

## **Material Safety Data Sheet**

### **1. Product and Company Identification**

<b>Material Name</b>	<b>:ALUMINUM SHEET COIL AND FOIL - BARE</b>
<b>Chemical Formula</b>	:Mixture
<b>Product use</b>	:Various fabricated aluminum parts and products
<b>Synonym(s)</b>	:Alloys 1050, 1060, 1070, 1200, 3003, 3005, 3105, 5005, 5049, 5052, 5754, 7072, 8006, 8079, 8011, 8111,8156
<b>Manufacturer information</b>	Assan Alüminyum Sanayii ve Ticaret A.Ş (Tuzla) Yayla Mah. D-100 Karayolu Rüya Sk. No2 34940 Tuzla, İstanbul, Turkey  Assan Alüminyum Sanayii ve Ticaret A.Ş (Dilovası) D-100 Karayolu No:40 41455 Dilovası, Kocaeli, Turkey
<b>Emergency Information</b>	+90-216 581-12-00 +90-262 677-50-00
<b>Website</b>	For a current MSDS, refer to ASSAN websites: <a href="http://www.assan.com.tr">www.assan.com.tr</a>

### **2. Hazards Identification**

<b>Emergency overview</b>	Solid, bare, odorless. Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable.  Explosion/fire hazards may be present when (See Sections 5, 7 and 10 for additional information): <ul style="list-style-type: none"><li>• Dust or fines are dispersed in air.</li><li>• Chips, fines or dust are in contact with water.</li><li>• Dust and fines are in contact with certain metal oxides (e.g., rust, copper oxide).</li><li>• Molten metal in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide).</li></ul>
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Dust and fumes from processing: Can cause irritation of the eyes, skin and upper respiratory tract.

#### **Potential health effects**

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.

**Eyes** Dust and fume from processing: Can cause irritation.

**Skin** Dust and fume from processing: Can cause irritation.

**Inhalation** Dust and fumes from processing: Can cause irritation of the upper respiratory tract. Health effects from mechanical processing (e.g., cutting, grinding): Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis), central nervous system damage.

Additional health effects from elevated temperature processing (e.g., welding, melting): Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise) and the accumulation of fluid in the lungs (pulmonary edema). Chronic overexposures: Can cause asthma, benign lung disease (siderosis).

### **3. Composition / Information on Ingredients**

**Composition comments** Complete composition is provided below and may include some components classified as non-hazardous.

<b>Components</b>	<b>CAS #</b>	<b>Percent</b>
<b>Aluminum Alloys</b>		
Aluminum	7429-90-5	> 94
Magnesium	7439-95-4	<3.5
Manganese	7439-96-5	<1.3
Iron	7439-89-6	<1.8
Silicon	7440-21-3	<1.2
Copper	7440-50-8	<0,2
Chromium	7440-47-3	<0.3
Zinc	7440-66-6	<1.2

### **4. First Aid Measures**

#### **First aid procedures**

**Eye contact** Dust and fume from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

**Skin contact** Dust and fume from processing: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Inhalation** Dust and fume from processing: Remove to fresh air. Check for clear airway, breathing, and presence of pulse. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician

## **5. Fire Fighting Measures**

<b>Flammable/Combustible Properties</b>	This product does not present fire or explosion hazards as shipped. Small chips, fine turnings, and dust from processing may be readily ignitable.
<b>Fire / Explosion Hazards</b>	<p>May be a potential hazard under the following conditions:</p> <ul style="list-style-type: none"><li>• Dust clouds may be explosive. Even a minor dust cloud can explode violently. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.</li><li>• Chips, fines and dust in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces.</li><li>• Dust and fines in contact with certain metal oxides (e.g., rust, copper oxide). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.</li><li>• Molten metal in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with certain metal oxides can initiate a thermite reaction. Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions.</li></ul>
<b>Extinguishing media</b> <b>Suitable extinguishing media</b>	Use Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and turnings
<b>Unsuitable extinguishing media</b>	DO NOT use halogenated extinguishing agents on small chips/fines. DO NOT use water in fighting fires around molten metal.
<b>Protection of firefighters</b>	These fire extinguishing agents will react with the burning material.
<b>Protective equipment for firefighters</b>	Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

## **6. Accidental Release Measures**

<b>Spill or leak procedure</b>	Collect scrap for recycling. If molten: Contain the flow using dry sand or salt flux as a dam. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated and rust free. Allow the spill to cool before remelting as scrap.
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## **7. Handling and Storage**

### **Handling**

Keep material dry. Avoid generating dust. Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red.

### **Requirements for Processes Which Generate Dusts or Fines**

If processing of this product generates dust or if extremely fine particulate is generated, obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin F-1.

Use non-sparking handling equipment. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations (See Section 15).

Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with flammable/explosive dusts. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.

Do not allow chips, fines or dust to contact water, particularly in enclosed areas.

Avoid all ignition sources. Good housekeeping practices must be maintained. Do not use compressed air to remove settled material from floors, beams or equipment.

### **Requirements for Remelting of Scrap Material or Ingot**

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops of water can lead to violent explosions.

All tooling and containers which come in contact with molten metal must be preheated or specially coated and rust free. Molds and ladles must be preheated prior to casting. Any surfaces that may contact molten metal (i.e., concrete) should be specially coated.

Drops of molten metal in water (e.g. from plasma arc cutting), while not normally an explosion hazard, can generate enough flammable hydrogen gas to present an explosion hazard. Vigorous circulation of the water and removal of the particles minimize the hazards.

During melting operations, the following minimum guidelines should be observed:

- Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.

- Store materials in dry, heated areas with any cracks or cavities pointed downwards.
- Preheat and dry large items adequately before charging into a furnace containing molten metal. This is typically done by use of a drying oven or homogenizing furnace. The drying cycle should bring the metal temperature of the coldest item of the batch to 400°F (200°C) and then hold at that temperature for 6 hours.

Thermite explosions have been reported when aluminum alloys were melted in furnaces used for alloying with lead, bismuth or other metals with low melting temperatures. These metals, when added as high purity ingots, can seep through cracks in furnace liners and become oxidized. During subsequent melts in the furnace, molten aluminum can contact these metal oxides resulting in a thermite explosion.

## **8. Exposure Controls / Personal Protection**

### **Engineering controls**

Dust and fume from processing: Use with adequate explosion-proof ventilation designed to handle particulates to meet the limits listed in Section 8, Exposure Guidelines.

### **Occupational exposure limits**

#### **U.S. – OSHA**

<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Aluminum (7429-90-5)	TWA	5 mg/m <sup>3</sup>	(respirable fraction)
	TWA (total dust)	15 mg/m <sup>3</sup>	(total dust)
Chromium (7440-47-3)	TWA	1 mg/m <sup>3</sup>	
Manganese (7439-96-5)	Ceiling	5 mg/m <sup>3</sup>	(fume)
Silicon (7440-21-3)	TWA	5 mg/m <sup>3</sup>	(respirable fraction)
	TWA (total dust)	15 mg/m <sup>3</sup>	(total dust)

### **Personal protective equipment**

#### **Eye / face protection**

Wear safety glasses with side shields.

#### **Skin protection**

Wear appropriate gloves to avoid any skin injury.

#### **Respiratory protection**

Dust and fume from processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits. Suggested respiratory protection: N95, Acid gas cartridges for Hydrogen chloride, Acid gas cartridge for Hydrogen fluoride gas

### **General**

Personnel who handle and work with molten metal should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is

recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

## **9. Physical & Chemical Properties**

Form	Solid. Bare coil/sheet and foil.
Boiling point	2470 °C estimated
Melting point	566 - 660 °C
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Flammability limits in air, lower, % by volume	Not applicable
Flammability limits in air, upper, % by volume	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Solubility (water)	Insoluble
Density	2.63 – 2.73 g/cm <sup>3</sup>
pH	Not applicable
Odor	Odorless
Partition coefficient (n-octanol/water)	Not applicable

## **10. Chemical Stability & Reactivity Information**

**Chemical stability** Stable under normal conditions of use, storage, and transportation as shipped.

**Conditions to avoid** Chips, fines, dust and molten metal are considerably more reactive with the following:

- Water: Slowly generates flammable/explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Molten metal can react violently/explosively with water or moisture, particularly when the water is entrapped.
- Heat: Oxidizes at a rate dependent upon temperature and particle size.
- Strong oxidizers: Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten.
- Acids and alkalis: Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts).
- Halogenated compounds: Many halogenated hydrocarbons, including halogenated fire extinguishing agents, can react violently with finely divided or molten aluminum.
- Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides): A violent thermite reaction generating considerable heat can occur. Reaction

with aluminum fines and dusts requires only very weak ignition sources for initiation. Molten aluminum can react violently with iron oxide without external ignition source.

## **11. Toxicological Information**

### **Health effects associated with ingredients**

Aluminum dust/fines and fumes: Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).

Manganese dust or fumes: Chronic overexposures: Can cause inflammation of the lung tissues, scarring of the lungs (pulmonary fibrosis),

Silicon (inert dusts): Chronic overexposures: Can cause chronic bronchitis and narrowing of airways.

Chromium dust and fumes: Can cause irritation of eye, skin and respiratory tract.

Metallic chromium and trivalent chromium: Not classifiable as to their carcinogenicity to humans by IARC.

### **Health effects associated with compounds formed during processing**

(The following could be expected if welded, remelted or otherwise processed at elevated temperatures)

Alumina (aluminum oxide): Low health risk by inhalation. Generally considered to be biologically inert.

Magnesium oxide fumes: Can cause irritation of the eyes and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Manganese oxide fumes: Can cause irritation of the eyes, skin, and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Iron oxide: Chronic overexposures: Can cause benign lung disease (siderosis). Ingestion: Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of the body fluids (metabolic acidosis) and liver damage.

Silica, amorphous: Acute overexposures: Can cause dryness of eyes, nose and upper respiratory tract.

Welding, plasma arc cutting, and arc spray metalizing can generate ozone.

Welding fumes: IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B).

### **Components**

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#### **Toxicology Data - Selected LD50s and LC50s**

Iron (7439-89-6) Oral LD50 Rat: 984 mg/kg

Magnesium (7439-95-4) Oral LD50 Rat: 230 mg/kg

Manganese (7439-96-5)  
Silicon (7440-21-3)

Oral LD50 Rat: 9 g/kg  
Oral LD50 Rat: 3160 mg/kg

## **12. Ecological Information**

### **Ecotoxicity**

### **Components**

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#### **Ecotoxicity - Freshwater Fish Species Data**

Iron (7439-89-6) 96 Hr LC50 Morone saxatilis: 13.6 mg/L [static]

## **13. Disposal Considerations**

### **Disposal instructions**

Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

## **14. Transport Information**

TDGR: not regulated ; ADR : not regulated ; CFR 49: not regulated ; IMO: not regulated ; ICAO: not regulated ; IATA: not regulated

(TDGR = Transport of Dangerous Good Regs.(Canada). ADR :European agreement relative to

## **15. Regulatory Information**

Our all products are in accordance with the standart EN 602, and the directives of 2002/95/EC RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment) 2006/1907/EC REACH (Registration, evaluation, authorization and restriction of chemicals).

## **16. Other Information**

Our foil products are in compliance with Production and Registration Certificates (for the materials in contact with foodstuff) of Republic of Turkey Ministry of Agriculture and Village Affairs Protection and Control General Directorate.

Our foil products are in compliance with NSF/Ansi Standart no 51 – Food Equipment Materials and therefore certified by NSF International since August 2010.

*The information and suggestions contained in this data sheet are provided in good faith and are believed to be correct at*



*the date hereof. Nevertheless, the accuracy and completeness of these data are not guaranteed and no warranty of any kind is made with respect of these data. The information is therefore provided for advice purpose only.*