

Key Features

- Low melt at 95°C
- Low Volume Change
- Reusable once melted out
- Suitable for pre-preg processes

Product Description

LM95 is a highly pure eutectic of the bismuth-tin-lead alloy. It has a precise melting/solidification point of 95°C and exhibits low volume change (-1.5%) during its liquid-to-solid change of state. These properties make it highly suitable as a castable, melt-out core for hollow composites moulding processes, most commonly alongside prepreg laminates.

When used in a typical lost-core process, LM95 can be reused indefinitely, making it both economical and environmentally friendly in repeated production.

Typical Uses

LM95 is most typically used for casting solid cores or mandrels for a 'lost core' moulding process, in particular prepregs, but also resin infusion, RTM and injection moulding providing that the resin systems used in the process will not be damaged by being heated to the 95°C melting point of the alloy.

Due to its low melting point, low shrinkage and good mechanical properties, LM95 also finds uses in thermal protection devices, as anchoring or support material and in radiation shielding.

- Fusible core / lost core / melt-out core in composites or injection moulding
- Thermal protection / safety devices
- Work holding / anchoring and support
- Radiation shielding

Mechanical Properties

The recommended casting temperature for LM95 is 125°C - 150°C.

LM95 has excellent ductility and good fluidity. In common with all bismuth alloys, it undergoes gradual equilibrium following solidification, exhibiting slow dimensions changes, the rate of which is dependent on post solidification treatment.

Material Composition

Bismuth	52.5%
Lead	32%
Tin	15.5%

The table below shows the typical uncured properties:

Property	Units	Result
Density	g/cm ³	9.7
Brinell Hardness	-	9
Melting Point	°C	95
Solidification Point	°C	95
Specific Heat (solid)	J/g °C	0.151
Specific Heat (liquid)	J/g °C	0.167
Thermal Conductivity	W/cm °C	0.188
Electrical Resistivity	mΩ.cm	71.4
Latent Heat of Fusion	J/g	30.9
Compressive Strength	MPa	24.1
Tensile Strength	MPa	19.0
Coefficient of Thermal Expansion	mm/°C	0.0005
Volume Change (liquid to solid)	%	-1.5
Dimensional Change After Solidification	%	0.02% 10 mins 0.06% 30 mins 0.07% 2 hour 0.08% 24 hour

Safety

Unlike other low-melting point alloys such as 'Woods metal', LM95 does not contain harmful cadmium.

LM95 does contain lead but in normal use (melting, casting, and recovering) the alloy will stay well below the 500°C temperature at which lead vapour or fumes are generated and therefore the exposure and risk is minimal although normal lead-handling precautions should be followed. Suitable protective gloves and equipment should always be used when handling hot liquid metal.

Disclaimer

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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