

Technical data

Mixing ratio	2 parts powder 1 part acrylic resin
Colour	creamy white (*1)
Density (wet)	1.75 kg / dm ³
Density (dry)	1.66 kg / dm ³
Processing time	20 minutes
Demoulding time	approx. 1 hour
Shelf life	1 year (*2)
Hardness	85° Shore D
Expansion during hardening	0.1 - 0,6% (*3)
Compression strength	approx. 30 MPa
LOP (limit of proportionality)	approx. 20 MPa
MOR (modulus of rupture)	approx. 60 MPa

*1) The colour of A1 can vary slightly with every production batch.

*2) Provided that A1 is contained in a closed and frost free packaging.

*3) An additive is available to reduce expansion.



Nijverheidsweg 15a | 3251 LP Stellendam
The Netherlands

T: +31 187 - 663006
E: info@activecomposite.com
W: www.activecomposite.com



Two-component material

A1 is a two-component material and consists of a mineral powder and a water based acrylic resin. These bond and result in a very strong material. A1 is environmentally friendly, non toxic, fire resistant, has good weather resistance properties and is easy to use.

Important areas of application

- Architecture, indoor as well as outdoor
- Decorations and stage-setting
- Laminated panels
- Reproductions
- Casting
- Model building
- Moulding constructions and supporting moulds
- Covering polystyrene

Properties

- Solvents free
- Low generation of heat (max 40°C)
- No shrinkage
- Environmentally friendly
- Better working conditions
- Very high standard of fire resistance
- UV stabilized
- Pigments can be added and can be painted over
- Great variety in surface structures
- Rain water proof (when sealed)
- Good mechanical properties

A1 can be casted, laminated, applied with spatula, brushed or rolled. These techniques can be used in combination and can be applied in a mould or on an object.

Weighing and mixing

A1 must be carefully weighed and mixed. The mixing ratio of A1 is 2 parts powder mixed with 1 part resin. Fill the beaker or bucket with the required amount of resin. Use the stainless steel High Shear Mixer to create a swirl. Then add the correct amount of powder into the swirl. Continue mixing until a smooth mixture is achieved without lumps and continue to mix for an additional 30 seconds approx. Ensure that none of the material sticks to the bottom and sides and that everything is included in the mixture. Maintain a maximum number speed of 750 rpm when mixing with the High Shear Mixer.

Processing time

The standard processing time after mixing is 20 minutes. When a shorter or longer processing time is required, this can be achieved by adding additives.

Curing time

A1 is a water based product. Residual moisture must evaporate before obtaining the final result. The time needed for curing depends on external factors, such as the dimension of the object, the temperature and humidity. When the object has been laminated or cast in a mould, it can be removed from the mould as soon as it is strong enough to cope with the forces present. The product will achieve the optimum strength outside of the mould.

Gel coat

A gel coat is often used when working with A1. This gel coat can be applied as follows:

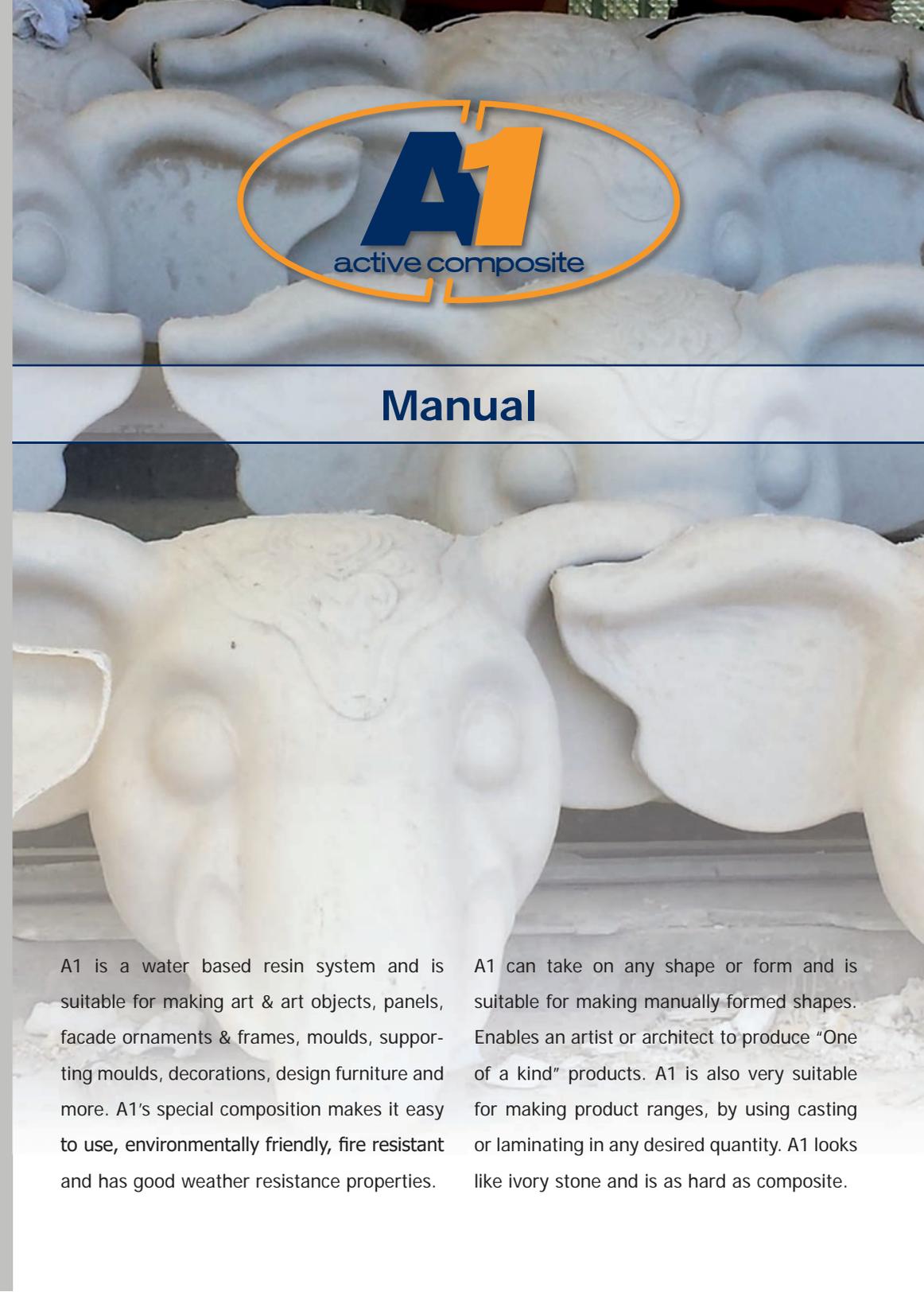
- Add the desired amount of A1 Thix A to the mixture, by adding it in drops until the desired viscosity is achieved. Never exceed the maximum amounts.
- Add to the A1 resin pigment in the desired colour, and/or other fillers like sand or metal powders if needed.
- Then mix the A1 resin in with the powder until a smooth mixture is obtained.
- Apply the gel coat layer in the mould of at least 1 mm layer thickness, with a brush or other tool.
- After the gel coat has set, which takes 20 minutes, you need to proceed the job within one hour to make sure the gel coat and the underlying material achieve optimal adhesion.

Cleaning

Hands and skin can be washed using soap and water. Clean the equipment with water directly after use. We suggest that the brushes and equipment are cleaned in a bucket of water instead of in a wash basin, as the hardening process continues under water.

Disclaimer

The technical data sheet of any A1 product is available upon request and must be read and understood before use. Important: The information in this user manual is considered accurate. It is however not possible to derive any rights from the information with regards to its accuracy, the achieved result by using the product, nor that the use of the product would breach a patent. The user needs to ascertain the suitability of the product for the application the user wishes to apply. When in doubt, the user needs to carry out tests to ascertain the suitability of the product.



Manual

A1 is a water based resin system and is suitable for making art & art objects, panels, facade ornaments & frames, moulds, supporting moulds, decorations, design furniture and more. A1's special composition makes it easy to use, environmentally friendly, fire resistant and has good weather resistance properties.

A1 can take on any shape or form and is suitable for making manually formed shapes. Enables an artist or architect to produce "One of a kind" products. A1 is also very suitable for making product ranges, by using casting or laminating in any desired quantity. A1 looks like ivory stone and is as hard as composite.

Laminating in a mould

When laminating in a mould, one can apply a gel coat first. As soon as the gel coat has set (after 20 minutes), the object can be laminated immediately (within one hour for best result) to ensure that an optimum adhesion between the gel coat and the laminate is achieved.

- Apply some A1 in the mould and spread it equally over the surface.
- Then apply an A1 triaxial fibre, which has been cut to size.
- Then apply A1 again and work it into the triaxial fibre.
- Another layer of triaxial fibre can then be applied, the process is repeated this way.



Apply at least two layers of fibres, depending on the desired thickness and strength. Each layer of triaxial fibre results in a thickness of approximately 1 mm. Should the product require additional thickness, this can be achieved in the following ways:

- By applying a layer of sandwich material (followed by 1 or more layers of triaxial fibre).
- By applying a layer of A1 mixed with nylon fibres and/or Poraver (check for suitability for outdoor applications). Also followed by one or more layers of triaxial fibre.

Laminating around an object

Objects, for example made of modelling foam, can be coated with A1.

- First apply the A1 onto the foam.
- Followed by triaxial fibre. Work the A1 in the triaxial fibre.
- Apply a next layer of A1 and work this in the triaxial fibre.
- Apply at least two layers of triaxial fibre in this way. Each layer of triaxial fibre has a thickness of approximately 1 mm.
- Apply a layer of A1 gel coat, based on Thix A or a mixture of A1 and ATP powder, to achieve a smooth finish.



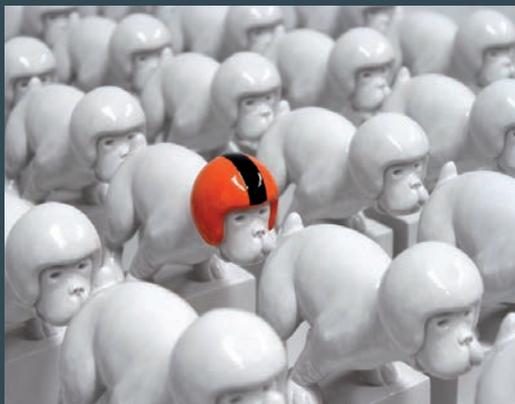
When the A1 is just about dry, the surface can be smoothed by using a wet sponge. After the object has fully cured, it can be sanded with sanding paper.

Release agents

When using moulds, the level of release will need to be checked. When the moulding material is not self releasing, a release agent will need to be applied. Based on the standard curing time and the shape of the product, it is possible to remove the product from the mould after approximately 60 minutes. Fragile shapes could take longer to set.

Casting

Silicone moulds are the easiest products to use for casting. The silicone moulds are self releasing and flexible. Small objects can be cast in a detached mould. Larger products can be cast in a mould with supporting moulds. The supporting moulds can also be made by using A1!



Spraying

Spraying of A1 is easy. By spraying it is possible applying a thin layer of A1. This technic is well suited for working with a silicone mould, but also for applying a thin layer of A1 onto an EPS object. Spraying machine are for rent or sales at A1.



Additives

There are additives available for the enhancement of the A1 process, for shortening or lengthening the processing time or for dilution or thickening of A1.

A1 retarder can be used to lengthen the processing time. The retarder must always be added to the A1 resin. Add a maximum of 2% retarder in proportion to the total weight.

A1 accelerator can be used to shorten the processing time. Always add the accelerator to the A1 resin. Add a maximum of 1% in proportion to the total weight. The accelerator can also be used to correct any retarding effects of some pigments and fillers.

A1 Thix A is an additive to thicken the product and to give it a gel texture. This thixotropy agent is applied to produce gel coats and vertical or suspended parts. By adding 2% in proportion to the total weight the maximum achievable thickness is achieved.

A1 Thix B is an additive to thicken the product. While stirring trickle Thix B into the A1 mixture until the required thickness has been achieved. We recommend that you do not use this product if the object is expected to be exposed to water.

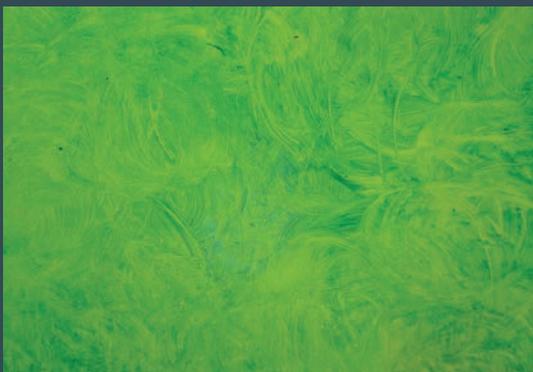
A1 diluent reduces the viscosity of A1.

It can be used to cast complicated products or to enable the use of more than one filler. A1 diluent can affect the processing time. Never use more than 5% A1 diluent in proportion to the total weight.

A1 sealer

is a water based coating to protect the product against moisture and to give the product a weather resistant quality. TNO testing has shown that A1, if applied correctly with a sealer, can last for approximately 30 years (We can supply you with the TNO report on request).

- Always add 20% water to A1 sealer before use.
- A1 sealer can be applied in one or more layers to improve the protective qualities.
- The surface must be free of wax, oil, dirt and dust.
- Apply the sealer with a brush, roller or with a spray.
- After applying each layer of still wet sealer needs to be rubbed with a soft cloth.
- A second layer can be applied after 45 minutes, depending on the temperature and humidity.



The advantages are: 1 component, free of solvents, water based, quick drying, easy to apply, good UV-resistance, excellent adhesion, dirt resistant and water resistant.

Data:

Minimum processing temperature: 10 °C

Average use: 8-10 m2 per litre

Shelf life: 1 year in closed packaging

Storage: frost-free and protected against direct sunlight

Triaxial fibre

Triaxial fibre (Glass fibre) is used during laminating A1. Using triaxial fibre A1 objects can be made in moulds or objects can be covered with A1. Triaxial fibre strengthens the A1 objects.



- Triaxial fibre is specially designed for A1.
- Flexible, so easy drapeable also in curved forms.
- Lightweight (160 gram) but very strong.
- Using A1 with 4 layers of triaxial fibre you get a vandalism proof object.

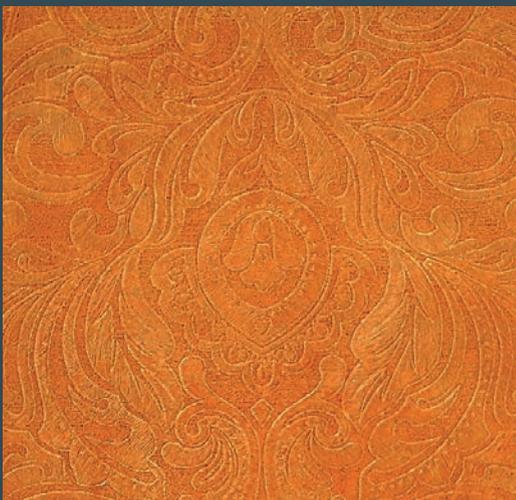
Fillers

A1 can be filled with various materials, such as pigments, sand and stone, organic fillers and lightweight fillers. This means the look of A1 can be adjusted to the wishes and requirements of the user. A number of fillers affect the weather resistance.

A1 can be coloured by using pigments. The pigments are added into the resin before mixing. The maximum quantity of pigment is 2% of the total weight.

There are various metal powders available which can be

added to A1 to achieve a metal effect. When you would like to achieve a rusted effect, use the iron power.



- Add an equal amount of iron powder as the amount of powder used to produce A1.
- When the applied layer has dried, it needs to be sanded using a wet scourer pad or sanding paper.
- The surface can now be treated with hydrochloric acid, ammonia or any other agent of your choice. This accelerates the rusting process.

The same process can be used with **bronze of copper powders**.

ATP powder is a volume thickener. It enables the A1 to be thickened to achieve a putty thickness. This putty can be used to make the surface smooth and add the finish to the object. ATP powder can only be used for indoor applications.

Sand and quartz mixed in with A1 results in a scratch resistant and hard top layer. A granito or granite look can be achieved by using different colours and sizes of quartz. If that is the look you are looking for, you need to sand the top layer after it has set to bring the stone to the surface and achieve a bigger contrast.

Poraver is a very light weight filler. This product is used to make light weight fillings in objects for instance when solid casting would be too heavy.