MATERIAL SAFETY DATA SHEET

Section 1 - IDENTIFICATION

Product name: SAC305 NC257-2
Other names: Not available
Recommended use/s: Solder paste for industrial applications in the electronics industry.
Supplier name: Okay Technologies
Address: Unit 4,3 Pullman Place, Emu Plains, NSW, 2750
Telephone number: 02 4735 3126
Fax: 02 4735 3746
Emergency telephone number: Australia: Poisons Information Centre 13 1126
International: Infotrac (708) 918-1900

Section 2 - HAZARDS IDENTIFICATION

General hazard statement: Classified as Hazardous according to the criteria of SafeWork Australia
Risk phrase(s): Irritant
R36/38 – Irritating to eyes and skin.
R42/43 – May cause sensitisation by skin contact and by inhalation.
Safety phrase(s): S2 – Keep out of the reach of children
S24 – Avoid contact with the skin
S37 – Wear suitable gloves
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Routes of entry: Inhalation. Ingestion.

Potential acute health effects: Inhalation: Fumes and/or dusts produced by this product may be hazardous in case of inhalation.
Skin: This product may be hazardous in case of skin contact (irritant, sensitiser). Skin inflammation is characterised by itching, scaling, reddening, or, occasionally, blistering.
Eyes: This product may be hazardous in case of eye contact (irritant). Inflammation of the eyes is characterised by redness, watering and itching.
Ingestion: Fumes and/or dusts produced by this product may be hazardous in case of ingestion.

Potential chronic health effects: Fumes and/or dusts produced by this product may be hazardous in case of ingestion, or inhalation. This product may be hazardous in case of skin contact (irritant, sensitiser), of eye contact (irritant). As shipped this product is not hazardous in case of skin contact (permeator). Non-corrosive for skin.

Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Proportion % w/w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin</td>
<td>Tin</td>
<td>7440-31-5</td>
<td>700 - 100</td>
</tr>
<tr>
<td>Silver</td>
<td>Silver</td>
<td>7440-22-4</td>
<td>1.5 – 5</td>
</tr>
<tr>
<td>Hydrogenated Rosin</td>
<td></td>
<td>65997-06-0</td>
<td>1.5 – 5</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Standard SUSDP First Aid Statement: If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 13 1126 (Australia).

Description of necessary measures according to routes of exposure:
Eye contact: Check for and remove any contact lenses. Flush eyes with plenty of water for at least 15 minutes. DO NOT use an eye ointment. Seek immediate medical attention.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Seek medical attention.
### Section 5 - FIREFIGHTING MEASURES

**Suitable extinguishing media**
- Small fire: Use DRY chemical powder.
- Large fire: Use water spray, fog or foam. NO water jet.

**Hazardous from combustion products**
- Products are carbon, nitrogen oxides and some metallic oxides; carbon monoxide, carbon dioxide.

**Special protective precautions**
- Use an approved/certified respirator or equivalent

**Special remarks on fire hazards**
- Metallic part of product is non-flammable. Dust and powders may be flammable (tin). The organic medium may burn if exposed to direct flame. Non explosive in presence of shocks, of heat.

### Section 6 - ACCIDENTAL RELEASE MEASURES

**Emergency procedures**
- Small spill and leak – MOLTEN METAL: Let cool before picking up and returning to process or recycling. OTHER: Use appropriate tools to put the spilled solid in a container reserved to that effect and dispose of according to local and regional authority requirements.
- Large spill – Our data base contains no additional information in case of a large spill and/or leak of the product.

**Methods and materials for containment and clean up**

### Section 7 - HANDLING AND STORAGE

**Precautions for safe handling**
- Wear suitable protective clothing. Use in a well ventilated area. When using do not eat, drink or smoke. Avoid contact with skin and eyes, Do not ingest.. After handling, always wash hands thoroughly with soap and water.

**Conditions for safe storage, including any incompatibilities**
- Keep container dry. Keep in a cool place. Follow special instructions on container and analysis reports for additional storage information.

### Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

**National exposure standards**
- **Tin**
  - TWA: 2 mg/m³ from HSIS Respirable
- **Silver**
  - TWA: 0.1 mg/m³ from HSIS Respirable
- **Rosin, hydrogenated**
  - Not available.

**Biological limit values**
- No information.

**Engineering controls**
- Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
### Personal protective equipment

HANDLING: gloves (disposable or vinyl), safety glasses or splash goggles, lab coat.

GENERAL USE: Use gloves [suitable to the operation], safety glasses or splash goggles; wear appropriate respirator when ventilation is inadequate. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Suggested protective clothing may not be adequate for a specific process. Consult a specialist before handling.

No additional information.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (colour, physical form, shape)</td>
<td>Dark grey solid (paste).</td>
</tr>
<tr>
<td>Odour</td>
<td>Typical rosin.</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>Not available</td>
</tr>
<tr>
<td>Freezing/melting point</td>
<td>Melting point weighted average: 246 °C</td>
</tr>
<tr>
<td>Solubility (specify solvent)</td>
<td>Insoluble in water and oil, n-octanol, acetone, partially soluble in diethyl ether, very slightly soluble in methanol.</td>
</tr>
<tr>
<td>Specific gravity or density</td>
<td>Weighted average 5.96 (water = 1.0)</td>
</tr>
<tr>
<td>Flashpoint</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td></td>
</tr>
<tr>
<td>Upper and lower flammable limits</td>
<td></td>
</tr>
<tr>
<td>Ignition temperature</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>350 to 1200 KcPs (see certificate for specific value)</td>
</tr>
<tr>
<td>Ionicity (in water)</td>
<td>Non-ionic</td>
</tr>
<tr>
<td>Dispersion properties</td>
<td>Is not dispersed in cold water, hot water, n-octanol, and acetone.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Lower than 1</td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.</td>
<td></td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Corrosive in presence of copper. The organic medium in the paste has the task of cleaning (removing and preventing oxidation) the surface for soldering.</td>
</tr>
</tbody>
</table>

### Section 10 - STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Conditions of instability</td>
<td>Stable in normal conditions. Over the melting point may emit toxic metallic oxide fumes. A small amount of organic fumes may also be evolved.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td></td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Reactive with oxidising agents.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Tin oxide fumes.</td>
</tr>
<tr>
<td>Hazardous reactions</td>
<td></td>
</tr>
<tr>
<td>Hazardous polymerisation</td>
<td></td>
</tr>
</tbody>
</table>

### Section 11 - TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health effects from likely routes of exposure</td>
<td></td>
</tr>
<tr>
<td>Toxicity to animals</td>
<td>Hydrogenated Rosin</td>
</tr>
<tr>
<td></td>
<td>Rat – Acute Oral LD50: 8400 mg/Kg</td>
</tr>
<tr>
<td></td>
<td>Guinea Pig – Acute Oral LD50: 5000 mg/Kg</td>
</tr>
<tr>
<td></td>
<td>Rosin</td>
</tr>
<tr>
<td></td>
<td>Not available</td>
</tr>
</tbody>
</table>
AIM PRODUCTS AUSTRALIA

Solder Paste SAC305 NC257-2

Date of Issue March 2010

Chronic effects on humans

Carcinogenic effects: [Tin]: Classified (None) by NIOSH. [Silver]: Classified (None) by NIOSH. [Copper]: Classified (None) by NIOSH. [Rosin]: Classified 4 (Probably not for human) by IARC. [Rosin thermal decomposition product (as formaldehyde)]: Classified + (Proven) by NIOSH.

Developmental toxicity: Not toxic.

Mutagenic effects: Not available.

Teratogenic effects: Not available.

The product may be toxic to lungs, upper respiratory tract, skin, eyes, blood, kidneys, the nervous system, the reproductive system, spleen, brain, digestive system, gastro-intestinal tract, eye, lens or cornea, thyroid. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Other toxic effects on humans

Overexposure to fumes may cause irritation to the respiratory tract, digestive system and to the eyes. Overexposure to tin oxide fumes may results in benign pneumoconiosis (stannosis).

Repeated and prolonged contact may cause skin irritation, dermatitis and/or an allergic skin reaction (sensitisation) in susceptible individuals.

Special remarks on chronic effects on humans

Overexposure to fumes may cause irritation to the respiratory tract, digestive system and to the eyes. Overexposure to tin oxide fumes may results in benign pneumoconiosis (stannosis).

Special remarks on other toxic effects on humans

Inhalation of smoke or fumes, at high temperatures, may cause an asthmatic reaction in some individuals. Prolonged and repeated contact with bare skin may cause irritation or dermatitis. MOLTEN METAL can cause severe BURNS.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity Not available.

Persistence and degradability Not available.

Products of biodegradation Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the products of biodegradation The products of degradation are less toxic than the product itself.

Mobility Not available.

Environmental fate Not available.

Bioaccumulative potential Not available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal methods and containers Waste must be disposed of in accordance with local regulations.

Special precautions for landfill or incineration No additional information.

Section 14 - TRANSPORT INFORMATION

Dangerous Goods Classification Not a Dangerous Good by the ADG Code. [Australia]

UN Number Not applicable

UN Proper Shipping Name Not applicable

Class and subsidiary risk Not applicable

Packing Group Not applicable

Special precautions for user Not applicable

Hazchem Code Not applicable

IMDG Classification Not controlled

IATA Classification Not controlled

ADR/RID Classification Not controlled (Europe)

Section 15 - REGULATORY INFORMATION

The regulatory status of a material (including its ingredients) under relevant Australian health, safety and environmental legislation

Poisons Scheduling (Australia SUSDP) Based on the ingredients this product is not a scheduled poison.
## Section 16 - OTHER INFORMATION

**Date of preparation or last revision of this MSDS** 08 March 2010

**Key/legend to abbreviations and acronyms used in the MSDS**
- IATA – International Air Transport Association
- WHMIS – Workplace Hazardous Materials Information System
- HSIS – Hazardous Substance Information System
- ACGIH – American Conference of Government Industrial Hygienists
- IARC – Inter Agency Regulatory Council
- NOHSC – National Occupational Health and Safety Commission (Australia)
- SUSDP – Standard for the Uniform Scheduling of Drugs and Poisons (Australia)
- STEL – Short Term Exposure Limit
- OSHA – Occupational Safety and Health Administration
- NTP – National Toxicology Program
- PEL – Permissible Exposure Limit
- TWA – Time Weighted Averages
- TLV - Threshold Limit Value
- NIOSH – National Institute of Occupational Health and Safety

**Literature references**
- United States MSDS for SAC305 NC257-2 dated 04/04/2008
- Australian ADG Code
- HSIS – List of designated hazardous substances (Australia)
- Standard for the Uniform Scheduling of Drugs and Poisons (Australia)

**Notice to reader**
To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

End of MSDS