

# Low Melt Alloys

## 1. DESCRIPTION

A selection of low melting point casting alloys suited to the "Model making" and "Jewellery" industries.

## 2. ADVANTAGES

- Range of melting points.
- Range of flexibility
- Range of fluidity

## 4. CHARACTERISTICS

### a) CONSTITUENTS:

Alloy	Density /gcm <sup>-3</sup>	Melting Temperature Liquid /°C	Advised Pouring Temperature Range °C
i.) MJ 30	7.25	255	295-315
ii.) MKA	8.91	188	250-330
iii.) M31	9.30	243	295
iv.) MJ70	9.45	247	300
v.) MMB40	10.60	180	250-279
vi.) MMX2	7.633	235	270-295

### i) Alloy MJ30

British standard (BS S5140) Pewter containing no lead (Environmentally friendly). Pewter is ductile but is harder than other alloys. Try not to overheat this alloy when pouring, to avoid porosity and to ensure a clean surface. Good for master figures and fine filigree work.

### ii) Alloy MKA

High grade casting alloy. This metal has a low melt temperature (increasing rubber mould life) and is very free flowing. A very malleable product, the high tin content also gives a bright finish. Ideal for fine intricate pieces.

### iii) Alloy M31

A good all round alloy suitable for the beginner. This metal is equally at home being either "Centrifugal Casting" or "Hand Casting". It is ductile and gives a good surface finish. Suitable for casting

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## iv) Alloy MJ70

An alloy specially developed to give an excellent finish where large flat plain surfaces are to be cast. This material is not very malleable but flows well. MJ70 provides good definition of intricate profiles making it ideal for casting small prototype parts.

## v) Alloy MMB40

A dense metal developed for the production of large castings where porosity can be a problem. It has a low melting point and is free flowing and malleable.

## vi) MMX2

A high Tin content alloy which has excellent definition and is extremely malleable. Most suitable for modal casting where there are fine protrusions (spear carriers, bowmen etc) and also provides excellent results for jewellery production.

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## 5. PACKING

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Available in 500g bars and 250g sticks.

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## 6. HEALTH & SAFETY

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*(Refer to Health & Safety Data Sheet)*

These alloys contain tin, antimony, lead, and small amounts of bismuth, copper or zinc. Any hazard to health is only likely to occur from the lead - rich alloys.

Danger from lead absorption arises from the oxide, which forms on the surface of the liquid metal whenever the alloy is kept molten. This oxide is in a finely divided powder form and can easily be dispersed around the area of the workplace. Therefore, whenever dross is removed from the pot a perforated ladle should be used to allow the metallic portion to drain back into the pot. The dross should then be tipped into a dross container with a self-closing lid. Dross should always be stored and transferred in closed containers and should be kept damp to avoid dust circulating when the containers are emptied or filled.

Personal hygiene is important - smoking, eating, and drinking in the melting area should be discouraged and the operator should wash thoroughly before any meals.

In the molten state, all of the alloys can cause burns if splashed onto the skin. Attention is drawn to the protection of eye regulations 1974 where the use of eye protectors is strongly advised when handling molten metal.

Extreme care should be exercised to ensure that ingots added to a pot of molten metal are perfectly dry. A serious explosion can result if damp ingots are added to

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the already molten pot. Similarly, all tools immersed into molten metal should be perfectly dry.

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