# Material Safety Data Sheet

## I PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>FORMULA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Ferrous Brass &amp; Bronze Ingot</td>
<td>Cu – Si – Zn</td>
</tr>
</tbody>
</table>

### ALLOY NAMES & NUMBERS

<table>
<thead>
<tr>
<th>LAVIN</th>
<th>CDA</th>
<th>SAE</th>
<th>ALLOY NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>874</td>
<td>-</td>
<td>Silicon Brass 88-3-14</td>
</tr>
<tr>
<td>500</td>
<td>875</td>
<td>-</td>
<td>13B Silicon Brass 82-4-14</td>
</tr>
<tr>
<td>500</td>
<td>875</td>
<td>-</td>
<td>145 Silicon Brass 82-4-14</td>
</tr>
<tr>
<td>500</td>
<td>876</td>
<td>-</td>
<td>Low Zinc Silicon Brass 90-5-5</td>
</tr>
<tr>
<td>500</td>
<td>878</td>
<td>-</td>
<td>Die Cast Silicon Brass 82-4-14</td>
</tr>
<tr>
<td>500</td>
<td>879</td>
<td>-</td>
<td>Yellow Silicon Brass 65-1-34</td>
</tr>
<tr>
<td>500</td>
<td>-</td>
<td>-</td>
<td>Herculoy 91-5-4</td>
</tr>
</tbody>
</table>

## II HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th><em>Copper</em> ...... (CAS 7440-50-8)</th>
<th>%</th>
<th>ACGIH 8-HR</th>
<th>OSHA 8-HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CAS 7440-21-3)</td>
<td>63 - 90</td>
<td>.2 (Fume)</td>
<td>.1 (Fume)</td>
</tr>
<tr>
<td>Silicon</td>
<td>1 - 5</td>
<td>15. (Total Dust)</td>
<td>10. (Total Dust)</td>
</tr>
<tr>
<td>Zinc ..... (CAS 7440-66-6)</td>
<td>4 - 34</td>
<td>5. (Resp. Dust)</td>
<td>5. (Resp. Dust)</td>
</tr>
</tbody>
</table>

(*) SEE SECTION X

(II) SEE SECTION X

ACIGH/OSHA STEL MG/M3: 10. X

## III PHYSICAL DATA

<table>
<thead>
<tr>
<th>BOILING POINT (F°)</th>
<th>SOLUBLE IN WATER</th>
<th>VAPOR PRESSURE</th>
<th>SPECIFIC GRAVITY (H2O=1)</th>
<th>% VOLATILE BY VOLUME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu ..... 4703°</td>
<td>NA</td>
<td>NA</td>
<td>8.3 - 8.5</td>
<td>NA</td>
</tr>
<tr>
<td>Si ..... 4860°</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zn ..... 1663°</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Molten state operating temperatures are 1900 to 2150°F.
In this range only Zn boils off forming Zinc Oxide.

APPEARANCE & ODOR: ODORLESS YELLOW METAL
TWA/PEL: SEE SECTION II

There are two major means of metal absorption, namely, inhalation and injection. These products in their natural state do not present an inhalation, ingestion or contact health hazard. Operations such as burning, sawing, brazing, grinding, melting and machining, which result in elevating the temperature to or above the melting point or results in the generation of airborne particulates may present hazards. Most inhalation problems can be prevented with adequate use of ventilation and NIOSH/MSHA approved respirator. Food and drink should not be consumed or tobacco products used, nor cosmetics applied in areas where metal exposure exceed applicable limits. Wash thoroughly after handling and before eating, drinking or smoking.

**Copper**

**Effects & Exposure:** Copper fume from melting or thermal cutting can affect the body if inhaled or if it comes in contact with the eyes or skin. Dust or fume can cause irritation of the eyes, nose and throat and a flu-like illness called metal fume fever. It may also cause a metallic or sweet taste in the mouth. Repeated or prolonged exposure may cause discoloration of the skin and hair. Chronic poisoning can result in Wilson's Disease.

**Emergency & First Aid:** Remove to fresh air. Keep the affected person warm and at rest. Get medical attention as soon as possible.

**Zinc**

**Effects & Exposure:** Zinc oxide fume can affect the body if inhaled. Exposure to fumes may cause metal fume fever with the onset of symptoms delayed 4 to 12 hours. Symptoms include irritation of the nose, mouth and throat, cough, stomach pain, headache, nausea, vomiting, metallic taste, chills, fever and pain in the joints and muscles. The attack may last 6 to 24 hours, but will go away.

**Emergency & First Aid:** Remove to fresh air. If breathing has stopped, perform artificial respiration and get medical attention. There is no known treatment and no known lasting affects.

**Silicon**

**Effects & Exposure:** Silicon metal is of low toxicity in cold state lump form and is not dangerous. High concentrations of dust will cause some irritation to the eyes, nose and throat. Repeated or prolonged exposure can lead to silicosis.

**Emergency & First Aid:** Remove from exposure. Flush eyes and skin with large quantities of water. No residual injury is expected.

The hazards presented above are those of the individual components as the product mixture has not been tested as a whole.
VII REACTIVITY DATA

**STABILITY:** STABLE  
**HAZARDOUS POLYMERIZATION:** WILL NOT OCCUR

**INCOMPATIBILITY:** STRONG OXIDIZERS, ACIDS MAY CAUSE HYDROGEN TO BE EVOLVED.

**HAZARDOUS DECOMPOSITION:** HIGH TEMPERATURES MAY PRODUCE HEAVY METAL FUMES OR VAPOR.

**PRODUCTS:**

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VIII SPILL/LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED:** NO SPECIAL PRECAUTIONS ARE NECESSARY FOR SPILLS OF BULK MATERIAL.

**WASTE DISPOSAL METHOD:** WASTE IS RECYCLED OR SENT TO AN APPROVED LANDFILL SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

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VIII CONTROL MEASURES

**RESPIRATORY PROTECTION:** NIOSH/MSHA APPROVED RESPIRATOR FOR TOXIC DUST AND/OR FUME.

**VENTILATION:** LOCAL AND/OR MECHANICAL EXHAUST.

**PROTECTIVE GLOVES:** INDUSTRIAL TYPE.

**EYE PROTECTION:** SAFETY GLASSES W/ SIDE SHIELD AND/OR FACE SCREEN.

**OTHER PROTECTION:** FIRE RESISTANT CLOTHING, LEGGINGS DESIRABLE AROUND MELTING OPERATIONS.

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IX SPECIAL PRECAUTIONS

**MATERIAL IN STORAGE CAN BECOME WET FROM CONDENSATION.** IT MUST BE DRIED THOROUGHLY BEFORE ADDING TO MOLTEN METAL.

**SINCE YOU MAY REDIRECT THIS PRODUCT TO MORE THAN ONE PLACE WITHIN YOUR LOCATION, PLEASE MAKE SURE THIS MSDS INFORMATION IS AVAILABLE TO ALL PERSONS USING THIS PRODUCT.**

**IF YOU REDISTRIBUTE THIS PRODUCT TO OTHER CUSTOMERS, AN MSDS SHOULD BE SENT TO THEM.**
XI REFERENCES

AMERICAN CONFERENCE OF GOVERNMENTAL HYGIENISTS

'NIOSH GUIDE TO CHEMICAL HAZARDS' (DHHS-NIOSH NO 85-114)(2ND PRINTING)

'HANDBOOK OF HAZARDOUS MATERIALS' (LIBRARY OF CONGRESS 83-71356)(2ND EDITION)
ALLIANCE OF AMERICAN INSURERS

'NIOSH REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES' (DHHS-NIOSH NO 87-114)

'FOURTH ANNUAL REPORT ON CARCINOGENS' (NTP 85-002)
NATIONAL TOXICOLOGY PROGRAM

'MONOGRAPHS ON THE EVALUATION OF CARCINOGENIC RISK TO HUMANS' (SUPPLEMENT 7)
INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

'CALIFORNIA PROPOSITION 65 HANDBOOK (2ND EDITION)
CALIFORNIA CHAMBER OF COMMERCE

'ENCYCLOPAEDIA OF OCCUPATIONAL HEALTH & SAFETY' (VOLUMES I & II)
INTERNATIONAL LABOUR OFFICE, GENEVA

'METALS HANDBOOK ... PROPERTIES OF METALS' (8TH EDITION - VOLUME 1)
AMERICAN SOCIETY OF METALS

'STANDARDS HANDBOOK' (PART 7)
COPPER DEVELOPMENT ASSOCIATION

IMPORTANT NOTICE

The preceding information is provided for the sole purpose of assessing potential hazards that might arise from the use of this material. The sources listed were reviewed to determine the hazard evaluations and are considered to be reliable and accurate. This information is given in good faith and is considered to be correct, but without guarantee. We do not assume responsibility for the results of its use.