USER GUIDE (UG630/20)

AC630

INTRODUCTION

Jesmonite AC630 is supplied as two components, a water-based acrylic liquid and a blended base. It is formulated for external use and contains a blend of decorative aggregates and pigments to achieve a range of stone and concrete finishes. It can be used to create castings but is primarily designed as a laminating and premix compound for use with suitable glass fibre reinforcements.

Project specific advice can be obtained by calling our technical department on +44 (0)1588 630302.

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 casting, premix and glass reinforced laminates, weigh the liquids and base in separate clean containers at the following ratio:

AC630 Liquids	1 part by weight
AC630 Base	5 parts by weight

MIXING

Jesmonite AC630 must be mixed using a Jesmonite High-Shear Mixing Blade. Attach this blade to a drill with variable speed control on the trigger and slowly add the base to the liquids whilst mixing continuously at low speed. As the last base is added, slowly increase the mix speed to around 1,000rpm and mix for a further 60 seconds or until the mix is smooth, flowing and free from lumps.

SOLID CASTING

Although Jesmonite AC630 is designed primarily for use with glass fibre reinforcement as a premix and laminating compound, it is also possible to pour the material into open top moulds to create solid casts. To reduce the chance of air bubbles at the surface of the cast, first pour a little material into the mould. Then coat the entire surface either with a brush, or by rotating the mix and mould. The rest of the mix can now be poured, a little at a time, whilst tapping or vibrating the mould to help release any entrapped air.

PREMIX REINFORCEMENT

To achieve ultimate strength, it is possible to add Jesmonite 13mm AR Chopped Strands to create a Jesmonite AC630 premix. The Jesmonite 13mm AR Chopped Strands need to be added at 3% of the total Jesmonite AC630 mix weight. You will need approximately 2kg per metre squared per mm of thickness. Typical panels should be 15mm thick, resulting in a panel or structure that will weigh approximately 30kgs/m². First apply a 1mm – 2mm Jesmonite AC630 Gel Coat mixture to the face of the mould. This is applied to stop the glass reinforcements showing on the face of the cast. Allow the Jesmonite AC630 Gel Coat to become tacky/touch dry. Once the Jesmonite AC630 Gel Coat is tacky/touch dry, you will need to create a backup Jesmonite AC630 mixture, we recommend you stir the Jesmonite 13mm AR Chopped Strands into the Jesmonite AC630 backup mixture. The Jesmonite AC630 premix can then be poured over the Jesmonite AC630 Gel Coat and levelled with an appropriate trowel or paddle.
This completes the basic premix process. Depending on size and complexity, the panel should now be left in the mould for a further 12-24 hours. It is essential that the material does not exceed 40°C during the first three hours of hydration. Placing a sheet of plastic over the back of a panel will retain the moisture. This will ensure that the Jesmonite AC630 hydrates properly and reduces the chances of any shrinkage or distortion in larger panels.

LAMINATING WITH JESMONITE AR QUADAXIAL GLASS REINFORCEMENT

Jesmonite AC630 can be used with Jesmonite AR Quadaxial Glass reinforcement to create laminated panels that achieve a greater strength to weight ratio. The key to success is to pre-weigh the required mixes and to cut out the correct sizes of Jesmonite AR Quadaxial Glass reinforcement to suit the mould before mixing any Jesmonite AC630 material.

First cut three layers of Jesmonite AR Quadaxial Glass to size and shape. Then apply a 1mm – 2mm Jesmonite AC630 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/tacky, but not completely dry. You will need approximately 2kg per metre squared per mm of laminate thickness. Typical laminates should be 12mm – 15mm thick, resulting in a 1m2 panel or structure that will weigh approximately 24kg-30kg/m^2.

Make a second mix of material (back up mixture) and apply a thin coat of Jesmonite AC630 mixture to wet out the back of the Gel Coat. Place the first layer of Jesmonite AR Quadaxial Glass onto the back of the fresh Jesmonite AC630 mix. To ensure that all 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, paddle trowel or compaction roller. Please note that it is very easy to crack the Jesmonite AC630 Gel Coat when working on rubber moulds with a compaction roller, so care should be taken using this technique. Apply the second layer of Jesmonite AR Quadaxial Glass and using the saved AC630 material from the backup mixture, brush through the glass until the glass is thoroughly wetted out. Finally, apply the third layer of Jesmonite AR Quadaxial Glass and using the saved AC630 material from the backup mixture, 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 12-24 hours. It is essential that the material does not exceed 40°C during the first three hours of hydration. Placing a sheet of plastic over the back of a panel will retain the moisture. This will ensure that the Jesmonite AC630 hydrates properly and reduces the chances of any shrinkage or distortion in larger panels. When making panels it is advisable to create a vertical return edge of at least 35mm and to laminate polystyrene 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 Jesmonite AR Quadaxial Glass and some more of the AC630 mix at the standard ratio of 5:1. This will add strength to the panel without adding any significant weight.

NB. If the Jesmonite AC630 panel is to be installed in a public area the polystyrene should be replaced by fire resistant foam.

CURING

Dependent on the room temperature Jesmonite AC630 can de-moulded within 24 hours. Both cast and glass reinforced objects should be kept in a warm, dry environment during this period. They should be racked to allow optimum airflow and stored in such a way that panels cannot 'creep' or bow under their own weight. Finished products should be packaged only when fully 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 FINISHING

Jesmonite AC630 is formulated to result in a stone finish. This is achieved either by using Jesmonite Acid Etch or by grit-blasting. The product can only be acid etched after curing for a minimum of 24 hours. First wet the surface of the panel with water before applying the Jesmonite Acid Etch. This will reduce the chance of the acid marking or burning the panel where it is first applied. To apply Jesmonite Acid Etch, the area must be well ventilated and near a ready supply of clean water. The Jesmonite Acid Etch will produce varying degrees of etch from 1 minute through to around 4 minutes. The acid works by removing the cement rich surface to reveal the decorative aggregate and pigment in the material. The acid should be washed off with copious amounts of clean water and the surface padded dry with a clean dry cloth. Once the surface is dry it becomes evident if there are any areas that require a further application.

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°C – 25°C and used within six months. Freezing must be avoided. Base should be kept dry and stored at 5°C – 25°C.

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