

# SAFETY DATA SHEET

PRODUCT NAME: ALUMINIUM

## 1) NAME OF PRODUCTS

trade name NOVAMETAL	correspondence to		
	AWS/ SFA A 5.10	DIN 1732 W.Nr.	EN ISO 18273
A1050	ER 1100 *	3.0259	Al 1070 – Al 99,7 *
A1070	-----	-----	Al 1070 – Al 99,7
A4043	ER 4043	3.2245	4043A
A5183	ER 5183	3.3548	5183
A5356	ER 5356	3.3556	5356
A5556	ER 5556	3.3538	5556A

\*similar to

CHEMICAL FAMILY: NON FERROUS METALS

FORM: WIRE

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## 2) COMPOSITION - IDENTIFICATION OF INGREDIENTS

### EXPOSURE LIMITS

<u>COMPONENT</u> <u>Alloy Elements</u>	<u>CAS N°</u>	<u>FORM</u>	<u>% WEIGHT</u>	<u>ACGIH</u> <u>TLV(mg/m<sup>3</sup>)</u>	<u>OSHA PEL (mg/m<sup>3</sup>)</u>
Aluminum (Al)	7429-90-5	Total dust, fume Breathable	80.0 99.9	15.5 ----	15 5
Beryllium (Be)	7440-41-7	All compounds as Be	0.00 0.0003	0.002	0.002, 0.005 (ceiling) 0.025 ( 30 min peak / 8 hr shift )
Copper (Cu)	7440-50-8	fume Dust / mist	0.00 0.50	0.2 1	0.1 1
Iron (Fe)	7439-89-6	Oxide dust & fume (as Fe)	0.00 1.00	5	10
Lead (Pb) (non volatile)	7439-92-1	Elementary and inorganic compounds	0.00 0.05	0.05 as Pb	0.05 as Pb
Magnesium(Mg)	7439-95-4	Oxide fume	0.00 6.00	10	15 Total particulate
Manganese(Mn)	7439-96-5	Dust fume	0.00 2.00	0.2	Dust (ceiling)
Nickel (Ni)	7440-02-0	Metal & insoluble compounds Soluble compounds	0.00 0.05	1 as Ni 0.1 as Ni	1 as Ni 1 as Ni
Silicon (Si)	7440-02-0	Total dust Breathable	0.00 14.0	10	15 5
Titanium (Ti)	7440-32-6	Oxide dust	0.00 0.50	10	15 (total particulate)
Vanadium (V)	7440-62-2	Breathable dust Breathable fume	0.00 0.50	0.05asV <sub>2</sub> O <sub>5</sub>	0.5(ceiling) asV <sub>2</sub> O <sub>5</sub> 0.1(ceiling) asV <sub>2</sub> O <sub>5</sub>
Zinc (Zn)	7440-66-6	Oxide fume Total oxide dust Breathable oxide dust	0.00 0.50	5, 10 (STEL) 10 -	5 15 5
Chromium (Cr)	7440-47-3	Metals Cr II compounds Cr III compounds Cr VI compounds (water soluble ) Cr VI compounds	0.00 0.50	0.5 -- 0.5 as Cr 0.05 as Cr 0.01 as Cr	1.0 0.5 as Cr 0.5 as Cr 0.1 (ceiling) as CrO <sub>3</sub> 0.1 (ceiling) as CrO <sub>3</sub>

Note: The above listing is a summary of elements used in alloying aluminum. Various grades of aluminum will contain different combinations of these elements. Trace elements may also be present in minute amounts.

## 3) HAZARDS IDENTIFICATION

Aluminum products in the natural state do not present an inhalation, ingestion, or contact health hazard. Small chips, fine turnings and dust from processing may ignite readily.

Explosion /fire hazards may be present when:

- Dust or fines are dispersed in the air
- Fines or dust are in contact with other metal oxides (e.g. rust)
- Chips fines or dust are in contact with water
- Molten aluminum is in contact with water /moisture or other metal oxides

Dust or fume from processing can cause: eye, skin or upper respiratory tract irritation; metal fume fever; lung diseases and other systematic effects.

### POTENTIAL HEALTH EFFECTS

**EYES:** Fume can cause irritation. Ultraviolet radiation from welding can cause flash burns.

**SKIN:** Can cause irritation. Ultraviolet radiation from welding can cause flash burns

**INHALATION:** Can cause respiratory tract irritation ,  
metal fume: fever and other health effects listed below

Aluminum is welded in protective, inert atmosphere such as argon or helium.

Welding process generate welding fumes and ultraviolet radiation that result in the formation of ozone and oxides of nitrogen  
Ultraviolet radiation from welding can also cause flash burns to the eyes and skin

Welding fumes are carcinogenic and listed as an IARC Group 2B

**Ozone** low level exposure ; can cause irritation of eyes ,nose and throat, chest tightness, headache, shortness of breath, cough, wheeze, nausea, and narrowing of airways

high level exposure ; can cause acute respiratory distress with, shortness of breath, pulmonary changes, hemorrhage and pulmonary edema ( fluid in the lungs )

**Oxides of nitrogen** can cause irritation of the eyes , skin and respiratory tract  
high level exposure ; can cause delayed pulmonary edema  
Nitric oxide can cause formation of met hemoglobin, which decrease the blood's ability to carry oxygen. Chronic overexposure can cause pulmonary fibrosis

**Aluminum dust/fume** are a low health risk by inhalation. For standard operations aluminum dust should be treated as a nuisance dust

**Magnesium oxide** Overexposure can cause respiratory tract irritation and fever, shortness of breath and metal fume fever. Chronic exposure to high levels of manganese fume or dust can cause nervous system disorders, pneumonias and may cause fibrosis

**Silicon dust** Chronic exposure can cause increased airway resistance and contribute to chronic bronchitis

**Zinc oxide** Exposure subsequent to burning, welding, and molten metal work can result in fever, chills shortness of breath, metal fume fever and upper respiratory tract irritation.

**Hexavalent Chromium** Can cause asthma, kidney damage, primary irritant dermatitis, sensitizations dermatitis, skin ulceration and pulmonary edema.  
Overexposure or chronic inhalation as been associated with lung, nasal and gastrointestinal cancer.

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Copper fume	Hexavalent Chromium is known to be carcinogenic to humans by IARC (Group 1) Compounds may be generated during welding operations with alloys containing chromium overexposure may exist in welding, flame cutting, etc. and can cause irritation of the eyes, skin and upper respiratory tract Chronic overexposure can result in respiratory tract irritation, nausea and fever.
Nickel	Same as chromium
Beryllium	Can cause dermatitis and skin granulomas. Inhalation of excessive levels can result in acute pneumonia. Chronic inhalation of dust and fumes can result in a serious progressive disease called Chronic Beryllium Disease (CBD). This disease is an allergic condition in which the lung tissues become inflamed, sometimes accompanied with fibrosis and restrict the uptake of oxygen into the blood stream. Beryllium is known to be carcinogenic to humans by IARC (Group 1)
Lead	Dust and fume is listed as a possibly carcinogenic to humans by IARC (Group 2B) Overexposure can cause weakness of extremities, stomach disturbances, harm to the kidneys liver, central nervous system, blood and reproductive organs. Lead is a cumulative toxic metals by inhalation or ingestion

## 4) FIRTS AID MEASURES

Inhalation of airborne fumes and particulate: remove to fresh air. Get medical attention.

Eye Contact : immediately flush well with running water. Get medical attention.

Skyn contact: if irritation develops, remove clothing and wash well with soap and water. If condition persists, get medical attention.

## 5) FIRE FIGHTING MEASURES

In the solid state as shipped do not present a fire or explosion hazard.

FIRE / EXPLOSION : May be a potential hazard under the following conditions:

- Dust or fines are dispersed in the air
- Fines or dust are in contact with other metal oxides (e.g. rust)
- Chips, fines or dust are in contact with water
- Molten aluminum is in contact with water /moisture or other metal oxides

EXTIGUISH MEDIA : Class D dry powder or dry sand. Do not use water or halogenated extinguish agents

## 6) ACCIDENTAL REALISE MEASURES:

Not applicable to aluminum in the solid state

## 7) HANDLING AND STORAGE :

Product should be kept dry. Avoid generating dust. Avoid contact with sharp edges or heated materials. Hot and cold aluminum are not visually different

Avoid exposures to welding fumes, radiation, spatter, electrical shock

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## 8) EXPOSURES CONTROLS / PERSONAL PROTECTION:

**RESPIRATORY:** NIOSH-approved respirators should be used to avoid excessive inhalation of fumes and particulate. Ventilation should be provided during welding, burning, grinding and other machining operations.

**EYE:** Safety glasses should be used when sawing, burning, welding, grinding, and other machining operations.

**OTHER CLOTHING & EQUIPMENT:** Additional clothing and protective equipment may be needed depending on the operations.

**SPECIAL PRECAUTIONS:** The presence of airborne beryllium has been detected during the welding of aluminium alloys with beryllium content at only 0.002% by weight

Welding or cutting operations involving beryllium -containing base or filler metals, shall be done using local exhaust ventilation or airline respirators

## 9) PHYSICAL AND CHEMICAL PROPERTIES

**APPARENCE:** Solid,

**ODOR:** : Odourless

**COULOR:** Silvery, White with metallic lustre

Melting Point: 520/660 °C 970°/1250 °F

Vapour Pressure (MM HG at 20° C) Not Applicable

Specific Gravity: (Water + 1) Approximately 2.7 Kg/dm<sup>3</sup> 1 lb/in<sup>3</sup>

Vapour Density (Air = 1) Not Applicable

Evaporation Rate Not Applicable

Boiling Point Not Applicable

Solubility in Water None

## 10) STABILITY AND REACTIVITY

**STABILITY :** Stable under normal conditions of use storage and transportation as shipped

**REACTIVITY :** Chips, fines, and dust are considerable reactive with the following:

- water
- strong oxidizers
- acids and alkalis
- Halogenated compounds
- Iron oxide

## 11) TOXICOLOGICAL INFORMATION

Aluminium products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, or plasma arc cutting can generate ozone, nitric oxides and ultra violet radiation. Ozone exposure may result in mucus membrane irritation, as well as other pulmonary discomforts. If affected seek medical advice.

Aluminium fumes generated during welding or melting operations are considered to be of low health risk. Be aware of possible Beryllium exposures when welding Beryllium containing alloys

## 12) ECOLOGICAL INFORMATION

Eco toxicological /chemical fate information's: Not available

## 13) DISPOSAL CONSIDERATIONS

Collect scrap for melting and recycling. To maintain metal purity, it may be desirable to segregate this scrap from other alloys

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## **14) TRASPORT INFORMATIONS**

No international regulations or restriction are applicable

## **15) REGULATORY INFORMATIONS**

Read and understand the manufacturer's instructions

Ask for your employer's safety practices which should be based on manufacturers hazard data available to him. Take precautions when welding and protect yourself and others.

Fumes and gases can be dangerous to your health. Arc rays can injure eyes and burn skin.

Electric shock can kill. Keep your head out of the fumes. Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone, and the general area. Wear correct eye, ear and body protection. Do not touch live electrical parts.

## **16) DISCLAIMER**

The information in SDS was obtained from sources which we believe are reliable. The information, however, is provided without any representation or warranty, expressed or implied, regarding its accuracy or correctness.

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