SECTION 1: IDENTIFICATION

**Product Form:** Composite Aluminum Panels of Aluminum Skin Face Sheets Bonded to Fire-Rated Mineral Core with High Performance Fluorocarbon Coating Finish

**Product Name:** AL13 Architectural Systems® - Fire Rated (FR) Panel

**Synonyms:** Metal Composite Material

Polymer-based and Polymer-modified Exterior and Interior Wall Cladding

**Intended Use:** Designed for cladding applications to provide an effective rain screen wall system.

**Responsible Party:** AL13 Architectural Systems®

 1278 Cliveden Avenue Delta

 BC. Canada V3M 6G4

**Emergency Number:** 1-800-535-5053

SECTION 2: HAZARD IDENTIFICATION

 **Classification:** Finished aluminum product.

 **Hazard:** Not classified as a hazardous material when handling or under normal use.

 No hazardous polymerization when stored under normal conditions.

 Caution should be taken when transporting panels due to larger panels’ weight.

 **Label Elements:** Not applicable

 **Other Hazards:** WARNING! - sawing, grinding, and machining may cause dust and/ or fumes to be released. These fumes may be harmful if inhaled and may irritate the eyes, skin, and respiratory tract. Molten material may cause thermal burns.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

 **Substance:** Not applicable

 **Mixture:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Chemical/Material** | **CAS Number** | **Concentration** | **Common name/ Synonym** |
| **Aluminum Face Sheets-** |  | - |  |
| Aluminum | 7429-90-5 | 30 – 60% | Al |
| Manganese | 7439-96-5 | < 1% | Mn |
| **Composite May Contain-** |  | - |  |
| Aluminum Hydroxide | 21645-51-2 | < 80% | AlH3O3 |
| Magnesium Hydroxide | 1309-42-8 | < 80% | H2MgO2 |
| Silicon Powder | 7440-21-3 | < 10% | Si |
| Calcium Carbonate | 1317-65-3 | < 5% | Limestone |
| **Coating May Contain-** |  |  |  |
| Titanium compounds | 13463-67-7 |  < 2% | Titanium Dioxide |
| Cobalt compounds | 7440-48-4 | < 2% | Cobalt Metal |
| Antimony compounds | 7440-36-0 | < 1% | Sb |
| Nickel compounds | 7440-02-0 | < 1% | Ni |
| Chromium compounds | 7440-47-3 | < 1% | Hexavalent Chromium |
| Carbon black | 1333-86-4 | < 1% | 30B |
| Silica, amorphous | 112926-00-8 | < 1% |  |
| Lead compounds | 7439-92-1 | < 1% | Pb |

SECTION 4: FIRST-AID MEASURES

 **General:**

When product is used as designed, first aid should not be needed.

Dust and fumes can be released by sawing, grinding or machining of product and should only be undertaken with adequate ventilation and personal protection.

 **After Inhalation:**

Not likely to be inhaled as designed.

 **After Skin Contact:**

 In the event that irritation occurs, wash carefully using soap or a proprietary cleanser to remove irritant.

 **After Eye Contact:**

 May irritate eyes if welding or grinding.

 Dust particles should be removed by flushing with clean water. Seek medical attention if irritation persists.

 **After Ingestion:**

 Product is not edible.

 **Most Important Symptoms & Effects, Acute & Delayed:**

None.

 **Immediate Medical Attention & Special Treatment Needed:**

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

 **Suitable Extinguishing Media:**

 Use Class D extinguishing agents on dust, fines or molten metal.

 Use coarse water spray on chips and turnings.

 **Un-Suitable Extinguishing Media:**

 DO NOT USE Halogenated agents on small chips, dusts or fines. Molten metal and water can be an explosive combination.

 **Specific Hazards Arising From The Product:**

This product does not present fire or explosion hazard as shipped. Small chips, turnings, dust and fines from processing may be readily ignitable.

 Explosion hazard may be present when:

 Dust or fines are dispersed in the air. Even a minor dust cloud can explode violently.

 Chips, dust or fines in contact with water can generate flammable/explosive hydrogen gas. Hydrogen gas could present an explosion hazard in confined or poorly ventilated spaces.

 Dust or fines in contact with certain metal oxides (e.g. rust) can initiate a thermite reaction.

 Molten metal in contact with water/moisture can initiate a thermite reaction.

 In fire situations beware of low visibility due to soot and avoid smoke inhalation. Smoke contains carbon monoxide and other gases which may be harmful to health if inhaled.

 **Special Protective Equipment & Precautions for Fire-Fighters:**

 Fire fighters should use self-contained breathing apparatus.

 Fire Fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

 Saturate burning foam with water from a spray nozzle.

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 re-melt ingot are known to have caused explosions in melting operations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

 **Personal Precautions, Protective Equipment and Emergency Procedures**

 This product does not present fire or explosion hazard as shipped.

 Small chips, turnings, dust and fines from processing may be readily ignitable.

 **Methods and Materials for Containment and Cleaning Up**

 Collect scrap for recycling.

 If molten: Contain the flow using dry sand or salt flux as a dam. Do not use shovels or hand tools to halt the flow of molten aluminum. Allow the spill to cool before re-melting as scrap. 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.

SECTION 7: HANDLING AND STORAGE

 **Handling:**

 Avoid generating dust.

 Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different.

 **Storage:**

 Deliver materials and components in manufacturer’s unopened containers or bundles, fully identified by name, brand, type and grade.

 Prevent damage during unloading, storing and installation. Store, protect and handle materials and components to prevent twisting, bending, mechanical damage, contamination and deterioration.

 Store materials off ground and keep clean, dry, and free of dirt and other foreign matter.

 **Use:**

 Aluminum cladding must be separated from direct contact with dissimilar metals.

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

|  |  |  |
| --- | --- | --- |
| **Substance** | **Regulatory Limits** | **Recommended Limits** |
|  | **OSHA PEL** | **Cal/OSHA PEL** | **NIOSH REL** | **ACGIH 2019 TLV** |
|  | **mg/m3** | **8-hour TWS STEL Ceiling** | **Up to 10-hour TWA STEL Ceiling** | **8-hour TWA STEL Ceiling** |
| Aluminum Metal: |  |  |  |  |
| Total dust | 15 | 10 mg/m3 | 10 mg/m3 |  |
| Respirable fraction | 5 | 5 mg/m3 | 5 mg/m3 | 1 mg/m3 |
| Antimony and compounds | 0.5 | 0.5 mg/m3 | 0.5 mg/m3 | 0.5 mg/m3 |
| Calcium Carbonate: |  | See PNOR |  |  |
| Total dust | 15 | 10 mg/m3 | 10 mg/m3 |  |
| Respirable fraction | 5 | 5 mg/m3 | 5 mg/m3 |  |
| Carbon black | 3.5 | 3.5 mg/m3 | 3.5 mg/m3 \* | 3.5 mg/m3 (IHL) |
| Chromium compounds | 0.0025 \*\* | 0.0025 mg/m3 \*\* | 0.001 mg/m3 \*\* | 0.01 mg/m3 \*\* |
| Cobalt metal, dust, and fume | 0.1 | 0.02 mg/m3 | 0.05 mg/m3 | 0.02 mg/m3 (IHL) |
| Lead inorganic  |  | 0.05 mg/m3 | 0.05 mg/m3 | 0.05 mg/m3 |
| Manganese compounds | (C) 5 | 0.2 mg/m3 | 1 mg/m3(ST) 3 mg/m3 | 0.02 mg/m3 (resp.)0.1 mg/m3 (IHL) **°** |
| Nickel, metal & insoluble compounds  | 1 | metal 0.5 mg/m3insoluble 0.1 mg/m3 | Ca 0.015 mg/m3 | Soluble inorganic: 0.1 mg/m3 (IHL) |
| Silicon Powder: |  | See PNOR |  |  |
| Total dust | 15 | 10 mg/m3 | 10 mg/m3 |  |
| Respirable fraction | 5 | 5 mg/m3 | 5 mg/m3 |  |
| Titanium dioxide- Total dust | 15 | See PNOR | Ca (ultrafine particles) 2.4 mg/m3 (fine) 0.3 mg/m3 (ultrafine) | 10 mg/m3 |

\* - (without PAHs); when PAHs are present, NIOSH considers carbon black to be a potential occupational carcinogen

\*\* - as Cr VI, inorganic compounds

**°** - for elemental and inorganic compounds

 **Appropriate Engineering Controls:**

 Use with adequate explosion-proof ventilation to meet the limits listed in the exposure guidelines.

 **Individual Protection** **Measures:**

 **Inhalation:**

Dust is not normally a hazard unless mechanical cutting is used.

Where dust is generated in confined spaces it is recommended that extraction be used. Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in the exposure guidelines.

 **Hands:**

 It is recommended that gloves be worn when handling the product.

 **Eyes:**

As with all cutting procedures, it is recommended that eye protection be worn.

 When installing product in very bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles.

 **Skin:**

 Due to the product’s reflective surfaces, when installing product in very bright or sunny weather it is advisable that suitable UV block sun-cream is applied.

 **Other:**

Personnel who handle and work with molten metal should utilize primary protective clothing like face shields, fire resistant topper’s jackets, 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.

The reflective facing sometimes used on AL13® panels can be slippery underfoot when wet. Therefore, it is recommended that any excess material should be contained to avoid a slip hazard.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

 **Appearance:** Aluminum with varying color/finish and profile

 **Odor:** Negligible

 **Odor Threshold:** Not applicable

 **pH:** Neutral

 **Melting Point:** Aluminum: 660°C [1220°F]

 Plastic: 108~126°C [226~258°F]

 **Freezing Point:** Not applicable

 **Initial** **Boiling Point:** Not applicable

 **Boiling Range:** Not applicable

 **Flash Point:** Not applicable

 **Evaporation Rate:** Not applicable

 **Flammability (solid, gas):** Not applicable

 **Upper & Lower Flammability**

 **OR Explosive Limit:** Not applicable

 **Vapor Pressure:** Not applicable

 **Vapor Density (air = 1):** Not applicable

 **Relative Density (water = 1):** Not applicable

 **Solubility in Water:** Not applicable

 **Solubility in Other Liquids:** Not applicable

 **Partition Coefficient,**

 **n-Octanol/Water (Log Kow):** Not applicable

 **Auto-ignition Temperature:** Not applicable

 **Decomposition Temperature:** Not applicable

 **Viscosity:** Not applicable

SECTION 10: STABILITY AND REACTIVITIY

 **Reactivity:**

 Stable and un-reactive during normal use.

 **Chemical Stability:**

 Not applicable

 **Possibility of Hazardous Reactions:**

 This product does not present fire or explosion hazard as shipped.

 Small chips, turnings, dust and fines from processing may be readily ignitable.

 **Conditions to Avoid:**

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 re-melt ingot are known to have caused explosions in melting operations

 **Incompatible Materials:**

 Not applicable

 **Hazardous Decomposition Products:**

 Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION

 **Likely Routes of Exposure:**

 \_\_\_ Inhalation \_X\_ Skin contact \_\_\_ Eye contact \_\_\_ Ingestion

 **Acute Toxicity:**

 **LC50:** No information at this time.

 **LD50 (oral):** No information at this time.

 **LD50 (dermal):** No information at this time.

 **Notes:**

 **Skin Corrosion/Irritation:**

 Aluminum dust, Titanium dioxide, Cobalt, Antimony, Antimony Trioxide, Nickel dust & fumes, Chromium dust, Hexavalent Chromium, Carbon Black, and Lead dust can cause irritation.

 Cobalt skin contact can cause allergic reactions.

 Hexavalent Chromium can cause irritant dermatitis, allergic reactions and skin ulcers.

 **Serious Eye Damage/Irritation:**

 Aluminum dust, Titanium dioxide, Cobalt, Antimony, Antimony Trioxide, Nickel dust & fumes, Chromium dust, Hexavalent Chromium, Carbon Black, and Lead dust can cause irritation.

 Eye contact of Nickel dust and fumes can cause inflammation of the eyes and eyelids (conjunctivitis).

 **STOT (Specific Target Organ Toxicity), Single Exposure:**

 Acute overexposure of Antimony and Antimony Trioxide can cause fever, chills, shortness of breath and malaise (metal fume fever).

 Acute overexposure of Lead dust of fume can cause nausea and muscle cramps.

 Acute overexposure of Silica, amorphous, can cause dryness of eyes, nose, and upper respiratory tract.

 **STOT (Specific Target Organ Toxicity), Repeated Exposure:**

 Chronic overexposure of Manganese dust of fumes can cause inflammation of the lung tissue, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson’s disease & reproductive harm in males.

 Chronic overexposure of Titanium dioxide can cause chronic bronchitis.

 Acute and chronic overexposure of Cobalt can cause respiratory sensitization, asthma, scarring of the lungs (pulmonary fibrosis) and damage to the heart muscle (cardiomyopathy).

 Chronic overexposure of Antimony and Antimony Trioxide can cause dermatitis, mouth ulcers, chemical pneumonia, lung damage, liver and kidney damage.

 Chronic overexposure of Nickel dust and fumes can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization, asthma and scarring of the lungs (pulmonary fibrosis).

 Chronic overexposure of Hexavalent Chromium can cause perforation of the nasal septum, respiratory sensitization, asthma, fluid in the lungs (pulmonary edema), lung and kidney damage.

 Chronic overexposure of Carbon Black can cause chronic bronchitis & lung disease.

 Chronic overexposure of Lead dust of fume can cause weakness in the extremities (peripheral neuropathy), abdominal cramps, and other gastrointestinal tract effects, kidney damage, liver damage, central nervous system damage, damage to blood forming organs, and blood cell damage.

 **Respiratory and/or Skin Sensitization:**

Aluminum dust, Titanium dioxide, Cobalt, Antimony, Antimony Trioxide, Nickel dust & fumes, Chromium dust, Hexavalent Chromium, Carbon Black, and Lead dust can cause irritation.

 Skin contact of Nickel dust & fumes can cause sensitization and allergic contact dermatitis.

 **Carcinogenicity:**

Nickel compounds are associated with lung cancer, cancer of the vocal cords and nasal cancer.

Chronic overexposure of Hexavalent Chromium can cause lung cancer, nasal cancer and cancer of the gastrointestinal tract.

 **Reproductive Toxicity:**

 **Development of Offspring:**

Chronic overexposure to Lead dust of fume can cause fetal toxicity in pregnant women.

 **Sexual Function & Fertility:**

Chronic overexposure of Manganese dust of fumes can cause reproductive harm in males.

Chronic overexposure to Lead dust of fume can cause reduced fertility in women.

 **Effect on or via Lactation:**

No information at this time.

SECTION 12: ECOLOGICAL INFORMATION

 No information at this time.

SECTION 13: DISPOSAL CONSIDERATIONS

 **Disposal Methods:**

 Collect and reclaim or dispose of at a licensed waste disposal site.

 Dispose of in accordance with all applicable regulations.

 **Contaminated Materials:**

 Dispose of in accordance with local regulations.

 **Container Disposal:**

Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

No information at this time.

SECTION 15: REGULATORY INFORMATION

 **Safety, Health & Environmental Regulations:**

This product may be regulated, have exposure limits or other information identified as the following: Cobalt; Nickel, inorganic compounds, insoluble; Nickel, insoluble compounds; Chromium (III) compound; Chromium (VI) compounds (certain water insoluble forms); Chromium (VI) compounds, water soluble; Chromates; Antimony; Lead Chromate; Silica fume (amorphous); Manganese compounds, n.o.s.

SECTION 16: OTHER INFORMATION

 **Date of Preparation:** **December 2019**