

PRODUCT NAME: ALUMINIUM

**1) NAME OF PRODUCTS**

trade name MTC	correspondence to		
	AWS/ SFA A 5.10	DIN 1732 W.Nr.	BS 2901 Pt.4
Al 99,5	ER 1100 *	3.0259	1050A
AISI 5	ER 4043	3.2245	4043A
AlMg 4,5 Mn	ER 5183	3.3548	5183
AlMg 5	ER 5356	3.3556	5356
5556	ER 5556	3.3538	5556A

\*similar to

CHEMICAL FAMILY:

**NON FERROUS METALS**

FORM:

**WIRE**

SUPPLIER

**METAL TECHNOLOGY-CANTERBO GMBH**

ADDRESS

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## 2) COMPOSITION - IDENTIFICATION OF INGREDIENTS

### EXPOSURE LIMITS

COMPONENT Alloy Elements	CAS N°	FORM	% WEIGHT	ACGIH TLV(mg/m <sup>3</sup> )	OSHA PEL (mg/m <sup>3</sup> )
Aluminium (Al)	7429-90-5	Total dust, fume Breathable	80.0 99.7	15.5 ----	15 5
Beryllium (Be)	7440-41-7	All compounds as Be	0.00 0.01	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 aluminium. Various grades of aluminium will contain different combinations of these elements. Trace elements may also be present in minute amounts.

### 3) HAZARDS IDENTIFICATION

Aluminium 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 aluminium 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

Aluminium 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
Aluminium dust/fume	are a low health risk by inhalation. For standard operations aluminium 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. Hexavalent Chromium is known to be carcinogenic to humans by IARC (Group 1) Compounds may be generated during welding operations with alloys containing chromium

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Copper fume	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 metal by inhalation or ingestion.

#### **4) FIRST 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.

Skin 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 aluminium is in contact with water /moisture or other metal oxides

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

#### **6) ACCIDENTAL RELEASE MEASURES:**

Not applicable to aluminium 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 aluminium are not visually different

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

## **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**

**APPEARANCE:** Solid

**ODOUR:** Odourless

**COLOUR:** 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

#### **14) TRANSPORT INFORMATION**

No international regulations or restriction are applicable

#### **15) REGULATORY INFORMATION**

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.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.