Weighing

All components must be weighed:
- 1 part Acrystal Prima liquids
- 2,5 parts Basic Crystal powders

1. first weigh the Acrystal Prima liquid in the mixing bucket.
2. (optional) add retarder.
3. (optional) add Acrystal pigments.
4. Basic Crystal powder must be weighed in a suitable separate container.

Mixing


Acrystal mixing wisk

Use a high shear mixing blade at a mixing speed over 700 rpm in order to create a vortex and to break up small lumps.

1. blend the liquids (Acrystal Prima + retarder + pigments) for 15 to 30 seconds.
2. continuously mix liquid creating a vortex and slowly add the powder.
3. continue mixing until a lump free cream consistency is obtained.
4. if required incorporate thixotrope at the end.
5. leave for a few moments to clear any bubbles. Acrystal Prima batch mix is then ready for use.

Use (Minimum temperature 12°C)

Pot life at room temperature of 17-20°C:
- 8 to 10 minutes without retarder
- up to 90 minutes with retarder


Gelcoat


Casting


Laminating


Coating


Spraying

Setting

- the mix will thicken and the exposed surface become matt.
- then the temperature will rise.
- once the item has returned to room temperature the process is finished.

Demoulding

- demoulding is possible after 20 minutes to 2 hours depending on the size and the shape of castings and laminatings.
- take off any excess material directly after demoulding.

Curing

- leave the item to air dry in a suitable area - no heating is required to cure.
- 90 % of the hardness is achieved after 6 hours at 20°C.
- after 72 hours the item is completely cured.

Preparation

1. prepare the mould for lamination. If it is not a silicone mould you must use a release agent.
2. prepare 2 layers of 200-4D stitched fibres at the size of the piece to laminate.
3. prepare the material according to the users guide of the product used as gelcoat:
   - Acrystal Prima
   - Acrystal Decor Metal
   - Acrystal Decor Carrara

   If necessary, for a better adhesion to vertical parts of the mould, add some thixotrope at the end.

Laminating

1. apply a gelcoat layer of 1 to 3 mm thickness in the mould.
2. let the gel coat dry until it becomes a satin-finish and is no longer tacky to the finger. During that time prepare the Acrystal Prima for lamination. If necessary, add some retarder to increase pot life.
3. apply Acrystal Prima onto the gel coat.
4. put the first layer of 200-4D fibres on it.
5. wet the fibres by taking care to remove all air pockets.
6. apply a new coat of Acrystal Prima.

Steps 7 and 8 are optional

These steps show a simple technique to increase the space between two 200-4D stitched fabric layers in order to stiffen large laminated panels. The bigger the space, the stiffer the panels.

7. sprinkle with chopped strand.
8. wet this layer of glass by brush with Acrystal Prima.

9. apply the second layer of 200-4D fabric and wet it with Acrystal.
10. finish the lamination with a last coat of Acrystal.

Finishing

- demoulding is possible after 20 minutes to 2 hours depending on the size and the shape of laminatings.
- for the finishing processes refer to the users guide of the Acrystal product used as gel coat.

Fillers

Acrystal Prima can receive all kinds of clean and graded fillers, inert to water:

- sand (size between 0,5 and 1 mm)
- quartz (size between 0,5 and 1 mm)
- glas microballs
- metal powders (325 mesh)
- others

According to the size of the fillers, it possible to add to the liquid as much fillers as Basic Crystal powders, this means in weight a mixing of:

- 1 part Acrystal Prima liquids
- 2,5 parts Basic Crystal powders
- 2,5 parts fillers

If the mixing becomes too thick:

- add a little water or Acrystal resins maximum amount: 1-2 %.
- use larger fillers.


Quartz


Marble


Brass

ATTENTION: In order not to loose mechanical properties of the material, it is imperative to avoid modifying the quantity of liquid in the mixing. Therefore you should neither use:

- wet fillers
- dusts
- absorbing fillers (balls of clay, sawdust, plasters, cement, straw ...)

ATTENTION: Never use sea sand. Salt inhibits the reaction of Acrystal.

Casting of fine pieces


Sceau - Marc Toillié

For the moulding of parts with very fine sections (a few millimetres), it is possible to reduce the mixing ratio of Acrystal Prima from 1 to 2,5 to :

- 1 part Acrystal Prima
- 2 parts Basic Crystal

ATTENTION: Only use this ratio for thin and finely detailed items. If it is used on thicker castings it will cause drying issues.

Oven drying

Acrystal ideally dries in open air. To accelerate this process, you can place your Acrystal item in a drying oven, always under 40°C, to ensure slow drying and avoiding any humidity in the heart of he moulding.

Silicone mould

The ideal mould for Acrystal:

- it doesn't require any release agent
- it remains perfectly clean by demoulding
- as there is no solvent and low exotherm, its life time can be multiplied by 50 compared to polyester castings

Solid moulds

In case you use a solid mould :

- take off a maximum porosity on the surface in contact with Acrystal
- apply an adapted release agent like a professional release wax

Acrystal Prima has a low expansion when setting (<0,1%). In order to be able to take off the item after setting, it is imperative to have:

- either sufficient demoulding angles (> 2°)
- or demountable parts or parts you can open

Mould cases

Acrystal Prima is the ideal product for the production of light mould cases. The absence of shrinkage avoids the deformations of the mould cases during drying. Therefore it's not necessary to provide metal reinforcements even for large size mould cases.

Fine mould case - Frédéric Vincent

Pigments

Using acrylic resins, all kinds of pigments, liquid or powders can be added to Acrystal Prima. Simply make sure that:

- liquid pigments: first mix the pigments with the Acrystal Prima liquids, before incorporating the Basic Crystal powders.
- powder pigments: first mix the pigments with the Basic Crystal powders before adding them to the Acrystal Prima liquids.

External use

For good external use it is IMPERATIVE to:

- avoid stagnant water on the finished product. On a statue or an architectural part, it is imperative that the water flows.
- isolate the product from the bad weather by the application of either:
  - Acrystal Finition
  - an acrylic or other paint
  - an acrylic or other varnish
  - a polyurethane or epoxy resin in case of prolonged immersion in water

  This will need renewing depending on ageing conditions.

Ideally use acrylic paints or varnishes. Their compatibility with Acrystal is perfect. Other types of paints or varnishes may also be used.

ATTENTION: Apply finishing products only on perfectly dry items (minimum 72 hours drying) in order to avoid blister problems.

Haptikuss - 2 layers of acrylic paint + 2 layers of glossy varnish - Silvia Baumer

Figure - 2 layer Acrystal Finition - Prater - Vienna - Roland Zojer (Fasching)

ATTENTION: Acrystal Prima is resistant to bad weather, but can not be immersed or splashed continuously. In case of extended contact with water you can either:

- protect Acrystal Prima with a resin (polyurethane or epoxy) as a shield
- use Acrystal Aqua

Lumps

Getting lumps at the end of mixing is due to a low mixing speed.

Usual degassing

For Acrystal Prima you don't need any particular degassing material:

- at the end of mixing let the product rest a few seconds before using it. To take off bubbles faster you may tap the mixing bucket.

- in case of casting, put by brush some Acrystal on the mould sides before casting the item. This prevents from getting bubbles on the surface.
- cast Acrystal in your mould in a thin trickle to prevent air bubbles forming during the filling.

Vacuum degassing

If for any reason you need to use this process, it is very important to have a vacuum pump with a power of at least 60 m^3 by hour and to respect strictly the capacity of the vacuum bell jar (100 litres maximum).

Method :

1. to prepare the Acrystal mix, take a bucket able to contain at least five times the volume of material to be mixed.
2. prepare the mix as indicated in the user guides of the different Acrystal products.
3. place the bucket under the vacuum bell jar and de-gas. The pump must be powerful enough to de-gas the product very fast (e.g. in 15 seconds for a 10 kg mix) in order to avoid reversing the process.

Spraying

Acrystal Prima can be sprayed with any type of gun. Use:

- a nozzle of Ø 4 mm
- retarder to avoid setting of the product in the gun
- thixotrope for a setting on vertical parts

Shelf life of the product

Acrystal Prima has a shelf life of one year. Always firmly close or seal buckets and cans to extend life. With age, setting time gets longer but this will not affect the quality of the final product.

Rotomoulding

Acrystal Prima is perfectly adapted to rotomoulding in a closed mould. If necessary, add some thixotrope to the mix.