



# Material Safety Data Sheet

## Section 1. Product and Company Identification

<b>Common Name</b>	<b>SAC 305 NC254</b>	<b>Code</b>	Not available
<b>Product type</b>	<b>Solder paste (No Clean)</b>	<b>Validation Date</b>	2004-08-31
<b>Synonym</b>	LF 218 NC 254	<b>Version number</b>	6
<b>Material Uses</b>	Industrial applications: Soldering		
<b>Supplier</b>	AIM	<b>In Case of Emergency</b> <b>INFOTRAC</b> <b>(North America): (800) 535-5053</b> <b>(International): (352) 323-3500</b>	
<b>Manufacturer</b>	AIM		

## Section 2. Hazardous Components

Name	CAS #	% by Weight	Toxicity Data (LC50/LD50, TLV)
1) Tin	7440-31-5	82-86.9	TWA: 2 (mg/m <sup>3</sup> ) from OSHA (PEL) [United States] [1997] INHALATION Respirable. TWA: 2 (mg/m <sup>3</sup> ) from ACGIH (TLV) [United States] [1994] INHALATION Respirable.
2) Silver	7440-22-4	2.55-2.7	TWA: 0.1 (mg/m <sup>3</sup> ) from ACGIH (TLV) [United States] [1994] INHALATION
3) M-Pyrrol	872-50-4	1-2.25	ORAL (LD50): Acute: 5130 mg/kg [Mouse]. 3914 mg/kg [Rat].
4) Modified rosin	65997-06-0	2-4.5	ORAL (LD50): Acute: 8400 mg/kg [Rat]. 5000 mg/kg [Guinea pig].
5) Rosin	8050-09-7	1.5-3.75	Not available

## Section 3. Hazards Identification

<b>Physical State and Appearance</b>	Solid. (Paste.)
<b>Emergency Overview</b>	<b>WARNING!!</b> Avoid contact with eyes DO NOT ingest. Do not breathe dust Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of Entry</b>	Inhalation. Ingestion.
<b>Potential Acute Health Effects</b>	<b>Eyes</b> Fumes and/or dusts produced by this product may be hazardous in case of eye contact (irritant). <b>Skin</b> This product may be hazardous in case of skin contact (irritant, sensitizer). <b>Inhalation</b> Fumes and/or dusts produced by this product may be hazardous in case of inhalation. <b>Ingestion</b> Fumes and/or dusts produced by this product may be hazardous in case of ingestion.
<b>Potential Chronic Health Effects</b>	Chronic effects: Fumes and/or dusts produced by this product may be hazardous in case of eye contact (irritant), of ingestion, of inhalation. This product may be hazardous in case of skin contact (irritant, sensitizer). Non-corrosive for skin. Non-permeator by skin.
<b>Medical Conditions Aggravated by Overexposure:</b>	Repeated exposure to toxic material may produce general deterioration of health by an accumulation in one or many human organs.
<b>Overexposure /Signs/Symptoms</b>	Not available.
<b>See Toxicological Information (section 11)</b>	

Continued on Next Page

**Section 4. First Aid Measures**

<b>Eye Contact</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
<b>Skin Contact</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
<b>Hazardous Skin Contact</b>	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
<b>Hazardous Inhalation</b>	Not available.
<b>Ingestion</b>	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Hazardous Ingestion</b>	Not available.
<b>Notes to Physician</b>	Not available.

**Section 5. Fire Fighting Measures**

<b>Flammability of the Product</b>	May be combustible at high temperature.
<b>Auto-Ignition Temperature</b>	Not available.
<b>Flash Points</b>	The lowest known value is OPEN CUP: 180°C (356°F). (Cleveland.). (Rosin)
<b>Flammable Limits</b>	Not available.
<b>Products of Combustion</b>	These products are carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ...). Some metallic oxides.
<b>Fire Hazards in Presence of Various Substances</b>	Combustible in presence of open flames and sparks. Non-flammable in presence of shocks, of heat, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis, of moisture.
<b>Explosion Hazards in Presence of Various Substances</b>	Non-explosive in presence of open flames and sparks, of shocks.
<b>Fire Fighting Media and Instructions</b>	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
<b>Protective Clothing (Fire)</b>	Be sure to use an approved/certified respirator or equivalent.
<b>Special Remarks on Fire Hazards</b>	Massive metal is nonflammable. Dust and powders may be flammable. (Tin)
<b>Special Remarks on Explosion Hazards</b>	Vapors and air form an explosive mixture. (Methyl-1 pyrrolidinone-2)

**Section 6. Accidental Release Measures**

<b>Small Spill and Leak</b>	Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: <b>Neutralize the residue with a dilute solution of acetic acid.</b> Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
<b>Large Spill and Leak</b>	No specific data for spill and leak according to our database.

**Section 7. Handling and Storage**

<b>Handling</b>	Avoid contact with eyes DO NOT ingest. Do not breathe dust Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Storage</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area.

**Section 8. Exposure Controls, Personal Protection**

**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 Protection**

**Eyes** Splash goggles.

**Body** Lab coat.

**Respiratory** Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate

**Hands** Gloves.

**Feet** Not applicable.

\* **Note:** Suggested protective clothing may not be adequate for a specific process. Consult a specialist before using.

**Personal Protection in Case of a Large Spill** Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name** **Exposure Limits**

1) (See section 2)

Consult local authorities for acceptable exposure limits.

**Section 9. Physical and Chemical Properties**

<b>Physical State and Appearance</b>	Solid. (Paste.)	<b>Odor</b>	Typical rosin.
<b>Molecular Weight</b>	Not applicable.	<b>Taste</b>	Not applicable.
<b>Chemical formula</b>	Not applicable.	<b>Color</b>	Colorless.
<b>pH (1% Soln/Water)</b>	Basic.	<b>Specific Gravity</b>	Weighted average: 4.78 (Water = 1)
<b>Acid Value (IPC TM-650, 2.3.13)</b>	Not available.		
<b>Boiling/Condensation Point</b>	Not available.		
<b>Melting/Freezing Point</b>	Weighted average: 242.51°C (468.5°F)		
<b>Critical Temperature</b>	Not available.		
<b>Vapor Pressure</b>	Not applicable.		
<b>Vapor Density</b>	Not available.		
<b>Volatility</b>	Not available.		
<b>Odor Threshold</b>	Not available.		
<b>Evaporation Rate</b>	Not available.		
<b>VOC</b>	Not available.		

Continued on Next Page

<b>Viscosity</b>	Not available.
<b>LogK<sub>ow</sub></b>	The product is insoluble in water and oil.
<b>Ionicity (in Water)</b>	Non-ionic.
<b>Dispersion Properties</b>	Not available.
<b>Solubility</b>	Insoluble in cold water, hot water, n-octanol, acetone.
<b>Physical Chemical Comments</b>	Not available.

### Section 10. Stability and Reactivity

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions of Instability</b>	Stable in normal conditions. Over melting point, toxic metallic oxides may be evolved.
<b>Incompatibility with Various Substances</b>	Slightly reactive with oxidizing agents, acids, moisture. Very slightly reactive with reducing agents.
<b>Hazardous Decomposition Products</b>	Not available.
<b>Hazardous Polymerization</b>	Will not occur.
<b>Corrosivity</b>	Very slightly corrosive in presence of copper. Non-corrosive in presence of glass, of steel, of aluminum, of zinc, of stainless steel(304), of stainless steel(316).
<b>Special Remarks on Corrosivity</b>	Not available.

### Section 11. Toxicological Information

<b>Toxic and Chronic Effects on Humans</b>	Fumes and/or dusts produced by this product may be hazardous in case of eye contact (irritant), of ingestion, of inhalation. This product may be hazardous in case of skin contact (irritant, sensitizer). Non-corrosive for skin. Non-permeator by skin. <b>CARCINOGENIC EFFECTS:</b> Classified NONE by NIOSH [Tin]. Classified NONE by NIOSH [Silver]. Classified NONE by NIOSH [Copper]. Classified NONE by NIOSH [M-Pyrrol]. <b>MUTAGENIC EFFECTS</b> Not available. <b>TERATOGENIC EFFECTS</b> Not available. <b>DEVELOPMENTAL TOXICITY</b> Not toxic. The product may be toxic to kidneys, lungs, liver, mucous membranes, upper respiratory tract, skin, 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.
<b>Toxicity to Animals</b>	No specific information is available in our data base regarding the toxicity to animals.
<b>Special Remarks on Chronic Effects on Humans</b>	Prolonged and repeated exposure to tin oxide fumes may result in benigne pneumoconiosis (stannosis). (Tin)
<b>Special Remarks on Other Toxic Effects on Humans</b>	MOLTEN METAL can cause severe BURNS! Fumes and dust may irritate eyes, digestive system and respiratory tract. (Tin)
<b>Special Remarks on Toxicity to Animals</b>	No additional remark. (Tin)


**Section 12. Ecological Information**

<b>Ecotoxicity</b>	Not available.
<b>BOD5 and COD</b>	Not available.
<b>Biodegradable/OECD</b>	Not available.
<b>Mobility</b>	Not available. Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
<b>Toxicity of the Products of Biodegradation</b>	The products of degradation are less toxic than the product itself.
<b>Special Remarks on the Products of Biodegradation</b>	Not available.

**Section 13. Disposal Considerations**

<b>Waste Information</b>	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
<b>Waste Stream</b>	Not available.
<b>Consult your local or regional authorities.</b>	

**Section 14. Transport Information**

<b>DOT Classification</b>	Not a DOT controlled material (United States).	
	Not regulated.	
<b>Special Provisions for Transport</b>	Not applicable.	
<b>Special Provisions for Transport</b>		
<b>IMO/IMDG Classification</b>	Not controlled under IMDG.	
<b>Marine Pollutant</b>	Not available.	
<b>ADR/RID Classification</b>	Not controlled under ADR (Europe).	
<b>ICAO/IATA Classification</b>	Not controlled under IATA.	

**Section 15. Regulatory Information**

<b>HCS Classification</b>	Class: Irritating substance. Class: Sensitizing substance. Class: Target organ effects.
<b>U.S. Federal Regulations</b>	TSCA 4(a) final test rules: M-Pyrrol TSCA 5(e) substance consent order: M-Pyrrol TSCA 8(a) PAIR: Silver TSCA 8(a) IUR: M-Pyrrol TSCA inventory: All compounds TSCA 12(b) one time export: M-Pyrrol

Continued on Next Page

SARA 302/304/311/312 extremely hazardous substances: No products were found.  
 SARA 302/304 emergency planning and notification: No products were found.  
 SARA 302/304/311/312 hazardous chemicals: All compounds  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Tin: immediate health hazard;  
 Silver: immediate health hazard; Copper: immediate health hazard; M-Pyrrol: fire, immediate health hazard;  
 delayed health hazard; Rosin: immediate health hazard, delayed health hazard  
 SARA 313 toxic chemical notification and release reporting: Silver: 1%; Copper: 1%; M-Pyrrol: 1%.  
 Clean water act (CWA) 307: Silver; Copper  
 Clean water act (CWA) 311: No products were found.  
 Clean air act (CAA) 112 accidental release prevention: No products were found.  
 Clean air act (CAA) 112 regulated flammable substances: No products were found.  
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

**State Regulations**

Rhode Island RTK hazardous substances: Tin  
 Florida: Tin; Silver; M-Pyrrol  
 Minnesota: Tin; Silver; M-Pyrrol; Rosin  
 Michigan critical material: Silver  
 Massachusetts RTK: Tin; Silver; Copper; M-Pyrrol  
 New Jersey spill list: Tin  
 California prop. 65: No products were found.

**International Regulations****EINECS**

Not available.

**DSCL (EEC)**

36/38- Irritating to eyes and skin.  
 42/43- May cause sensitization by inhalation and skin contact.

**International Lists**

Australia (NICNAS): All compounds

Korea (TCCL): All compounds

Philippines (RA6969): All compounds

**Section 16. Other Information****Hazardous Material Information System (U.S.A.)**

Health	*	2
Fire Hazard		1
Reactivity		0
Personal Protection		E

**National Fire Protection Association (U.S.A.)****Label statements**

HARMFUL IF INHALED OR SWALLOWED.  
 CAUSES EYE IRRITATION.  
 CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LUNGS, LIVER,  
 MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, CRYSTALLINE LENS OR CORNEA, THYROID.  
 MAY CAUSE RESPIRATORY AND SKIN REACTION.

**References**

-CHEMTOX database

**Other Special Considerations**

-ALL COMPONENTS WITH SUSCEPTIBLE HAZARDS THAT ARE PRESENT IN A CONCENTRATION GREATER THAN 1 % (GREATER THAN 0.1 % FOR CARCINOGENS) HAVE BEEN DISCLOSED IN THIS SAFETY DOCUMENT.

**Document Modifications**

Validated by R. Richard on 2004-08-31.

Verified by R. Richard.

Printed 2004-08-31.

**Information/Contact** AIM  
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