MATERIAL SAFETY DATA SHEET

VENDEE AND THIRD PERSONS ASSUME THE RISK OF INJURY DIRECTLY OR INDIRECTLY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT FOLLOWED AS PROVIDED FOR IN THE DATA SHEET, AND VENDOR SHALL NOT BE LIABLE FOR SUCH INJURY. FURTHERMORE, VENDOR SHALL NOT BE LIABLE FOR INJURY TO VENDEE OR THIRD PERSONS, DIRECTLY OR INDIRECTLY CAUSED BY ABNORMAL USE OF THE MATERIAL, EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED.

ALL PERSONS USING THIS PRODUCTS, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCTS IS USED, AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENT OF THIS DATA SHEET. POSTING THIS DOCUMENT FOR EMPLOYEE NOTIFICATION IS RECOMMENDED BY THE VENDOR AND MAY BE REQUIRED BY LAW IN YOUR STATE.

 Revision Date: 01 / 06 / 04 . 597NMID3 Lead Alloy

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

Product Name/Trade Name: 597NMID3 Lead alloy Non- Ferrous Casting Alloy Code 30 to 1 ALLOY

Supplier: **NEY METALS & ALLOYS**
272 GEORGIA AVENUE,
BROOKLYN, NY 11207

CAS **Not applicable**

DSL Not available
CI Not applicable

INTENDED USE: ARTISTIC, COMMERCIAL AND INDUSTRIAL APPLICATIONS (NOT FOR SALE TO THE GENERAL PUBLIC OR FOR FABRICATION OF ITEMS INVOLVING FOODSTUFF OR POTABLE WATER SYSTEMS.)

Synonym: Alliage plomb-antimoine (French)
Chemical Name: Not applicable
Chemical Family: Inert material/metal
Chemical Formula: Not applicable

Manufacturer: Refer to supplier

Material Uses: Industrial applications: Sold in the industry in solid metal form of Pig, Ingot, Bar, Sheet or Wire form.

IN CASE OF EMERGENCY: (718) 389-4900

SECTION 2 COMPOSITION AND INFORMATION ON INGREDIENTS

NAME	CAS#	TLV-TWA (mg/m3)	TLV-STEL (mg/m3)	TLV-CEIL (mg/m3)	%BY WEIGHT
Lead	7439-92-1	0.15			96 - 98
Antimony	7440-36-0	0.5			.01 - .20
Tin	7440-31-5	2(metal-inorganic) 0.1 (organic)	0.2 (organic)		3 - 5

Toxicological Data on Hazardous Ingredients:

Antimony: Oral (LD50) Acute: 7000 mg/kg (Rat).
Lead: LD50: Not available
LC50: Not available

II HAZARDOUS INGREDIENTS CONTINUED

MATERIAL OR COMPONENT (CAS #)	WEIGHT %	HAZARD DATA OSHA PEL	ACGIH TLV
Tin (CAS # 744-31-5)	3 - 5%	2 mg/m3	2 mg/m3
Antimony (CAS # 7440-36-0)	< .20 %	0.50 mg/m3	0.50 mg/m3
Lead (CAS # 7439-92-1)	96 -98 %	0.05 mg/m3	0.15 mg/m3

***Ref.: Occupational Safety & Health Standards, General Industry Standards Part 1910**

THIS MATERIAL FALLS UNDER THE CALIFORNIA PROPOSITION 65 LAW AND OTHER LAWS. CHECK WITH ALL LOCAL, STATE AND FEDERAL LAWS BEFORE USING OR SELLING PRODUCTS MADE FROM LEAD.

SECTION 3 HAZARDS IDENTIFICATION

Potential Acute Health Effects:
As shipped this product does not present any special health hazards. Conditions and work practices which generate dust or fumes must be avoided or controlled. Dust and fumes may cause health effects.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: PROVEN by IARC, NTP and OSHA, based on arsenic./POSSIBLE by EPA and IARC, based on lead. MUTAGENIC EFFECTS: not applicable. TERATONGENIC EFFECTS: SUSPECTED by OSHA, based on lead. The substance may be toxic to the blood, kidney's nervous system, reproductive system, lungs and liver.

SECTION 4 FIRST AID MEASURES

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with plenty of water, holding eyelids open for at least 20 minutes. Get medical help.
Dust acts as a foreign body.

Skin Contact:
Wash skin with water and soap after handling this product.
Dust may irritate skin.

Inhalation:
Remove patient from exposure and bring to fresh air. If not breathing give artificial resuscitation. Seek immediate medical attention.
Lead absorption is easier by inhalation and the symptoms develop more quickly than by ingestion.

Ingestion:
Induce vomiting; refer to a physician. Do not induce vomiting or give liquid to an unconscious person.

SECTION 5 FIRE AND EXPLOSION DATA

The product is: Non-flammable in original form
Auto-Ignition Temperature: Not applicable
Flash Points: Not applicable
Flammable Limits: Not applicable
Products of Combustion: Oxides of lead, tin and antimony
Fire Hazards in Presence of Various Substances: Molten metal will react violently in contact with water.
Fire Fighting Media and Instructions: In its actual form, the product is Non-Flammable. Use fire fighting materials and procedures adapted to the immediate environment. Firefighters must wear self-contained breathing apparatus (SCBA) and full protective clothing.
Special Remarks on Fire Hazards: Lead, Antimony and Tin are not flammable, however if in contact with a fire source, they will melt, and then if in contact with water, will cause a violent reaction.
Special Remarks on Explosion Hazards: Lead, Antimony and Tin dust if present under certain conditions can ignite.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill:
Metal as shipped from NEY can be recovered and accounted for, under normal clean up procedures for re-use or recycling.

SECTION 7 HANDLING AND STORAGE

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment if exposure limits are exceeded. If ingested, seek medical advice immediately and show the label or the MSDS. Keep away from incompatibles such as acids.
Eating, drinking and smoking must be prohibited in areas where this material is handled, stored and processed. Workers must wash hands and face before eating, drinking and smoking.

Storage:
Store Lead, Antimony and Tin Ingots in covered, dry storage. Never introduce a wet or cold ingot into a molten bath of metal. A violent expolsion can occur by trapping steam under the molten surface, causing a dangerous eruption of molten metal. See safety equipment for eye and skin protection.

SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Controls:
Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. (PEL)

Personal Protection:
Wear safety glasses and protective clothing. Be sure to use a NIOSH/MSHA approved dust respirator or equivalent when occupational exposure limits are exceeded.

Personal Protection in Case of a Large Spill:
If fumes are present or if dust in large concentration is present, a self-contained breathing apparatus (SCBA) must be used to avoid inhalation of the product. If not present in large concentration, use a NIOSH/MSHA approved full-face cartridge(s) respirator or the equivalent. Face Protection, Gloves, Coveralls, Leggings, Boots, Masks.

Exposure Limits:

Lead: TLV-TWA 0.15 (mg/m3) from ACGIH
This exposure limit is for inorganic dust and fumes, as lead.
ACGIH notice of intended changes for 1994-1995 has proposed 0.05 (mg/m3) for elemental lead and inorganic compounds as Pb. These proposed changes to the TLV are only trial limits and will remain on the list of TVLs for one year. Lead is also listed in it as A3: animal carcinogen.

Antimony: TLV-TWA 0.5 (mg/m3) from ACGIH
This exposure limit is for antimony and its compounds.

Tin: TLV-TWA 2 (mg/m3) form ACGIH
This exposure limit is for metal, oxide and inorganic compounds as Sn1 except for SnH4.
TLV-TWA 0.1 (mg/m3) STEL 0.2 (mg/m3) from ACGIH
This exposure limit is for organic compounds as Sn.

Consult all Local, State and Federal Authorities for acceptable exposure limits.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Solid (Soft and dense)
Odor: Odorless Taste: Metallic Color: Bluish-grey Molecular Weight: Not applicable
pH (1% soln/water): Not applicable Boiling Point: Not available
Melting Point: 1166 F = Antimony 450 F = Tin 618 F = Lead Weighted average for 1155 = 600 F
Critical Temperature: Not available Specific Gravity: Weighted average: 9.8 (Water =1)
Vapor Pressure: Not available Vapor Density: Not available Volatility: Not available
Odor Threshold: Not available Water/Oil Dist.Coeff.: Not available Ionicity (in water): Not available
Dispersion Properties: Is not dispersed in cold water and in hot water.
Solubility: Insoluble in cold water and in hot water.

SECTION 10 STABILITY AND REACTIVITY DATA

Stability: The product is stable

Instability Temperatures: Not applicable

Conditions of Instability: No additional remarks

Incompatibility with various substances: Slightly reactive to and reactive with acids. See special remarks on reactivity below.

Corrosivity: None

Special remarks on Reactivity:
Lead reacts violently on ignition with: chlorine trifluoride, concentrated hydrogen peroxide, ammonium nitrate, sodium acelyte.
Lead is incompatible with: sodium nitrate, zirconium, disodium acetylide, oxidants. Can react vigorously with oxidizing materials.
Antimony can react violently with: ammonium nitrate, bromate trifluoride, chloric acid, chlorine trifluoride, nitric acid, potassium nitrate, potassium permanganate, dipotasium peroxide, sodium nitrate, oxidants.

NOTE: This list of products is not exhaustive, verify in technical documents to determine the incompatibilities with your process.

Special Remarks on Corrosivity: No additional remarks.

SECTION 11 TOXICOLOGICAL INFORMATION

Routes of Entry: Ingestion and inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): > 5000 mg/kg (Rat) (Antimony).

Chronic Effects on Humans: CARCINOGEN EFFECTS: PROVEN by IARC, NTP, and OSHA, based on arsenic./POSSIBLE by EPA and IARC, based on lead. MUTAGENIC EFFECTS: not applicable. TERATOGENIC EFFECTS: SUSPECTED by OSHA, based on lead. The substance may be toxic to the blood, kidneys, nervous system, reproductive system, lungs and liver.

Other Toxic Effects on Humans: As shipped from NEY this product does not present any special health hazards. Conditions and work practices which generate dust or fumes must be avoided or controlled. Dust and fumes may cause health effects.

Special Remarks on Toxicity to Animals: No additional remarks.

Special Remarks on Chronic Effects on Humans: Lead is classified as a carcinogenic product: IARC and the EPA classified it as a group 2B carcinogen, possible carcinogen in humans. The ACGIH has classified it as a group A3 carcinogen, animal carcinogen.
The European Economic Community expert committee on metals lists certain lead compounds as carcinogen to animals. The committee does not list metallic lead as carcinogen but lists it as a teratogen and reproductive toxin.
Lead is a regulated substance in many jurisdictions. NIOSH (90-117) reports the following target organs for acute and chronic overexposure: gastro-intestinal tract, central nervous system, kidneys, blood, gingival tissues.

Signs and symptoms of acute overexposure to lead usually develop slowly and resemble those of chronic overexposure which are: nausea, vomiting, abdominal cramps, diarrhea, constipation, confusion, convulsions, anemia, muscular weakness and decreased sperm count. Acute overexposure is more likely to occur in children than in adults. Target organs for chronic overexposure are: blood, kidneys, digestive system, nervous and the reproductive systems.

Antimony: the health effects of antimony are ill-defined. NIOSH (90-117) reports the following target organs for acute and chronic overexposure: respiratory system, cardiovascular system, skin and eyes.

Tin is not considered as a carcinogen although it has caused tumors in laboratory animals. Metallic tin and its inorganic compounds have low toxicity for humans but chronic inhalation of dust and fumes (tin oxide) may cause a benign pneumoconiosis called stannosis. This condition does not cause any functional unpairment. Organic tin has significant and varied toxicity depending of the form and absorption rate. The other sensitive sites are: the kidneys and the central nervous system.

Special Remarks on Other Toxic Effects on Humans: Workers with the following pre-existing conditions warrant particular attention:
Lead: anemia, pregnant women, breast feeding women and women of bearing children age. For biological monitoring, the preferred method is to measure blood levels (Pb blood).
Antimony: not applicable.
Tin: respiratory system (for inorganic compounds).

Eating, drinking and smoking must be prohibited in areas where this material is handled, stores and processed. Workers must wash hands and face before eating, drinking and smoking.

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity: Not available
BOD5 and COD: Not available
Products of Biodegradation: Not applicable
Toxicity of the Products of Biodegradation: Not applicable
Special Remarks on environment: No additional remarks

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal: Recycle to process, if possible. Consult your local or regional authorities.

SECTION 14 TRANSPORTATION INFORMATION

TDG Classification: Not a TDG controlled material.
PIN: Not applicable.
Special Provisions for Transport: No additional remark in solid form.

SECTION 15 OTHER REGULATORY INFORMATION

This metal is regulated under the California Proposition 65 rules, Follow all Federal, State and Municiple laws applicable to this materials. See additional warnings and MSDS.

Other regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

HCS (USA) HCS CLASS: DANGEROUS MAY CAUSE CANCER.

DSCL (EEC) 39-Danger of very serious irreversible effects.
42-May cause sensitization by inhalation.
45-May cause cancer.
47-May cause birth defects.

Hazardous Material Information System (USA): Health=3 Fire=0 Reactivity=0 Personal Protection=e

PROTECTIVE EQUIPMENT:

EYE PROTECTION:
Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the worker should provide an eye wash fountain within the immediate work area for emergency use.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):
Protective eye equipment should meet the requirements for protective work clothing and equipment in 29 CFR 1910.1025(g).

CLOTHING:
Employee must wear appropriate (e.g. Fire Resistant) protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):
Protective clothing should meet the requirements for protective work clothing and equipment in 29 CFR 1910.1025 (g).

GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):
Protective gloves should meet the requirements for protective work clothing and equipment in 29 CFR 1910.1025 (g).

RESPIRATOR:
The following respirators are the minimum legal requirements as set forth by the Occupational Safety and Health Administration found in 29 CFR 1910, Subpart Z.
3M 9970 or equal for dust and fume.

SECTION 16 OTHER INFORMATION

References: -"Regulations respecting the handling, offering for transport and transporting of dangerous goods." Extract from the Canada Gazette Part II, dated February 6,1985. Registration SRO/85-87 18 January, 1985.
-NIOSH - RTEcS, 1994 supplement.
-ACGIH, Threshold Limit Values, Current listing.
-Handbook of the Toxicology of Metals, 2nd Edition, Frieberg.
-SAX'S Dangerous Properties of Industrial Materials, 8th Ed., 1993.
-Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition.
-National Library of Medicine.
-Toxicology Ind. & Intox. Professionnelle, 3e Revised Edition.
-Chemical Hazards of the Workplace, 3rd edition, Proctor, Hughes.
-IARC, Monographs on the Evaluation of Carcinogenic Risks to Humans, Supp. 7.
-Sixth Annual Report on Carcinogens, US, Public Health Service.
-Toxicology Profile on selected metals. Contract: R. Lauwerys and Noranda Inc. (1989 with updates.
-NIOSH-Pocket Guide to Chemical Hazards-June 1990.
-CSST-Repertoire toxicologique, novembre 1991 (with updates).
-ACGIH, documentation on TLVs and BEIs 1994-1995.
-Controlled Products Regulation.
-Canadian Center for Occupational Health and Safety, CCINFOdisc, MSDS/FTSS (series A1).
-Handbook of chemistry and physics, CRC press, 74th edition, 1993-1994.
-Merck Index. Merck & Co.,Inc., 11th edition, 1989.

GLOSSARY

IARC: International Agency for Research on Cancer.
CSST: Commission de la Sante et de la Securite du Travail (Quebec).
ACGIH: American Conference of Government Industrial Hygiene.
NTP: U.S. National Institute of Occupational Safety and Health.
OSHA: Occupational Safety and Health.

OTHER SPECIAL CONSIDERATIONS: AN MSDS FOR PURE TIN, PURE LEAD AND PURE ANTIMONY ARE INCLUDED WITH THIS MSDS FOR ADDITIONAL OR UPDATED INFORMATION.

Notice to Reader:

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Ney Co. extends no warranty and assumes no responsibility for the accuracy of the content and expressly disclaims all liability for reliance thereon. This material safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations, therefore your specific use of this should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

IN ADDITION, WE SUPPLY AN MSDS SHEET ON EACH RAW MATERIAL THAT IS USED TO MANUFACTURE THE 1155 LEAD ALLOY. BE SURE TO INCLUDE THOSE MSDS SHEETS WHEN SUPPLYING INFORMATION TO ALL WORKERS THAT WILL HANDLE THE 111155 LEAD ALLOY.