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ACRYLIC ONE – ACRYLIC RESIN

DESCRIPTION:
Acrylic One is a waterborne resin system and is used to create artwork, objects, panels, facade ornaments and moldings, molds, support caps, decorations, design furniture, and more. Due to the special composition, Acrylic One is pleasant to use, easy to process, environmentally friendly, fire-resistant and has good weather-resistant properties.

Acrylic One can take any desired shape and appearance. This allows unique handmade shapes to be made. This brings “One of a kind” products within the reach of the artist and architect. In addition, Acrylic One is also very suitable for making serial products, by casting or laminating and in any desired edition. Without fillers or dyes, Acrylic One has the appearance of cream-white colored stone, with the hardness of plastic.

In this manual you will find information about working with Acrylic One and the available additives and fillers.

TECHNICAL CHARACTERISTICS:

Mixing ratio	2 parts by weight of powder and 1 part by weight of acrylic resin
Color	cream-white (* 1)
Density (wet)	1.75 kg / dm3
Density (dry)	1.66 kg / dm3
Processing time	20 minutes
Curing time	± 1 hour
Shelf life	1 year (* 2)
Hardness	85º Shore D.
Curing expansion	0.1 - 0.6% (* 3)
Compressive strength	approximately 30 MPa
LOP (limit of proportionality)	approximately 20 MPa
MOR (modulus of rupture)	approximately 60 MPa

* 1 The color of Acrylic One may differ slightly per production batch.
* 2 Provided in closed packaging and stored frost-free.
* 3 An additive is available to reduce expansion

TWO-COMPONENT MATERIAL
Acrylic One is a two-component material consisting of a mineral powder and a water-based acrylic resin. These connect in such a way that a very strong material is created. Acrylic One is environmentally friendly, people-friendly, fire-resistant, easy to use and has good weather-resistant properties.

Important applications
- Architecture, both indoors and outdoors
- Decorations and set construction
- Laminated panels
- Art objects
- Reproductions
- To pour
- Model building
- Mold and support caps
- Covering polystyrene

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Characteristics
• Solvent-free
• Low heat development (max 40 ° C)
• Shrink-free
• Environmentally friendly
• Better working conditions
• Very high fire-resistant properties
• UV stabilized
• Color pigments can be added
• Wide variety of surface structures
• Rainwater resistant (if sealed)
• Good mechanical properties

Acrylic One can be poured, laminated, splashed, brushed or rolled. These techniques can be performed in combination and are applicable in a mold or on an object.

WEIGHING AND MIXING
Acrylic One must be carefully weighed and mixed. The mixing ratio of Acrylic One is 2 parts by weight of powder with 1 part by weight of resin. Fill a mixing cup or bucket with the required amount of resin. Use the stainless steel High Shear Mixer to make a vortex. Now add the corresponding amount of powder in the vortex. Keep mixing until a smooth and lump-free mixture is formed and mix for an additional 30 seconds. Make sure that the material on the bottom and the walls are also mixed. When mixing with the High Shear Mixer, maintain a maximum speed of 750 rpm.

PROCESSING TIME
After mixing, the standard processing time is 20 minutes. If a shorter or longer processing time is desired, additives can be added.

CURING TIME
Acrylic One is a water-based product. Residual moisture must evaporate to obtain the final properties. The time required for this depends very much on external factors such as the size of the object, the temperature and the humidity. If the object is laminated or cast in a mold, this can already be demoulded as soon as the strength is sufficient to withstand the forces that occur. The product can then reach the optimum strength outside the mold.

GELCOAT
A gel coat is regularly used when working with Acrylic One. This gelcoat can be made in the following way:
• If desired, add Thix A to the Acrylic One resin. Do not exceed the maximum amount.
• If desired, add pigment in the correct color and / or other materials such as dried sand and metal powders to the Acrylic One resin.
• Mix the Acrylic One resin with the powder until a smooth mixture is obtained.
• Apply the gelcoat in the mold with a brush, for example. Maintain a layer thickness of at least 1mm.
• After gelling the gelcoat (20 minutes), work must be continued within 1 hour to keep the adhesion between the gelcoat and the underlying material optimal.

CLEANING
Hands and skin can be washed with soap and water. Clean the tool immediately with water. It is advisable to clean brushes and tools in a bucket of water, rather than in the sink, as the hardening process is also continued under water.

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LAMINATING IN A MOLD
When laminating in a mold, a gel coat can be applied first. Once this gelcoat has dried (after 20 minutes), lamination can be started immediately (within 1 hour for the best result) to obtain an optimal adhesion between gelcoat and laminate.
• Apply an amount of Acrylic One in the mold and spread it over the surface.
• Now apply a cut-to-size Acrylic One triaxial fabric.
• Now apply Acrylic One again and work it into the triaxial fabric.
• Then another layer of triaxial fabric can be applied and the process continues.

Depending on the desired thickness and strength, apply at least 2 layers of triaxial fabric. Each layer of triaxial fabric provides approximately 1mm thickness. When a product needs extra thickness, this can be achieved in various ways:
• By applying a layer of sandwich material, after which 1 or more layers of triaxial fabric are applied again.
• By applying a layer of Acrylic One mixed with loose glass fibers (pay attention in outdoor applications). After this, one or more layers of triaxial fabric are also applied.

LAMINATE AN OBJECT
Objects, for example from modeling foam, can be coated with Acrylic One.
• Brush the foam with Acrylic One.
• Apply a triaxial fabric to this, work it in the Acrylic One.
• Now apply Acrylic One again and work it into the triaxial fabric.
Apply at least 2 layers of triaxial fabric in this way. Each layer of triaxial fabric provides approximately 1mm thickness. To finish the object smoothly, a layer of Acrylic One mixed with Thix A or ATP powder can now be applied. When the Acrylic One is just dry, the surface can be rubbed flat with a slightly damp sponge. After complete curing, the object can be sanded with sandpaper.

SOLVENTS
When using molds, the degree of release must be checked in advance. If the mold material is not self-releasing, a release agent must be applied. Based on the standard curing time and the shape of the product, the object can be removed from the mold after approximately 60 minutes. This may take longer for fragile shapes.

TO POUR
Using silicone molds is the easiest way to do castings. Silicone molds are self-releasing and flexible. Small objects can be poured into a free-standing mold. Larger products can be molded with support caps. The support caps can of course also be made of Acrylic One!

Another commonly used material for molds is polyurethane. This material is stiffer than silicone. It is mainly used to give certain textures to panels. Hard molds, for example made of concrete plywood, melamine board (plasticized chipboard) and plastics, can be used to pour Acrylic One, possibly in combination with a release agent.

SPRAY
Acrylic One is easy to spray. This makes it possible to apply a thin layer of Acrylic One. This technique is ideal for working with a (silicone) mold, but also for applying Acrylic One to, for example, a mold made of EPS.

ADDITIVES
To optimize the processing of Acrylic One, additives are available that can extend or shorten the processing time or thicken or dilute Acrylic One.

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Acrylic One retarder can be used to extend the processing time. Always add the retardant to the Acrylic One resin. Add a maximum of 2% retarder to the total weight.

Acrylic One accelerator can be used to shorten the processing time. Always add the accelerator to the Acrylic One resin. Add a maximum of 1% accelerator to the total weight. Accelerator can also be used to correct any retarding effects of some pigments and fillers.

Acrylic One Thix A is an addition to thicken the product into a gel. This thixotropic agent is used to make gelcoats and to fabricate vertical or overhangs. With a 2% addition to the total weight, the maximum achievable thickness is reached. Always add the Thix A to the Acrylic One resin.

Acrylic One Thix B is an addition to thicken the product. Add Thix B dropwise to the Acrylic One mixture until the correct thickness is reached. Due to the reduced water resistance of Acrylic One when using Thix B, we recommend not using this product if the object is exposed to water.

Acrylic One thinner lowers the viscosity of Acrylic One. This can be used to pour complicated products. Acrylic One can also be used thinner to use more fillers. Acrylic One thinner can affect the processing time. Do not use more than 5% Acrylic One thinner relative to the total weight.

ACRYLIC ONE SEALER
is a water-based coating to protect the product from moisture and to make the product weather resistant. Based on TNO tests, Acrylic One, if fitted with correctly applied Sealer, has an expected lifespan of approximately 30 years (TNO report is available).
• Before use, 20% water must be added to Acrylic One Sealer to dilute it.
• Acrylic One Sealer may be applied in 1 or more layers to improve the protective properties.
• The surface to be sealed must be free from wax, oil, dirt or dust.
• Apply by brush, roller or by spraying.
• After applying each layer, the still moist sealer should be rubbed with a soft cloth.
• Depending on temperature and humidity, a new coat can be applied after 45 minutes.
The advantages are: 1 component, solvent-free, water-based, quick-drying, easy to apply, good UV resistance, excellent adhesion, dirt absorption protection and good moisture protection.
Data:
minimum processing temperature: 10 ° C
Average consumption: 8-10 m2 per liter
Shelf life: 1 year in closed packaging
Storage: Store frost-free and out of direct sunlight

TRIAXAL TISSUE
Triaxial Fabric (Glass Fabric) is used in combination with Acrylic One during lamination. In this way, Acrylic One objects can be made in molds, or covered with Acrylic One. Triaxial weaving sleeve reinforces the Acrylic One objects.
• Triaxial fabric is specially developed for Acrylic One.
• Flexible, making it easy to drape, even for round shapes.
• Lightweight (160 grams) and yet very strong.
• Vandal resistant after use of 4 layers in combination with Acrylic One.

FILLERS
Acrylic One is very suitable for filling with various materials, such as pigments, sand and quartz and lightweight fillers. In this way, the appearance of Acrylic One can always be adapted to the wishes and requirements of the user. A number of fillers have an influence on weather resistance.

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Acrylic One can be made to color with **pigments**. These can be added to the resin before mixing. The maximum amount of pigment that can be added is 2% of the total weight.

For metal effects, various metal powders can be added to Acrylic One. For example, for a rust effect, use **iron powder**.
• Add an equal amount of iron powder as the amount of powder used to make the Acrylic One.
• Once the applied layer is dry, sand it with a wet scouring pad or waterproof sandpaper.
• Now the surface can be treated with desired hot and cold patina. This accelerates the rusting process.

The same method can be used for **bronze** and **copper powder**.

ATP powder is a volume thickener. This allows Acrylic One to be thickened to filler thickness. This thickened Acrylic One can be used to finish an object with a smooth surface. ATP powder can only be used in indoor applications.

Sand and quartz mixed in Acrylic One gives a scratch-resistant and hard top layer. By using quartz of different color and size, a granito or granite appearance can be obtained. In that case, after curing, the top layer can be sanded to bring the stone to the surface and thus obtain a greater contrast.

DISCLAIMER
The technical data sheet for any Acrylic One product is available on request and should be read and understood before use. Important: The information in this manual is believed to be accurate. However, no rights can be derived from this with regard to the accuracy of the information, the results obtained through its use or that use may infringe a patent. The user must determine the suitability of the product for the application desired by the user. If in doubt, the user should perform tests to demonstrate the suitability of the product.