# Safety data sheet
**according to 1907/2006/EC, Article 31**

*Printing date 01.07.2013* *Revision: 20.04.2011*

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

**1.1 Product identifier**
**Trade name** ***Acrylonitrile***
**Stock number:** A13058
**CAS Number:** 107-13-1
**EC number:** 203-466-5
**Index number:** 608-003-00-4
**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 (o) 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. Liq. 2 H225 Highly flammable liquid and vapour.


GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.


GHS08 health hazard

Carc. 1B H350 May cause cancer.


GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.


GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.


GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

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

T; Toxic
Carc. Cat. 2
R45-23/24/25: May cause cancer. Toxic by inhalation, in contact with skin and if swallowed.

Xi; Irritant
R37/38-41: Irritating to respiratory system and skin. Risk of serious damage to eyes.

Xi; Sensitising
R43: May cause sensitisation by skin contact.

F; Highly flammable
R11: Highly flammable.

N; Dangerous for the environment
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
**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** The substance is classified and labelled according to the CLP regulation.
**Hazard pictograms** GHS02, GHS05, GHS06, GHS08, GHS09
**Signal word** Danger
**Hazard statements**
H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.
**Precautionary statements**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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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.
P361 Remove/Take off immediately all contaminated clothing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**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:** 107-13-1 Acrylonitrile
**Identification number(s):**
**EC number:** 203-466-5
**Index number:** 608-003-00-4

## *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.
**After inhalation** Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.
**After skin contact** Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
**After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
**After swallowing** Do not induce vomiting; instantly call for medical help.
**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** $CO_2$, sand, 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
Nitrogen oxides (NOx)
Hydrogen cyanide (HCN)
**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.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
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** 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:** Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
**7.2 Conditions for safe storage, including any incompatibilities**
**Storage**
**Requirements to be met by storerooms and containers:** Store in cool location.
**Information about storage in one common storage facility:** Store away from oxidizing agents.
Store in the dark.
**Further information about storage conditions:** Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from the effects of light.
Store in a locked cabinet or with access restricted to technical experts or their assistants.
**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.

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**8.1 Control parameters**

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

**107-13-1 Acrylonitrile (100,0%)**

| | |
|---|---|
| MAK (Germany) | vgl.Abschn.XII |
| MAK (TRGS 900) (Germany) | 7 mg/m³, 3 ppm<br>H,TRK; TRGS 901-9 |
| TRK (TRGS 900) (Germany) | 7 mg/m³, 3 ppm |
| PEL (USA) | Short-term value: C 10 ppm<br>Long-term value: 2 ppm<br>Skin; see 29 CRF 1910,1045 |
| REL (USA) | Short-term value: C 10* ppm<br>Long-term value: 1 ppm<br>*15-min; Skin; See Pocket Guide App. A |
| TLV (USA) | 4,3 mg/m³, 2 ppm<br>Skin |

**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.
Avoid contact with the skin.
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
**Penetration time of glove material** Not determined
**Eye protection:** Tightly sealed 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:** Liquid
**Colour:** Colourless
**Smell:** Pungent
**Odour threshold:** Not determined.

**pH-value:** Not determined.

**Change in condition**
**Melting point/Melting range:** -83 °C
**Boiling point/Boiling range:** 77 °C
**Sublimation temperature / start:** Not determined

**Flash point:** 1 °C
**Inflammability (solid, gaseous)** Not applicable.
**Ignition temperature:** 480 °C
**Decomposition temperature:** Not determined
**Self-inflammability:** Not determined.
**Critical values for explosion:**
**Lower:** 2,8 Vol %
**Upper:** 28 Vol %
**Steam pressure at 20 °C:** 116 hPa
**Density at 20 °C** 0,81 g/cm³
**Relative density** Not determined.
**Vapour density** Not determined.
**Evaporation rate** Not determined.
**Solubility in / Miscibility with**
**Water at 20 °C:** 73 g/l
**Partition coefficient (n-octanol/water):** Not determined.
**Viscosity:**
**dynamic:** Not determined.
**kinematic:** Not determined.
**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
Light
**10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
Hydrogen cyanide (prussic acid)

## *SECTION 11: Toxicological information*

**11.1 Information on toxicological effects**
**Acute toxicity:** Danger by skin resorption.
Fatal if inhaled.
Toxic in contact with skin.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

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**LD/LC50 values that are relevant for classification:**

| | | |
|---|---|---|
| Oral | LD50 | 78 mg/kg (rat) |
| Dermal | LD50 | 63 mg/kg (rabbit) |
| Inhalative | LC50/4H | 425 mg/m3/4H (rat) |

**Skin irritation or corrosion:** Causes skin irritation.
**Eye irritation or corrosion:** Causes serious eye damage.
**Sensitization:** May cause an allergic skin reaction.
**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
**Carcinogenicity:** May cause cancer.
IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.
NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies 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 epidemologic 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.
EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.
Carcinogen as defined by OSHA.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.
**Reproductive toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
**Specific target organ system toxicity - repeated exposure:** No effects known.
**Specific target organ system toxicity - single exposure:** May cause respiratory irritation.
**Aspiration hazard:** No effects known.
**Experience with humans:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
Toxic in contact with skin.

## *SECTION 12: Ecological information*

**12.1 Toxicity**
**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.
**Ecotoxical effects:**
**Remark:** Toxic for fish
**Additional ecological information:**
**General notes:** Do not allow material to be released to the environment without proper governmental permits.
Toxic for aquatic organisms
Water danger class 3 (Assessment by list): 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.
Also poisonous for fish and plankton in water bodies.
Toxic to aquatic life.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
**12.5 Results of PBT and vPvB assessment**
**PBT:** Not applicable.
**vPvB:** Not applicable.
**12.6 Other adverse effects** 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** UN1093

**14.2 UN proper shipping name**
**ADR** 1093 ACRYLONITRILE, STABILIZED
**IMDG, IATA** ACRYLONITRILE, STABILIZED

**14.3 Transport hazard class(es)**

**ADR**

**Class** 3 (FT1) Flammable liquids.
**Label** 3+6.1

**IMDG, IATA**

**Class** 3 Flammable liquids.
**Label** 3+6.1

**Packing group**
**ADR, IMDG, IATA** I

**14.5 Environmental hazards:** Environmentally hazardous substance, liquid

**14.6 Special precautions for user** Warning: Flammable liquids.

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| | |
|---|---|
| **Kemler Number:** | 336 |
| **EMS Number:** | F-E,S-D |
| **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):** | E0 |
| **Limited quantities (LQ)** | 0 |
| **Transport category** | 1 |
| **Tunnel restriction code** | C/E |
| **UN "Model Regulation":** | UN1093, ACRYLONITRILE, STABILIZED, 3 (6.1), I |

## *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 Drugs and Poisons**

| | | |
|---|---|---|
| 107-13-1 | Acrylonitrile | S7 |

**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.
For use only by technically qualified individuals.

**Classification according to VbF:** A I

**Technical instructions (air):**

| Class | Share in % |
|---|---|
| II | 100,0 |

**Water hazard class:** Water danger class 3 (Assessment by list): extremely hazardous for water.

**Other regulations, limitations and prohibitive regulations**

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

**Substances of very high concern (SVHC) according to REACH, Article 57** Substance is not listed.

**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
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent