I. INGREDIENTS

<table>
<thead>
<tr>
<th>BASE METAL</th>
<th>CAS NUMBER</th>
<th>% COMPOSITION BY WEIGHT</th>
<th>1984-85 ACGIH</th>
<th>OSHA 1910.1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>80.0-99.7</td>
<td>10.0, as metal dust and oxide</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.0, as welding fume</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALLOYING ELEMENT</th>
<th>CAS NUMBER</th>
<th>1.0-10.0</th>
<th>1.0-20.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt, Co</td>
<td>7440-48-4</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>Copper, Cu</td>
<td>7440-50-8</td>
<td>W</td>
<td>P</td>
</tr>
<tr>
<td>Iron, Fe</td>
<td>1309-37-1</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>Magnesium, Mg</td>
<td>1309-48-4</td>
<td>W</td>
<td>P</td>
</tr>
<tr>
<td>Manganese, Mn</td>
<td>7439-96-5</td>
<td>W</td>
<td>P</td>
</tr>
<tr>
<td>Silicon, Si</td>
<td>7440-21-3</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>Tin, Sn</td>
<td>7440-31-5</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Zinc, Zn</td>
<td>1314-13-2</td>
<td>W, P</td>
<td></td>
</tr>
</tbody>
</table>

Key:
- W = Wrought aluminum (fabricated products)
- P = Prime and ingot hardener aluminum
- TLV = Threshold-Limit-Value
- TWA = Time-Weighted-Average

Note: Kaiser Aluminum alloys may be comprised of all or variations of the alloys shown here. In addition, the welding of aluminum alloys may produce the products listed in Section VII, #7.

II. PHYSICAL DATA

- Material is (At Normal Conditions):
  - Liquid
  - Solid
  - Gas
  - Other

- Appearance and Odor: Metallic appearance; no odor

- Acidity/Alkalinity: pH = NA

- Melting Point: 440-1215 °F
- Boiling Point: NA

- Specific Gravity (H₂O = 1): 2.5 - 2.9
- Solubility in water (% by weight): nil
- Vapor Pressure (mm Hg at 20°C): NA

III. PERSONAL PROTECTIVE EQUIPMENT

Appropriate personal protective equipment is required when melting, casting, machining, forging, or otherwise processing. The nature of the processing activity will determine what form of equipment is necessary, i.e., glasses, respirator, protective clothing, and ear protection.

IV. EMERGENCY MEDICAL PROCEDURES

For skin contact, remove particles by thoroughly washing with soap and water.

For eye contact, flush with water for at least 15 minutes. Get medical attention if irritation persists.

NA = Not Applicable
V. HEALTH/SAFETY INFORMATION

**Inhalation** Not likely unless material machined, welded or remelted. Short term overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of throat and nose.

**Ingestion** Not likely.

**Skin** Not likely.

**Eyes** May irritate eyes when welding or plasma cutting.

**Threshold Limit Value** See Ingredients Section.

### Fire and Explosion

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>NA°F</td>
</tr>
<tr>
<td>Auto Ignition Temperature</td>
<td>NA °F</td>
</tr>
<tr>
<td>Flammable Limits in Air</td>
<td>Lower NA %</td>
</tr>
<tr>
<td></td>
<td>Upper NA %</td>
</tr>
<tr>
<td>Extinguishing Media</td>
<td>Dry powder or sand.</td>
</tr>
</tbody>
</table>

**Unusual Fire and Explosion Hazards**

Damp aluminum dust may spontaneously heat with liberation of hydrogen to form explosive air mixtures. SEE ADDITIONAL INFORMATION.

**Extinguishing Media** Not to be Used

Do not use water or halogen on dust fires.

### Reactivity

<table>
<thead>
<tr>
<th>Stability</th>
<th>Incompatibility (Materials to Avoid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>Anhydrous bromine</td>
</tr>
<tr>
<td>Unstable</td>
<td></td>
</tr>
</tbody>
</table>

**Conditions to Avoid**

See Fire and Explosion Section. SEE ADDITIONAL INFORMATION.

**Hazardous Decomposition Products**

See Fire and Explosion Section. SEE ADDITIONAL INFORMATION.

VI. ENVIRONMENTAL

**Spill or leak procedures**

NA

**Waste Disposal Methods**

Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, or local laws and regulations.

*Disposer must comply with Federal, State and Local disposal or discharge laws.

VII. ADDITIONAL INFORMATION

1. Halogen acids and sodium hydroxide in contact with aluminum may generate explosive mixtures of hydrogen.
2. Finely divided aluminum will form explosive mixtures in air. It will also form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.
3. When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in saw cavities as well. Moisture must be driven off prior to remelting.
4. Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. If metal is hot and touched, burns can result.
5. Aluminum powder must be packaged and shipped as a Flammable Solid, UN1396.
6. Hard alloy ingots in the 2000 and 7000 series must be stress-relieved to prevent explosion when sawed.

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