogenic effect.  
R 43 May cause sensitisation by skin contact.

GHS label elements

**Danger**

H228 - Flammable solid.

**Danger**H301 - Toxic if swallowed.  
H331 - Toxic if inhaled.**Warning**

H351 - Suspected of causing cancer.

### Warning

H317 - May cause an allergic skin reaction.

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

P262 Do not get in eyes, on skin, or on clothing.

P280 Wear protective gloves/clothing.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER or doctor/physician.

Prevention:

Response:

## 3 Composition/information on ingredients

Chemical characterization:

Designation: (CAS#)

Dodecacarbonyltetracobalt (CAS# 17786-31-1)

Identification number(s):

241-763-1

EINECS Number:

## 4 First aid measures

General information

Instantly remove any clothing soiled by the product.

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

Supply fresh air and call for doctor for safety reasons.

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.

Do not induce vomiting; instantly call for medical help.

Seek immediate medical advice.

After inhalation

After skin contact

After eye contact

After swallowing

## 5 Fire fighting measures

Suitable extinguishing agents

CO<sub>2</sub>, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents

Water.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:

Toxic metal oxide smoke

Carbon monoxide and carbon dioxide

Wear self-contained breathing apparatus.

Wear full protective suit.

Protective equipment:

## 6 Accidental release measures

Person-related safety precautions:

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.

Dispose of contaminated material as waste according to item 13.

Ensure adequate ventilation.

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.

Measures for environmental protection:

Measures for cleaning/collecting:

Additional information:

## 7 Handling and storage

Handling

Information 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.

Open and handle container with care.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

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**Storage Requirements to be met by storerooms and containers:**  
**Information about storage in one common storage facility:**

Store in cool location.

Store away from oxidizing agents.  
 Store away from air.

**Further information about storage conditions:**

Store under dry inert gas.  
 Avoid contact with air / oxygen.  
 Keep container tightly sealed.  
 Store in cool, dry conditions in well sealed containers.  
 Store in a locked cabinet or with access restricted to technical experts or their assistants.  
 This product is air sensitive.

## 8 Exposure controls and 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.

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

Cobalt, elemental &amp; inorganic compounds, as Co

mg/m<sup>3</sup>  
 ACGIH TLV 0.02; Confirmed animal carcinogen  
 Austria Carcinogen  
 Belgium TWA 0.05  
 Denmark TWA 0.05  
 Finland TWA 0.05 (skin)  
 Germany Carcinogen  
 Hungary TWA 0.1; 0.2-STEL  
 Japan OEL 0.05; 2B-Carcinogen  
 Korea TLV 0.02; Confirmed animal carcinogen  
 Netherlands MAC-TGG 0.05  
 Norway TWA 0.05  
 Poland TWA 0.05; 0.2-STEL  
 Russia 0.5-STEL  
 Sweden NGV 0.05  
 Switzerland MAK-W 0.1; Carcinogen  
 United Kingdom TWA 0.1  
 USA PEL 0.1 (dust and fume)  
 No data

**Additional information:**

**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.  
 Use breathing protection with high concentrations.  
 Face protection  
 Safety glasses  
 Protective work clothing.

**Breathing equipment:**

**Eye protection:**

**Body protection:**

## 9 Physical and chemical properties:

### General Information

**Form:** Crystalline  
**Colour:** Black  
**Smell:** Not determined

**Change in condition**  
**Melting point/Melting range:** ca 60°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

**Critical values for explosion:**  
**Lower:** Not determined  
**Upper:** Not determined

**Steam pressure:** Not determined

**Density at 20°C** 2.09 g/cm<sup>3</sup>

**Solubility in / Miscibility with Water:** Insoluble

## 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**

**Materials to be avoided:**

No decomposition if used and stored according to specifications.  
 Oxidizing agents  
 Air

**Dangerous reactions:**

**Dangerous products of decomposition:**

No dangerous reactions known  
 Toxic metal oxide smoke  
 Carbon monoxide  
 Carbon monoxide and carbon dioxide

## 11 Toxicological information

**Acute toxicity:**  
**Primary irritant effect:**

**on the skin:**

**on the eye:**

**Sensitization:**

May cause irritation  
 May cause irritation  
 Sensitization possible by skin contact.

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**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
 IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.  
 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.  
 May cause sensitisation by skin contact.

**Sensitisation****12 Ecological information:****Additional ecological information:****General notes:**

Do not allow product to reach ground water, water bodies or sewage system.  
 Water hazard class 2 (Self-assessment): hazardous for water.  
 Danger to drinking water if even small quantities leak into soil.  
 Do not allow material to be released to the environment without proper governmental permits.

**13 Disposal considerations****Product:  
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.

**14 Transport information****Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

**ADR/RID-GGVS/E Class:** 4.1 (FT2) Flammable solids, self-reactive substances and solid desensitised explosives.  
**Kemler Number:** 46  
**UN-Number:** 3179  
**Packaging group:** II  
**Label:** 4.1+6.1  
**Designation of goods:** 3179 FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Dodecacarbonyltetracobalt)  
**Limited quantities (LQ)** LQ0  
**Transport category** 2  
**Tunnel restriction code** E

**Maritime transport IMDG/GGVSea:**

**IMDG/GGVSea Class:** 4.1  
**UN Number:** 3179  
**Label:** 4.1+6.1  
**Packaging group:** II  
**Marine pollutant:** No  
**Correct technical name:** FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Dodecacarbonyltetracobalt)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 4.1  
**UN/ID Number:** 3179  
**Label:** 4.1+6.1  
**Packaging group:** II  
**Correct technical name:** FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Dodecacarbonyltetracobalt)

**UN "Model Regulation":**

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

**15 Regulatory information****Designation according to EC guidelines:****Code letter and hazard designation of product:**

T Toxic  
 F Highly flammable

**Risk phrases:**

11 Highly flammable.  
 23/25 Toxic by inhalation and if swallowed.  
 40 Limited evidence of a carcinogenic effect.  
 43 May cause sensitisation by skin contact.

**Safety phrases:**

6 Keep under carbon dioxide.  
 16 Keep away from sources of ignition - No smoking.  
 24 Avoid contact with skin.  
 36/37 Wear suitable protective clothing and gloves.  
 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**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 2 (Self-assessment): hazardous for water.

**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.  
**Contact:** Zachariah Holt

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Trade name **Dodecacarbonyltetracobalt****Abbreviations and acronyms:**

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ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
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)  
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)

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