SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **LEAD ALLOYS (WITHOUT SILVER)**

Synonyms 4000 TO 4800 - PRODUCT CODE ● 5000 TO 6900 - PRODUCT CODE ● ANTIMONIAL LEAD ALLOY ● CABLE ALLOY ● CALCIUM LEAD ALLOY ● PB ● SELENIUM ANTIMONIAL LEAD ALLOY ● SELENIUM LEAD ALLOY

1.2 Uses and uses advised against

Uses LEAD PRODUCTION

1.3 Details of the supplier of the product

Supplier name **NYRSTAR PORT PIRIE**

Address PO Box 219, Port Pirie, SA, 5540, AUSTRALIA

Telephone (08) 8638 1500

Fax (08) 8638 1583

Email info@nyrstar.com

Website http://www.nyrstar.com

1.4 Emergency telephone numbers

Emergency (08) 8638 1500

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Acute Toxicity: Oral: Category 4
Acute Toxicity: Inhalation: Category 4
Toxic to Reproduction: Category 1A
Specific Target Organ Toxicity (Repeated Exposure): Category 2

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **DANGER**

Pictograms

Hazard statements

H302	Harmful if swallowed.
H332	Harmful if inhaled.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Prevention statements

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response statements

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.

Storage statements

P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

Toxic effects of Lead and alloying metals arise from exposure to dust, fume, vapour or mist forms and are not considered toxic in solid (metal) form.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
LEAD	7439-92-1	231-100-4	>95%
ANTIMONY	7440-36-0	231-146-5	<5%
TIN	7440-31-5	231-141-8	<1.2%
CALCIUM	7440-70-2	231-179-5	<0.5%
SELENIUM	7782-49-2	231-957-4	<0.5%
ARSENIC	7440-38-2	231-148-6	<0.4%
ALUMINIUM POWDER (PYROPHORIC)	7429-90-5	231-072-3	<0.03%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye	Exposure is considered unlikely.
Inhalation	Due to product form / nature of use, an inhalation hazard is not anticipated.
Skin	Exposure is considered unlikely. Skin irritation is not anticipated.
Ingestion	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). Due to product form and application, ingestion is considered unlikely.
First aid facilities	None allocated.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases (lead oxides) when heated to decomposition.

5.3 Advice for firefighters
No fire or explosion hazard exists.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
If spilt, collect and return to manufacturer.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store removed from incompatible substances and foodstuffs. Ensure product is adequately labelled.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Aluminium & compounds	SWA [Proposed]	--	1	--	--
Aluminium (metal dust)	SWA [AUS]	--	10	--	--
Aluminium (welding fumes) (as Al)	SWA [AUS]	--	5	--	--
Aluminium, alkyls (NOC+) (as Al)	SWA [AUS]	--	2	--	--
Aluminium, pyro powders (as Al)	SWA [AUS]	--	5	--	--
Aluminium, soluble salts (as Al)	SWA [AUS]	--	2	--	--
Antimony & compounds (as Sb)	SWA [AUS]	--	0.5	--	--
Arsenic & soluble compounds	SWA [Proposed]	--	0.01	--	--
Arsenic & soluble compounds (as As)	SWA [AUS]	--	0.05	--	--
Lead, inorganic dusts & fumes (as Pb)	SWA [AUS]	--	0.05	--	--
Selenium compounds (as Se)	SWA [AUS]	--	0.1	--	--
Tin, metal	SWA [AUS]	--	2	--	--

Biological limits

Ingredient	Reference	Determinant	Sampling Time	BEI
ARSENIC	ACGIH BEI	Inorganic arsenic plus methylated metabolites in urine	End of workweek	35 µg As/L
LEAD	ACGIH BEI	Lead in blood	Not critical	200 µg/L
	ACGIH BEI	Lead in blood (women of child bearing potential)	Not critical	10 µg/100ml
	SWA [AUS]	Lead in blood	Not critical	30 µg/dL
	SWA [AUS]	Lead in blood (women of child bearing potential)	Not critical	10 µg/dL

8.2 Exposure controls

Engineering controls No special precautions are normally required when handling this product.

PPE

Eye / Face Wear safety glasses.

Hands Wear leather gloves.

Body Wear safety boots.

Respiratory Not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	BLUE/WHITE TO SILVER/GREY METALLIC SOLID (25 KG INGOTS, 1 TONNE AND 2 TONNE BLOCKS)
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	1740°C
Melting point	250°C to 327°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Relative density	10.00 to 11.34
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid contact with incompatible substances.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products
May evolve toxic gases (lead oxides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity Lead is expected to be harmful if swallowed, in contact with skin, and/or if inhaled.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
LEAD	50 mg/kg to 600 mg/kg (calf)	--	--
SELENIUM	6700 mg/kg (rat)	--	--
ARSENIC	145 mg/kg (mice)	--	--

Skin Non irritant. Metallic lead is very poorly absorbed through the skin and is therefore not considered a hazard through this route of exposure.

Eye Exposure considered unlikely. Due to product form and nature of use, the potential for exposure is reduced.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity The evidence for genotoxic effects of lead is contradictory, with numerous studies reporting both positive and negative effects. Responses appear to be induced by indirect mechanisms, mostly at very high concentrations that lack physiological relevance.

Carcinogenicity Lead compounds (inorganic) are classified as probably carcinogenic to humans (IARC Group 2A).

Reproductive There is sufficient data to indicate that lead compounds may damage fertility or the unborn child.

STOT - single exposure Not classified as causing organ damage from single exposure. Due to the product form (solid), an inhalation hazard is not anticipated.

STOT - repeated exposure Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Lead has been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haematopoietic (blood) system, kidney function, reproductive function and the central nervous system.

Aspiration Not applicable for solids.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
Inorganic lead does not degrade.

12.3 Bioaccumulative potential
Inorganic lead is considered to be bioaccumulating in the environment, and may accumulate in aquatic and terrestrial plants and animals.

12.4 Mobility in soil
Insoluble in water.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Return to manufacturer/supplier where possible. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

Other information Solid material not regulated for transport under 2.3.2.1.3 of the Australian Dangerous Goods (ADG) and International Maritime Dangerous Goods (IMDG) codes, and under 3.6.1.5.3 of the International Air Transport Association (IATA).

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

IARC GROUP 2B - POSSIBLE HUMAN CARCINOGEN. This product contains an ingredient which has demonstrated sufficient evidence to have been classified by the International Agency for Research into Cancer (IARC) as possibly carcinogenic to humans and whose use should be strictly monitored and controlled.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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