

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 03.02.2010

Printing date 14.07.2010

**1 Identification of substance****Product details**

Trade name

**Nickel sulfide**

Stock number:

45498

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  
N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 49 May cause cancer by inhalation.  
R 43 May cause sensitisation by skin contact.  
R 48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation.  
R 68 Possible risk of irreversible effects.  
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

GHS label elements

**Danger**

H350 - May cause cancer.  
H372 - Causes damage to organs through prolonged or repeated exposure.  
H341 - Suspected of causing genetic defects.

**Warning**

H400 - Very toxic to aquatic life.  
H410 - Very toxic to aquatic life with long lasting effects.

**Warning**

H317 - May cause an allergic skin reaction.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P321 Specific treatment (see on this label).  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Prevention:

Response:

Storage:

Disposal:

**3 Composition/information on ingredients**

Chemical characterization:

Designation: (CAS#)

Nickel sulfide (CAS# ?)

**4 First aid measures**

After inhalation

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.

After skin contact

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

After eye contact

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

**5 Fire fighting measures**

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

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Protective equipment:

Can be released in case of fire:  
Toxic metal oxide smoke  
Hydrogen sulphide  
Sulphur oxides (SO<sub>x</sub>)  
Wear self-contained breathing apparatus.  
Wear full protective suit.

**6 Accidental release measures**

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

Measures for environmental protection:

Measures for cleaning/collecting:

Do not allow material to be released to the environment without proper governmental permits.  
Dispose of contaminated material as waste according to item 13.

Additional information:

Ensure adequate ventilation.  
See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**7 Handling and storage**

Handling

Information for safe handling:

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

No special measures required.

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

No special requirements.

Further information about storage conditions:

Store away from oxidizing agents.  
Do not store together with acids.

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.

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 03.02.2010

Printing date 14.07.2010

Trade name **Nickel sulfide**

(Contd. of page 1)

**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:**

Nickel and inorganic compounds, as Ni  
mg/m<sup>3</sup>  
ACGIH TLV 1.5, A5-inhalable particulate (metal)  
0.2, A1-inhalable particulate (insoluble compounds)  
0.1, A4-inhalable particulate (soluble compounds)  
Austria Carcinogen  
Denmark TWA 0.5  
Finland TWA 0.1 (skin) Carcinogen  
France VME 1; C3-Carcinogen  
Germany Carcinogen  
Hungary 0.005-STEL; Carcinogen (insoluble compounds)  
Japan 1; 2B-Carcinogen  
Korea TLV 1.5  
Netherlands MAC-TGG 1; Carcinogen  
1 (insoluble compounds)  
Norway TWA 0.05  
Poland TWA 0.25  
Russia 0.05-STEL  
Sweden NGV 0.5 (dust)  
Switzerland MAK-W 0.5; Carcinogen  
United Kingdom TWA 0.1  
USA PEL 1  
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.  
Store protective clothing separately.  
Use breathing protection with high concentrations.  
Safety glasses  
Face protection  
Protective work clothing.

**Breathing equipment:****Eye protection:****Body protection:****9 Physical and chemical properties:****General Information**

**Form:** Powder  
**Colour:** Black  
**Smell:** Like rotten eggs

**Change in condition**

**Melting point/Melting range:** Not determined  
**Boiling point/Boiling range:** Not determined  
**Sublimation temperature / start:** Not determined

**Flash point:** Not applicable

**Ignition temperature:** Not determined

**Decomposition temperature:** Not determined

**Danger of explosion:** Product is not explosive.

**Critical values for explosion:**

**Lower:** Not determined  
**Upper:** Not determined

**Steam pressure:** Not determined

**Density:** Not determined

**Solubility in / Miscibility with**

**Water:** Insoluble

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**Materials to be avoided:**

Oxidizing agents  
Acids

**Dangerous reactions:**

Reacts with oxidizing agents  
Reacts with acids forming hydrogen sulphide

**Dangerous products of decomposition:**

Toxic metal oxide smoke  
Sulphur oxides (SO<sub>x</sub>)  
Hydrogen sulphide

**11 Toxicological information****Acute toxicity:****Primary irritant effect:****on the skin:****on the eye:****Sensitization:****Additional toxicological information:**

Irritant for skin and mucous membranes.  
Irritant effect.  
Sensitization possible by skin contact.  
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.  
NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.  
ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.  
May cause sensitisation by skin contact.

**Sensitisation**

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 03.02.2010

Printing date 14.07.2010

Trade name **Nickel sulfide**

(Contd. of page 2)

**12 Ecological information:**

**Ecotoxicological effects:**  
**Remark:** Very toxic for fish  
**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.  
Also poisonous for fish and plankton in water bodies.  
Do not allow material to be released to the environment without proper governmental permits.  
Very toxic for aquatic organisms

**13 Disposal considerations**

**Product:**  
**Recommendation:** Consult state, local or national regulations for proper disposal.  
Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.

**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:** 9 (M7) Miscellaneous dangerous substances and articles.  
**Kemler Number:** 90  
**UN-Number:** 3077  
**Packaging group:** III  
**Label:** 9  
**Special marking:** Symbol (fish and tree)  
**Designation of goods:** 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel(IV) sulfide)  
**Limited quantities (LQ):** LQ27

**Maritime transport IMDG/GGVSea:**

**IMDG/GGVSea Class:** 9  
**UN Number:** 3077  
**Label:** 9  
**Packaging group:** III  
**Marine pollutant:** No  
**Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel(IV) sulfide)

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

**ICAO/IATA Class:** 9  
**UN/ID Number:** 3077  
**Label:** 9  
**Special marking:** Symbol (fish and tree)  
**Packaging group:** III  
**Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel(IV) sulfide)

**UN "Model Regulation":**

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III

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

T Toxic  
N Dangerous for the environment

**Risk phrases:**

49 May cause cancer by inhalation.  
43 May cause sensitisation by skin contact.  
48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation.  
68 Possible risk of irreversible effects.  
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

53 Avoid exposure - obtain special instructions before use.  
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
60 This material and its container must be disposed of as hazardous waste.  
61 Avoid release to the environment. Refer to special instructions/safety data sheets.

**National regulations****Information about limitation of use:**

Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.

**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

**Abbreviations and acronyms:**  
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

(Contd. on page 4)

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Printing date 14.07.2010

Revision: 03.02.2010

Trade name **Nickel sulfide**

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service (division of the American Chemical Society)

(Contd. of page 3)

GB