

INSTRUCTION SHEET

JESMONITE® AC730

Flex Liquids



- **Introduction**

Jesmonite® AC730 Flex Liquids are supplied as an alternative to standard AC730 Liquids to create laminates with increased flexibility. The Flex liquids are also ideal when Jesmonite AC730 is used as a coating for Polystyrene for external sculpture - the increased flexibility reduces the likelihood of cracks forming in the coating due to moisture build up and thermal movement. The use of Flex liquids also means that Jesmonite paste pigments can be used to create colourful casts although for external use we would still recommend cement compatible Synthetic Iron Oxide powder pigments which offer the best UV stability**. Flex liquids are also compatible with Jesmonite Flex Metal Gel Coats. Please see relevant Flex Metal Instruction Sheet for specific information.

- **Preparation**

It is essential to use both accurate scales and a Jesmonite High Shear mixing blade to ensure that the compound performs within its specification. Failure to follow these instructions can lead to strength loss, shrinkage, and reduced durability. Workshop conditions should be warm, dry, and out of direct sunlight. Environments where solvent-based compounds are in regular use should be avoided. Mixing containers should be clean and dry, and of a suitable size.

- **Mix Ratios**

For standard glass reinforced laminates, weigh the liquids and powders into separate clean containers at the following ratio:

AC730 Liquids	1 part by weight
AC730 Powders	4 parts by weight

NB. When making a chopped strand premix as described in the section entitled '**Casting**' below, it is possible to work at a ratio of 3.5:1. This Ratio should only be used when adding 13mm coarse glass chopped strands. This method results in a high strength pouring mix that is an alternative to a glass reinforced laminate.

In general, the mixture can be adjusted to suit the application or the needs of the end user. Adding a little liquid or powder to make fine adjustments is very useful – do small batch trials first to assess the materials suitability to a particular mould or application.

- **Mixing**

Jesmonite AC730 must be mixed using a High Shear mixing blade. Attach this blade to a drill with variable speed control on the trigger and slowly add the powders to the liquids whilst mixing continuously at low speed. As the last powders are added, slowly increase the mix speed to around 1000rpm and mix for a further 60 seconds or until the mix is smooth, flowing and free from lumps.

- **Pigments**

Unlike standard AC730 liquids, Flex liquids are compatible with our standard Jesmonite paste pigments. Colours should be added to the weighed liquids and mixed thoroughly before adding the powders. Maximum addition rate is 20g/kilo of total mix. Please note that if the coloured object is for external use, it is advisable to apply two coats of Jesmonite Stone Guard Sealer.

- **Solid Casting**

Jesmonite AC730 Flex liquids are not suitable for large, solid castings. Please ring our technical department if you require further assistance with casting using Jesmonite AC730.

- **Premix Casting using chopped glass strands**

To improve strength in cast panels (rather than laminated as described below) add 13mm coarse chopped strands to create a premix. First apply a 1mm – 2mm Gel Coat to the face of the mould. This is applied to stop the glass reinforcements showing on the face of the cast. Allow this to become touch dry, and then pour in the premix. This technique adds significant strength to thinner section casts, and it also simplifies the manufacturing process. Typical premix cast thickness will be between 8mm – 12mm dependent upon size and shape. Further advice on refining these techniques to suit particular applications can be sought from Jesmonite Limited.

- **Laminating with Quadaxial Glass Reinforcement**

Jesmonite AC730 Flex Liquids can be used with Jesmonite AC730 powders and Quadaxial glass reinforcements to create laminated panels that optimise the strength to weight ratio. The key to success is to pre-weigh the required mixes, and to cut out the correct sizes of glass reinforcement to suit the mould **before** mixing any material.

First cut two layers of Quadaxial glass to size and shape. Then apply a 1mm – 2mm 'Gel Coat' or 'Mist Coat' to the mould either by brush or by using a hopper/gravity fed spray gun with a suitable nozzle (approx. 2mm is ideal). Allow this mix to become touch-dry, but not completely dry.

You will need approximately 2kg per metre squared per mm of laminate thickness. Typical laminates should be 6mm – 8mm thick, resulting in a panel or structure that will weigh approximately 12kgs – 16kgs/m².

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Make a second mix of material, and apply a thin coat of this to wet out the back of the Gel Coat. Lay the first layer of Quadaxial glass onto the back of the Gel Coat, directly onto the fresh mix. To ensure that all of the glass is fully 'wetted out' with material, pour more material onto the Quadaxial glass, and work the material through the Quadaxial glass with a brush or a compaction roller. Please note that it is very easy to crack the Gel Coat when working on rubber moulds with a compaction roller, so care should be taken using this technique.

Next separate some of the mix, leaving just enough to wet out the second layer of Quadaxial glass. Add 3% - 5% by weight of 13mm Coarse Chopped Strands to the separated mix and stir in with a stick (do not use the high shear mix blade as this will shred the chopped strand). Brush this chop mix into the mould and create an even layer of 3mm – 5mm.

Finally apply the second and final piece of Quadaxial glass, and using the saved material from the second mix, brush through the glass until the glass is thoroughly wetted out. This completes the basic laminating process. Depending on size and complexity, the panel should now be left in the mould for a further 2½ - 3½ hours. It is essential that the material does not exceed 40°C during the first 3 hours of hydration. If this looks likely then the cast and mould should be placed in water and the temperature maintained below 40°C. Placing a sheet of plastic over the back of a panel will retain the moisture. This will ensure that the material hydrates properly, and reduces the chances of any shrinkage or distortion in larger flat panels. When making flat panels it is advisable to create a vertical return edge of at least 35mm, and to laminate ribs into the back of the panel. Box section ribs can be created by cutting 25mm – 50mm square ribs from polystyrene and laminating them into the back of the panel using a bandage of Quadaxial glass and some more mix at normal ratio (5:1). This will add strength to the panel without adding any significant weight. NB. If the panel is to be installed in a public area the polystyrene should be replaced by fire resistant foam.

- **Curing**

Please note that Jesmonite AC730 Flex liquids will slow the normal curing process of AC730 powders due to the higher resin content. Jesmonite AC730 achieves over 90% of its ultimate strength in the first 24 hours. Objects should be kept in a warm, dry environment during this period. They should be racked to allow optimum air-flow, and stored in such a way that panels cannot 'creep' or bow under their own weight. To accelerate final strengths casts can be placed in a warm room at around 40°C. Finished products should be packaged only when cured. Care should also be taken when using plastic packaging, particularly in damp storage areas, as this can lead to surface staining and possible water marking.

- **Surface Finish**

Jesmonite Flex liquids are primarily designed to have a pigmented finish or an exposed metal finish when used with Flex Metal Gel Coats. If a stone finish is required it is advisable to use standard Jesmonite Liquids, as the surface is much easier to acid etch. It is however possible to expose the surface using sandblasting, or water-fed polishing equipment. We recommend that the surface be sealed using our Stone Guard sealer to preserve colour and to provide a durable, weather resistant finish.

- **Storage**

As a basic rule liquid containers should be kept well sealed to prevent water evaporation and skin forming. They should be stored at a constant temperature between 5-25°C and used within six months. Freezing must be avoided. Powders should be kept dry and stored at 5-25°C.

* Jesmonite AC730 is formulated primarily as a laminating compound. It is possible to make small decorative castings, however for larger castings please seek advice from our technical department tel: +44 (0)1588 630302.

** Please contact us for specific advice on addition of powder pigments.

The above information and recommendations are based upon our experience and are offered merely for advice. They are offered in good faith but without guarantee, as conditions and methods of use are beyond our control. We recommend that the user determine the suitability of the materials for the particular purpose intended.

- Distributor Details

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