



MATERIAL SAFETY DATA SHEET

Date: February 8, 2005

N57 W13366 Carmen Avenue
 Menomonee Falls WI 53051-6101
 Phone (262)781 8940/Fax (262)781 8964

SECTION 1 – PRODUCT IDENTIFICATION AND USE

ALLOY: **Pure Tin in the following forms:** wire, ingot, pig, sheet, anodes, cast or extruded bar and miscellaneous extruded lines.

NFPA/HMIS Hazard Codes: HEALTH: 1/1 FIRE: 0/0 REACTIVITY: 0/0 SPECIAL: NA

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

SECTION 2 INGREDIENTS AND HAZARDS

Ingredient	CAS No.	US-NIOSH RTECS No.	US OSHA 8-HR AL	US OSHA 8-HR PEL	ACGIH 8-HR TLV	WT. PERCENT (1)
Tin	7440-31-5	XP7320000	NE	2.0 mg/m3	2.0 mg/m3	99.9+

NE = None Established AL = Action Level PEL = Permissible Exposure Limit TLV = Threshold Limit Value
 NA= Not Applicable

SECTION 3 – PHYSICAL DATA

APPEARANCE & ODOR (AT NORMAL CONDITONS) : Solid – Silver to silver-gray metallic metal – no odor.
 Specific Gravity (H2O =1) : 5.75
 Melting Point (Degrees C) : 232
 Boiling Point (Degrees C) : 2260
 Solubility in water : Insoluble

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT : Non-Flammable
 FLAMMABLE LIMITS : Not Applicable
 EXTINGUISHING MEDIA : No specific agents recommended
 SPECIAL FIRE FIGHTING PROCEDURES : If involved in fire, use full protective clothing and NIOSH/MSHA approved self-contained breathing apparatus operated in a positive-pressure mode.
 UNUSAL FIRE & EXPLOSIN HAZARDS : The solid metal form is not a fire hazard. However, dust generated from processing operations may present a moderate fire or explosion hazard.

SECTION 5 – REACTIVITY HAZARD DATA

STABILITY	:	Stable
CONDITIONS TO AVOID	:	Not Applicable
INCOMPATIBILITY	:	Chlorine, Turpentine.
HAZARDOUS DECOMPOSITION PRODUCTS:	:	At temperatures above the melting point metal oxide fumes may be evolved.
HAZARDOUS POLYMERIZATION	:	Will not occur.

SECTION 6 – HEALTH HAZARD DATA

NOTE: EXPOSURE TO THE SOLID FORM OF THIS PRODUCT PRESENTS FEW HEALTH HAZARDS IN ITSELF. HOWEVER NORMAL HANDLING OR PROCESSING OF THIS MATERIAL MAY RESULT IN THE DUSTS AND/OR FUMES, WHICH MAY PRESENT A POTENTIAL HEALTH HAZARD.

ROUTES OF ENTRY	:	Dust/fume inhalation, dust ingestion.												
SYMPTOMS & EFFECTS OF OVEREXPOSURE:	:	<u>Chronic (prolonged)</u> overexposure to <u>tin</u> can result in benign pneumoconiosis (stannous). This form of pneumoconiosis produces progressive x-ray changes of the Lungs as long as exposure exists, but there is no distinctive fibrosis, no evidence of disability and no special complicating factors. Acute (severe short-term) overexposure to <u>tin</u> can cause irritation of the eyes, skin, mucous membranes and respiratory system.												
MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE	:	Pre-existing conditions of the lungs.												
CARCINOGENICITY	:	Not listed as a carcinogen by NTP, IARC, OSHA, ACGIH.												
ADDITIONAL INFORMATION	:	In industrial/commercial processing operations, pre-employment medical evaluations are recommended for large users of this product. Attention should be directed to skin, eyes, respiratory tract, pulmonary function and neurological health. Periodic medical examinations should be repeated on an annual basis for those employees exposed to potentially hazardous levels of this product.												
EMERGENCY & FIRST AID PROCEDURES	:	<table><tr><td>SKIN</td><td>:</td><td>Normal hygiene procedures – wash with soap and water. If irritation develops or persists obtain medical attention.</td></tr><tr><td>EYES</td><td>:</td><td>Flush well with running water to remove particulate. . If irritation persists obtain medical attention.</td></tr><tr><td>ACUTE INHALATION</td><td>:</td><td>Remove from exposure. Obtain immediate medical attention. If breathing has stopped, initiate artificial resuscitation.</td></tr><tr><td>INGESTION</td><td>:</td><td>Give water: induce vomiting only in a conscious non-convulsing individual: Obtain immediate medical attention.</td></tr></table>	SKIN	:	Normal hygiene procedures – wash with soap and water. If irritation develops or persists obtain medical attention.	EYES	:	Flush well with running water to remove particulate. . If irritation persists obtain medical attention.	ACUTE INHALATION	:	Remove from exposure. Obtain immediate medical attention. If breathing has stopped, initiate artificial resuscitation.	INGESTION	:	Give water: induce vomiting only in a conscious non-convulsing individual: Obtain immediate medical attention.
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SECTION 7 – PROTECTIVE MEASURES

Respiratory Protection:	Respiratory protection is required where airborne exposures exceed U.S. OSHA/ACGIH permissible air concentrations. Respirator selection shall be made in accordance with U.S. OSHA Respiratory Protection Standard 29 CFR 1910.134.
Protective Gloves:	Recommended for prolonged contact/heat.
Eye Protection:	Safety glasses or goggles are recommended where the possibility exists of getting dust particles in the eyes.
VENTILATION :	Good general dilution ventilation or ventilation, as described in "Industrial Ventilation, A Manual of Recommended Practice", by the American Conference of Governmental Industrial Hygienists, is recommended in order to maintain exposure levels below the permissible exposure limits (PEL's) or threshold limit values (TLV's) specified by U.S. OSHA or other local or state regulations..
Other Protective Clothing and Equipment:	Safety equipment should be worn as appropriate for the work environment
Hygienic Work Practices:	Do not permit eating, drinking, or the use of cosmetics or tobacco products while handling or processing material or in product work area. Practice good personal hygiene procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Avoid inhalation and ingestion of products and activities which generate dust or fume. Keep melting/soldering temperatures as low as possible to minimize the generation of fumes.

SECTION 8 – PRECAUTIONS FOR SAFE HANDLING & USE

Precautions to be Taken In Handling and Storage Practice good housekeeping procedures to prevent dust accumulations. Keep material dry. Avoid storage near incompatible materials (see section 5). Keep product away from children and their environment and domestic animals.

OTHER PRECAUTIONS Special attention is drawn to the requirements of the U.S. OSHA Respirator Standard (29 CFR 1910.134) should airborne exposures exceed the OSHA PEL. Inadvertent contaminants to product such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten metal bath or melting furnace (preheating metal will remove moisture from product)

SECTION 9 – SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES 1). Material in dust form – minimize exposure. Clean up using dustless methods (e.g. HEPA vacuum). Do not use compressed air. 2) Place in closed labeled containers for recycling or disposal. 3). Keep out of waterways.

Note: Clean-up personnel should wear protective clothing & respiratory protection where significant dust/fume exposure exists.

OTHER PROCEDURES For large product users or involving large product quantities, we recommend that the purchaser establish a spill prevention, control and counter measure plan. This plan should include procedures for proper storage as well as clean-up of spills or leaks. The procedures should conform to safe practices and provide for proper recovery and/or disposal. Depending on the quantity spilled, notification to the U.S. National Response Center (800-424-8802 may be required in case of hazardous substances. (See USEPA and USDOT regulations; also various state and local regulations.)

WASTE DISPOSAL METHOD May have value on a recycled basis. If disposed of, dispose of in a permitted disposal site in accordance with all federal, state and local disposal or discharge regulations. Under the U.S. Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the Product to determine, at the time of disposal, whether the Product falls under the RCRA as a hazardous waste. This is because product uses, transformations, synthesis, mixtures, etc. may cause the resulting end-product to be classified as hazardous.

SECTION 10 – UNITED STATES SARA TITLE III INFORMATION

THIS PRODUCT/MIXTURE CONTAINS THE FOLLOWING TOXIC CHEMICAL (S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE U.S. SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372. THE PERCENT BY WEIGHT OF EACH TOXIC CHEMICAL AND ITS ASSOCIATED CHEMICAL ABSTRACT SYSTEM (CAS) NUMBER ARE TO BE FOUND IN SECTION II OF THIS MATERIAL SAFETY DATA SHEET.

CHEMICAL NAME	EHS RQ (LBS) (*1)	EH TPQ (LBS) (*2)	SEC. 313 (*3)	313 CATEGORY (*4)	311/312 CATEGORIES (*5)
N/A	N/A	N/A	NO	N/A	N/A

*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SECTION 302

*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SECTION 302

*3 = TOXIC CHEMICAL, SECTION 313

*4 = CATEGORY AAS REQUIRED BY SECTION 313 (40 CFR 372.42) MUST BE USED ON TOXIC RELEASE FORM.

*5 = HAZARD CATEGORY FOR SARA SECTION 311/312:

HEALTH H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD

H-2 = DELAYED (CHRONIC) HEALTH HAZARD

PHYSICAL P-3 = FIRE HAZARD

P-4 = SUDDEN RELEASE OF PRESSURE HAZARD

P-5 = REACTIVE HAZARD

SECTION 11 – UNITED STATES CERCLA SECTION 103 INFORMATION

THIS PRODUCT/MIXTURE CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE RELEASE REPORTING REQUIREMENTS OF SECTION 302.

<u>CHEMICAL NAME</u>	<u>RQ (LBS) (*1)</u>
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N/A

N/A

-----FOOTNOTES-----

*1 = REPORTABLE QUANTITY (RQ) UNDER CERCLA SECTION 302. SPILLS TO THE ENVIRONMENT EXCEEDING THE REPORTABLE QUANTITY IN ANY 24 HOUR PERIOD MUST BE REPORTED TO THE U.S. NATIONAL RESPONSE CENTER (800-424-8802). NO REPORTING OF RELEASES OF THE HAZARDOUS SUBSTANCE(S) IS REQUIRED IF THE DIAMETER OF THE PIECES OF THE SOLED METAL(S) RELEASED IS EQUAL TO OR EXCEEDS 100 MICROMETERS (0.004 INCHES).

SECTION 12 – TRANSPORTATION INFORMATION

PROPER SHIPPING NAME	: This product is not regulated by the USDOT as shipped.
HAZARD CLASS	: NA
UN/ID NO.	: NA
DOT LABEL(S)	: NA

SECTION 13 – ADDITIONAL INFORMATION

No additional information

This Material Safety Data Sheet is offered solely for your information, consideration and investigation. Acro Sales & Engineering, Inc. provides no warranties, either express or implied and assumes no responsibilities for the accuracy or completeness of the data contained in the document. The data in the Material Safety Data Sheet relates only to this product and does not relate to use in combination with any other material or in any process.