

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

1.1 Product identifier

Trade name	<u>Cadmium oxide</u>
Stock number:	33235
CAS Number:	1306-19-0
EC number:	215-146-2
Index number:	048-002-00-0
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

 GHS06 skull and crossbones

Acute Tox. 2 H330 Fatal if inhaled.


 GHS08 health hazard

Muta. 2	H341	Suspected of causing genetic defects.
Carc. 1B	H350	May cause cancer.
Repr. 2	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.


 GHS09 environment

Aquatic Acute 1	H400	Very toxic to aquatic life.
Aquatic Chronic 1	H410	Very toxic to aquatic life with long lasting effects.

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


 T+; Very toxic

R26: Very toxic by inhalation.


 T; Toxic

Carc. Cat. 2

R45-48/23/25: May cause cancer. Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

 Xn; Harmful

R62-68-63: Possible risk of impaired fertility. Possible risk of irreversible effects. Possible risk of harm to the unborn child.

 N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Muta. Cat. 3, Repr. Cat. 3

Information concerning particular hazards for human and environment:

Other hazards that do not result in classification

Not applicable

No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



GHS06 GHS08 GHS09

Signal word

Hazard statements

Danger

H330 Fatal if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P284 Wear respiratory protection.

P281 Use personal protective equipment as required.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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:	1306-19-0 Cadmium oxide
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Trade name **Cadmium oxide**

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Identification number(s):
EC number: 215-146-2
Index number: 048-002-00-0

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.
After skin contact: 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.
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 5.2 Special hazards arising from the substance or mixture

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

If this product is involved in a fire, the following can be released:
Cadmium 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

6.2 Environmental precautions:

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:

Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

Prevention of secondary hazards:

No special measures required.

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

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:

The product is not flammable

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

No special requirements.

Information about storage in one common storage facility:

Store away from magnesium/magnesium alloys

Further information about storage conditions:

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.
No further relevant information available.

7.3 Specific end use(s)

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:

1306-19-0 Cadmium oxide (100,0%)

MAK (Germany)	einatembare Fraktion; vgl. Abschn. XII
PEL (USA)	Long-term value: 0,005 mg/m ³ as Cd; see 29 CFR 1910,1027
REL (USA)	See Pocket Guide App. A
TLV (USA)	Long-term value: 0,01 0,002* mg/m ³ as Cd; *respirable fraction; BEI

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.
Store protective clothing separately.
Maintain an ergonomically appropriate working environment.
Use self-contained respiratory protective device in emergency situations.

Breathing equipment:

Recommended filter device for short term use:

Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

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.

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Trade name **Cadmium oxide**

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Material of gloves: Nitrile rubber, NBR
Penetration time of glove material: Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder
Colour: Red-brown
Smell: Odourless
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: 1430 °C
Boiling point/Boiling range: Not determined
Sublimation temperature / start: 1559 °C
Inflammability (solid, gaseous): Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Danger of explosion: Not determined.

Critical values for explosion:

Lower: Not determined
Upper: Not determined
Steam pressure: Not applicable.
Density at 20 °C: 8,15 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: Magnesium/magnesium alloys
10.6 Hazardous decomposition products: Cadmium oxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: Fatal if inhaled.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

Oral	LD50	72 mg/kg (rat)
Inhalative	LC50/1H	45 mg/m ³ /1H (rat)

Skin irritation or corrosion: May cause irritation
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: Suspected of causing genetic defects.
Carcinogenicity: May cause cancer.
IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.
EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.
Carcinogen as defined by OSHA.
ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.
NTP-K: Known to be carcinogenic: sufficient evidence from human studies.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

Specific target organ system toxicity - repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

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.

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.

Ecotoxicological effects:

Remark: Very toxic for fish

Additional ecological information:

General notes: Water danger class 3 (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.

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Trade name **Cadmium oxide**

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12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms

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 UN2570
ADR, IMDG, IATA

14.2 UN proper shipping name
ADR 2570 CADMIUM COMPOUND (Cadmium oxide)
IMDG CADMIUM COMPOUND (Cadmium oxide), MARINE POLLUTANT
IATA CADMIUM COMPOUND (Cadmium oxide)

14.3 Transport hazard class(es)

ADR

Class 6.1 (T5) Toxic substances.
Label 6.1
IMDG

 
Class 6.1 Toxic substances.
Label 6.1
IATA


Class 6.1 Toxic substances.
Label 6.1

Packing group III
ADR, IMDG, IATA

14.5 Environmental hazards: Environmentally hazardous substance, solid; Marine Pollutant
Marine pollutant: Yes (P)
Symbol (fish and tree)

14.6 Special precautions for user Warning: Toxic substances.
Kemler Number: 60
EMS Number: F-A,S-A

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): E1
Limited quantities (LQ) 5 kg
Transport category 2
Tunnel restriction code E

UN "Model Regulation": UN2570, CADMIUM COMPOUND (Cadmium oxide), 6.1, III

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances Substance is listed.

Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.

National regulations
Information about limitation of use: Workers should not be exposed to this hazardous material. Exceptions can be made by the authorities in certain exceptional cases.
Employment restrictions concerning young persons must be observed.
Employment restrictions concerning women of child-bearing age must be observed.
For use only by technically qualified individuals.

Technical instructions (air):

Class	Share in %
I	100.0

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.
Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances) Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. This substance is included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH).

REACH - Pre-registered substances Substance is listed.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Trade name **Cadmium oxide**

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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 SDS:
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
P: Marine Pollutant
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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Acute Tox. 2: Acute toxicity, Hazard Category 2
Muta. 2: Germ cell mutagenicity, Hazard Category 2
Carc. 1B: Carcinogenicity, Hazard Category 1B
Repr. 2: Reproductive toxicity, Hazard Category 2
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

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