

Alec Tiranti Limited

Showroom and Mail Order: 3 Pipers Court, Berkshire Drive, Thatcham, RG19 4ER

Tel: 0845 123 2100 Fax: 0845 123 2101

Email: enquiries@tiranti.co.uk Website: www.tiranti.co.uk

London Shop: 27 Warren Street, London W1T 5NB Tel/fax: 020 7380 0808

A RANGE OF CASTING ALLOYS SUITABLE FOR: JEWELLERY, MILITARY, RAILWAY, CAR, BOAT AND INDUSTRIAL MODEL-MAKING, PROTOTYPE WORK ETC

Different alloys are suitable for different applications. As a general rule, high tin content alloys have better flow and definition, but are pricier. Generally it will be found that the more delicate casting will require the higher range of temperature – bulky castings will require lower temperatures; experiment to find the best temperature

LEAD FREE PEWTER METAL ALLOY (Tin / Antimony / Copper)

Made to BS Spec 5140 (spec A) Pewter is a very high grade alloy, lead free and tin rich, suitable for highly detailed castings where good flow properties and polished finishes are required. Castings are reasonably malleable. Pewter is a metal in its own right and because of the high degree of finish it takes, does not need plating or painting.

Melting Point 245°C Suggested Operating Temperature 280°C – 295°C can go to 310°C

KA LOW-MELT METAL ALLOY (Tin / Antimony / Lead)

A tin rich alloy, ideal for thin section and fine delicate castings where good flow properties and detail are needed (eg filigree). Widely used in the jewellery trade. Castings have a good shiny surface and are malleable. Very prone to porosity if overheated. Particularly suitable for had gravity casting.

Melting Point 185°C Suggested Operating Temperature 240°C – 280°C

No 2 LOW-MELT METAL ALLOY (Tin / Antimony / Lead)

A general lead rich tin alloy, pouring at higher temperatures than No 4. Suitable for figures, jewellery components and model making; giving good reproduction of detail and very malleable castings.

Melting Point 243°C Suggested Operating Temperature 290°C – 310°C

No 3 LOW-MELT METAL ALLOY (Tin / Antimony / Lead / Bismuth)

An alloy developed especially for flat surfaces, where porosity is giving problems. Good flow properties giving very good reproduction of detail and good surface finish on flat areas. Ideal for making model kits of locos, cars, trams, vehicles etc. Low malleability.

Melting Point 225°C Suggested Operating Temperature 275°C – 295°C

LEAD FREE No 3 LOW-MELT METAL ALLOY (Tin / Bismuth)

Lead Free very low melting tin alloy. Exceptional flow properties, very good reproduction of detail and flat surfaces. Similar use to No 3 above.

Melting Point 138°C Suggested Operating Temperature 150°C – 180°C

No 4 EXTRA LOW-MELT METAL ALLOY (Lead / Bismuth)

Tinless low melting lead alloy, giving excellent detail with a matt finish, ideal for painting. The extra low working temperature makes it an ideal metal for use in machine casting figures and particularly useful for hand casting.

Melting Point 168°C Suggested Operating Temperature 220°C – 230°C

WOODS METAL (Lead / Bismuth / tin / Cadmium)

Will melt in boiling water at 70°C. Used for pipe bending, tool holding etc. When pipe bending, it is essential to cool the metal as quickly as possible to anneal it. Do not allow to go over 250°C because of the cadmium content.

PURE BISMUTH (contains only Bismuth)

For use in modifying other alloys. 10% Bismuth is added to lead will make an alloy working at 260°C to 300°C liquidus, and 15% Bismuth makes 230°C to 280°C liquidus. Melting Point 271°C

Recommended pouring temperatures are given, but pour at the lowest temperature consistent with filling the mould satisfactorily. Always dust moulds with talc (or fine graphite powder) before casting. Pour metal in one fluent action. Allow sufficient time for metal to set before removing from mould – beware, even the mould can get very hot. Never attempt to water cool.

ALWAYS WEAR EYE PROTECTION WHEN WORKING WITH MOLTEN METALS

SPECIAL NOTE: We are obliged to draw your attention to the notice overleaf.

HEALTH & SAFETY
MATERIAL SAFETY DATA SHEET
Possible Toxic or Injurious Compounds: Low-Melt Metal Alloys

Product Identification. These alloys contain some of the following: tin, antimony, lead, bismuth, cadmium, copper – contents are shown against each alloy.

Hazards to Health. The alloys are likely to be harmful to health by the inhalation of fume and dust and by ingestion of oxide dust via physical contact with hands. Awareness of potential hazards and adopting suitable precautions should ensure safe use of these products.

Wire & Stick Soldering. When the metal is molten for a short period of time at a temperature not greatly in excess of its melting point, the hazard from fume is likely to be minimised. Nevertheless, good ventilation and fume extraction should be provided. Fume from melting processes should not be inhaled.

Crucible Melting. Danger of lead or cadmium (or absorption of other hazardous elements) arises from the oxide dust and metal vapour produced when the alloy is melted. The oxide dust (dross) may well be in a finely divided form which can easily become airborne if mishandled; it should always be stored and transported in closed containers.

It should not normally be necessary to heat the metal to more than about 50°C above the melting point (liquidus) of the alloy and this should minimise emission of harmful material.

In the molten state the alloy can cause burns if splashed onto the skin and particular attention is drawn to the Protection of Eyes Regulations where reference is made to the use of eye protection when handling molten metal.

Extreme care should be exercised to ensure that tools and ingots are perfectly dry when added to a pot of, or when in contact with molten metal. A serious explosion can result if damp ingots or tools are immersed in molten metal.

Personal Hygiene & Protective Clothing. Good housekeeping and personal hygiene are important. Smoking, eating and drinking should not be allowed when handling metal, nor in the melting area. After handling alloys or dross, the operator should wash thoroughly before meals and before smoking or drinking. Keep away from food, drink and animal feedstuffs.

Protective Clothing. Use suitable gloves, overalls & eye protection. Respiratory protection should be worn where appropriate.

Substances Hazardous to Health with OES (8 Hrs TWA) (but check latest HSE Publication EH40 for changes)
Lead (0.15mg/m³) Tin (2mg/m³) Silver (0.01mg/m³) Cadmium (0.025mg/m³) Zinc – as oxide (5mg/m³)

Disposal of Waste. Dispose of according to local regulations.

Other Properties. Solubility: Soluble in water. Melting Point: 50°C – 310°C depending on alloy. Flammability: Non-flammable.

Emergency and First Aid Procedures:
Burns: Wash immediately in cold water. Seek medical attention.
Eye Contact: Irrigate copiously with warm water and seek medical attention.
Inhalation: Remove subject to fresh area and seek medical attention.

Fire & Explosion Hazard Data. In case of fire avoid use of water close to molten metal.

Other Information: The data given on this sheet was compiled from sources outside this Company. It is given in good faith but can be offered for guidance with no warranty of its accuracy.

TIRANTI / CENTRICAST ELECTRIC METAL MELTING POTS.

Thermostatically controlled. These will control the temperature within about 1.5°C provided it is at least half full for more.

Below this, temperatures are likely to fluctuate more.

**TAKE PRECAUTIONS THAT NEITHER YOURSELF NOR ANYONE ELSE TOUCHES THE MELTING POT WHEN IN USE.
IT IS EXTREMELY HOT.**