

### Weighting

All ingredients 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.



Acrystal Prima liquid



Retarder  
(optional)



Pigments  
(optional)



Basic Crystal powders  
separate container

### Mixing

- ▶ Use a high shear mixing blade to limit the incorporation of air, at a speed above 700 rpm to create a vortex and break up 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. (optional) if required incorporate thixotrop at the end.
  5. leave for a few moments to clear any bubbles.



High shear mixing blade



Mixing of the liquid part



Incorporation of  
Basic Crystal

**Acrystal Prima batch mix is ready for use.**

### Use

Minimum using temperature 12°C

- ▶ Pot life at room temperature of 17-20°C :
  - 8 to 10 minutes without retarder
  - up to 90 minutes with retarder
- ▶ The indicated times increase with the age of the products without affecting the quality of the finished product.
- ▶ The times indicated decrease at higher temperatures.



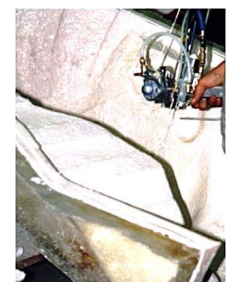
Casting



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.

### Using of fillers

- ▶ Acrystal Prima can receive all kinds of clean and graded fillers, inert to water :
  - sable 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 : 1 - 2 %.
  - use larger fillers.



Brass



Marble



Quartz



Sand

### 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 ...)
- ▶ Never use sea sand. Salt inhibits the reaction of Acrystal.

### Casting of fine pieces

- ▶ For the moulding of parts with very fine sections (a few millimetres), it is possible to reduce the mixing ratio of Acrystal Prima 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 in the heart of the moulding

### Silicone moulds

- ▶ 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

- ▶ 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 thin and light mould cases.
- ▶ The absence of shrinkage avoids the deformations of the mould cases during drying.
- ▶ It's not necessary to provide metal reinforcements even for large size mould cases.



Mold case of a baby mammoth - European Centre for Prehistoric Research - Tautavel - France

### 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

### 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 the moulding.

### External use

#### Imperative :

- ▶ 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.
- ▶ 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



*Hôtel Belle Plage - Cannes  
2 coats of paint  
Planet Staff - Cagnes sur Mer  
Atelier Jean-Loup Bouvier - Les Angles*

### Lumps

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

### Screws and inserts

- ▶ Use only stainless steel screws and inserts to mechanically fix Acrystal objects.

### Rotomolding

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

### 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.



*Put by brush some Acrystal on the mould sides to prevent getting bubbles on the surface.*

### 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<sup>3</sup> by hour and to respect strictly the capacity of the vacuum bell jar (100 litres maximum).
- ▶ To prepare the Acrystal mix, take a bucket able to contain at least five times the volume of material to be mixed.
- ▶ 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.

#### Imperative :

- ▶ A nozzle of at least Ø 4 mm
- ▶ Retarder to avoid setting of the product in the gun
- ▶ Thixotrope for setting on vertical parts of the mold or foam support.

### Shelf life of the products

- ▶ Acrystal Prima liquid has a shelf life of one year.
- ▶ Basic Crystal powders have a shelf life of two years.

#### Important :

- ▶ By consistently closing your buckets and containers, the product will last for many years.
- ▶ Over time, the initial setting time will be slightly longer, but this will not affect the quality of the finished product.