

1. PRODUCT IDENTIFICATION

Article description: Aluminium drawn wire and rods

Aluminium drawn wire and rods are considered as articles under Regulation (EC) 1907/2006 concerning Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH).

In accordance with REACH and Regulation (EC) 1272/2008 on Classification, Labelling, and Packaging of substances and mixtures (CLP) only substances and preparations require a Safety Data Sheet (SDS). Articles under REACH do not require a classic SDS, so this **Safety Information Sheet (SIS) is provided for information purposes only**. It summarizes information on the safe use of the material and its potential impacts on both human health and the environment.

Article name: NOVAMETAL S.A. aluminium drawn wire and rods according to the relevant international standard: e.g. EN 573 for general purpose applications, ISO 18273 for welding applications.

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2. HAZARDS IDENTIFICATION

Classification: Not classified.

Information concerning particular

hazards for human and environment: Does not pose any health hazard under normal conditions of use and as delivered. Fines particles from processing (grinding, cutting, polishing and welding) may be readily ignitable, and needs to be controlled.

Fine particles in contact with water or humidity in air may release flammable gases in hazardous quantities, and may in some cases set off termite reactions in contact with iron oxide and certain other metal oxides.

For liquid aluminium there is a risk of explosions if in contact with water, and reacts violently in contact with rust, oxides of some other metals or nitrate.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterization: Aluminium with Al content of > 95 weight by weight %.

CAS #	EC #	Component	Concentration %	Classification	R- phrase
7429-90-5	231-072-3	Aluminium, metal	> 95	none	none

Chemical characterization: Main impurities Fe and Si.

4. FIRST AID MEASURES

After inhalation: in case of dust generation during some work operations and inhalation remove to ventilated area and keep calm. In case of ongoing discomfort consult a physician.

After skin contact: in case of burns from hot/liquid metal, rinse with plenty of water and contact physician. In case of liquid metal splashes, remove affected clothing.

After eye contact: if particles comes into contact with eyes treatment for mechanical irritation or injury may be required; in case of ongoing discomfort consult a physician.

After swallowing: not applicable.

Notes to physician: none.

5. FIRE FIGHTING MEASURES

This product does not present fire or explosion hazards as shipped. Small chips, dust and fines may be ignitable.

Suitable extinguishing agents: Use class D extinguishing agents on dust, fines or molten metal. Use coarse water spray on chips and turnings.

Unsuitable extinguishing agents: DO NOT USE halogenated extinguishing agents on small chips/fines. DO NOT USE water in fighting fires around molten metal. These fire extinguishing agents will react with the burning material.

Special hazards caused by the substance, its products of combustion or resulting gases: None - fine particles in contact with water may generate flammable gases, dust explosions may also occur.

Protective equipment: Fire fighters should wear approved, positive pressure; self-contained breathing apparatus and full heat protective clothing when appropriate.

Additional hints: The product as such is not flammable. Use fire fighting extinguishing methods suitable to surrounding conditions.
 Fine dispersed aluminium (dust, powder) may form explosive mixtures in contact with air. In case of fine particles in contact with water, flammable gases in hazardous quantities may be released.
 Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid generating dust. Avoid contact with sharp edges or heated metal. Molten, heated and cold aluminum look alike; do not touch unless you know it is cold. Use personal protection recommended in Section 8.

Environmental protection measures: Collect scrap for recycling.

Measures for cleaning: Pick up mechanically. In liquid form let solidify and cool down to ambient air temperature.

Additional hints: See section 13.

7. HANDLING AND STORAGE

Normal precautions should be taken to avoid physical injuries produced mainly by sharp edges. Personal protective equipment must be used e.g. special gloves and eye protection.

Handling: Keep material dry. Avoid generating dust. Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different. Ensure good ventilation / local exhaust at the workplace in the case of operations generating dust, like cutting, grinding, polishing.
 Fine dispersed aluminium (dust, powder) may form explosive mixtures in contact with air and in contact with water may release highly flammable gases in hazardous quantities. Remelt ingots needs to be kept dry and preheated before charging into liquid metal.

Storage: Product should be kept dry. Pay attention to stack stability.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Personal safety precautions: Occupational exposure limits (air):
 ▪ Germany: 10*/3** mg/m³ (*inhalable dust; ** respirable dust)

- Great Britain: 10*/4** mg/m³ (*inhalable dust; ** respirable dust)
- Selected other EU countries: 10mg/m³ total dust
- United States (OSHA): 15 mg/m³ (total dust); 5 mg/m³ TWA (respirable fraction)
- Some additional EU countries: 10 mg/m³, Aluminium welding fumes 5 mg/m³

Biological tolerable limit:

- Germany: 200 µg/l Urine at end of shift.

Exposure controls:

Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards.

Personal protective equipment:

Respiratory equipment: not required under recommended conditions of use. In case dust or fumes are released personal protective equipment required if exposure limits are exceeded.

Use appropriate PPE when handling ingots and hot metal (CEN standards).
Fire resistant clothing when handling liquid metal.

Environmental exposure control: No special exposure controls necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	solid at 1013 mbar / 20 °C
Colour:	silvery or silver grey (also when hot)
Odour:	odourless
pH- value:	not relevant
Melting point/Melting range:	approx. 660°C
Boiling Point/Boiling range:	approx. 2467°C
Flash point:	not relevant
Flammability:	not relevant
Explosive properties:	not relevant
Density at 20°C:	2.7 g/cm ³
Solubility in water (20°C):	almost insoluble

10. STABILITY AND REACTIVITY

Stable under normal conditions of use, storage, and transport.

Conditions to be avoided:

Massive metal is stable and none reactive under normal conditions of use, storage and transport. Molten aluminium may react violently in contact with certain metal oxides and nitrates (rust etc.).

Avoid melting wet or cold materials as molten metal may cause explosions in contact with water or wet surfaces.

In areas with very high dust concentrations, aluminium dust may form an explosive atmosphere.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution:

Oral uptake < 0.1%, nearly insoluble in lung fluids. Most absorbed aluminium is rapidly excreted through urine. Main deposit in body is in bone structure.

Acute effects

(acute toxicity, irritation and corrosivity): No acute effects.

- acute toxicity: LD50 (oral): > 5000mg/kg bwt (rats)
LD50 (dermal): no effect
LD50 (inhalative): > 5 mg/l (rats)

Specific symptoms in animal tests:

- after swallowing: none
- after skin contact: none
- after inhalation: none

Irritation/Corrosive effects:

- irritant effects on skin: no effects
- irritant effect on eyes: no effects. Aluminium particles may produce irritation due to mechanical abrasion.

Sensitization:

- after skin contact: none
- after inhalation: none

Toxicity after repeated intake (sub acute, sub chronic, chronic)

- sub acute oral toxicity: none - Calculated DNEL 3,95 mg/kg bwt/day
- sub acute inhalative toxicity: none, see occupational exposure limits. Calculated DNEL 3,7 mg/m³ - respirable.

CMR-effects (carcinogenic, mutagenic and reproductive effects)

- Carcinogenicity: none
- Mutagenicity: none
- Reproductive toxicity: none
- Assessment of CMR properties: not classified for CMR
- Product components not listed under IARC/NTP/ACGIH (ingredient carcinogenicity).

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product/ingredient name	test	result	Species	Exposure
Aluminium metal shavings	Fish - OECD TG 203	>100 mg/l	Salmo trutta	pH 8
Aluminium metal shavings	Daphnia - OECD TG 202	>100mg/l	Daphnia Magna	pH 8
Aluminium metal shavings	Algae - OECD TG 201	>100mg/l	Selenastrum Capricornutum	pH 8

Mobility: Not mobile under normal environmental conditions; may be leached from the ground at low pH (< 5.5) or high pH (> 8.5).

Persistence: Not relevant for metals.

Biological degradability: Not degradable.

Bioaccumulative potential: Not bio accumulative.

Long term ecotoxicity: Not classified for ecotoxicity.

Results of PBT assessment: Not relevant for metals.

Other adverse effects: No.

Final assessment: No acute or chronic classification is appropriate for Al metal massive based on non toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminium metal, oxide and hydroxide at loadings of 100 mg/L at pH 8-8.5 (maximum

solubility of Al expected). All aluminium in soil or the aquatic environment comes from natural sources. Local sources has an insignificant contribution and impact on environment.

13. DISPOSAL CONSIDERATIONS

Disposal / Waste (Product): Metallic residues are secondary raw materials and subject of recycling.

Packaging: Recycle aluminium packing. Any disposal according to national regulation.

14. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

15. REGULATORY INFORMATION

No knowledge about classification or special regulations. Follow general rules for handling, transport and waste management.

16. OTHER INFORMATION

In dealing with chemicals the national laws and regulation must be observed and applied.

The information herein is given in good faith and based on technical data that NOVAMETAL S.A. believes to be reliable. Since the conditions of use, handling, storage, and disposal of the products are outside our control, we assume no liability in connection with any use of this information and no warranty, expressed or implied is given.

Therefore, we do not assume any responsibility and expressly reject any liability for loss, damage or expense that might result from handling, storage, use or disposal of the product or that are connected to them in any way.

This safety information sheet has been prepared for this product and should only be used in relation to it. If the product is used as a component in another product, the information contained in the safety information sheet may not apply.

DISCLAIMER:

This safety informative sheet (SIS) is only intended to provide for reference only information. It can not in any way be regarded as a safety data sheet (SDS), nor in any way be used for this purpose.