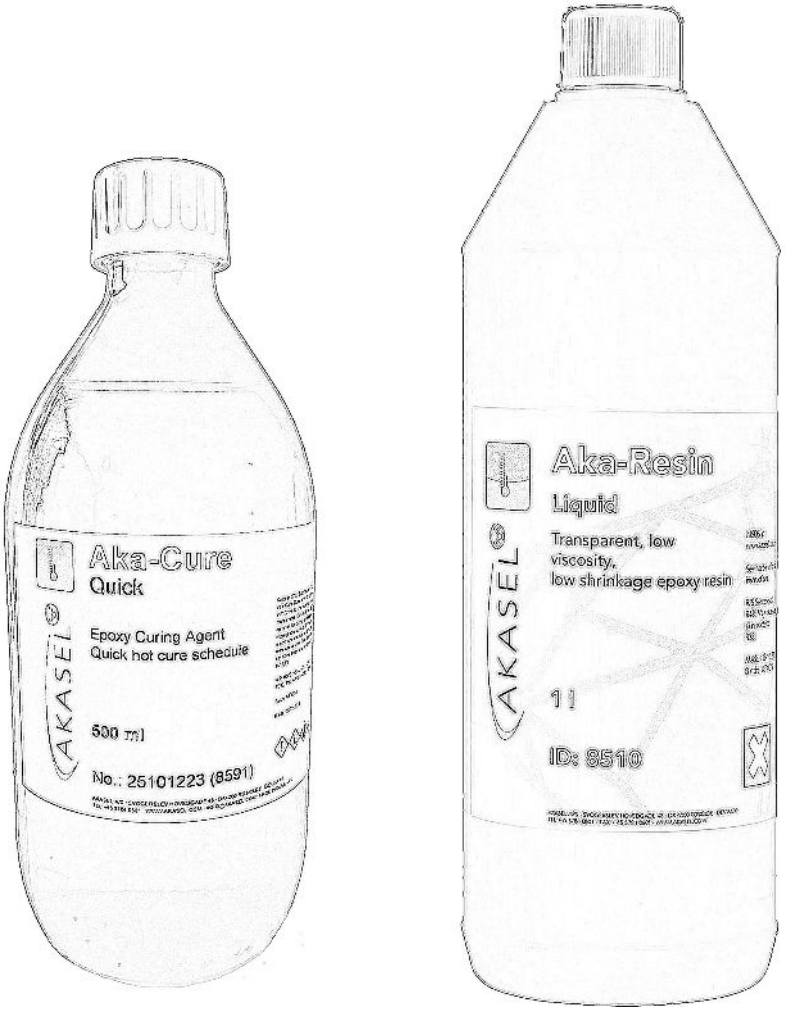
Aka-Cure Quick



Introduction

Aka-Cure Quick is an epoxy hardener to be mixed with Aka-Resin Liquid Epoxy.
It is a hardener with a fast curing schedule, curing is initiated at an elevated temperature starting at 80°C. Curing takes about 30 minutes, depending on the size of the mount.

Safety Precautions

- Avoid contact with resin, hardeners and mixed epoxy. Wear protective nitrile gloves and protective clothing whenever you handle epoxies. If you do get resin, hardener or mixed epoxy on your skin, remove it as soon as possible. The resin is not water soluble—use a waterless skin cleanser to remove resin or mixed epoxy from your skin. The hardener is water soluble—wash with soap and warm water to remove hardener from your skin. Always wash thoroughly with soap and warm water after using epoxy. If you spill epoxy on your clothes, change them immediately.
- Protect your eyes from contact with resin, hardeners and mixed epoxy by wearing appropriate eye protection.
- Avoid breathing concentrated vapours.
- Avoid ingesting epoxy. Wash thoroughly after handling epoxy, especially before eating or smoking.

For additional information find the SDS of Aka-Cure Quick and Aka-Resin Liquid Epoxy here: https://www.akasel.com/sds-pds/

Mixing Ratio

It is important to use the correct and precise mixing ratio and therefore measuring by weight is recommended.

Mix 26.3 parts by weight of Aka-Cure Quick with 100 parts by weight of Aka-Resin.

If weighing is not possible, mix 30 parts by volume of Aka-Cure Quick with 100 parts by volume of Aka-Resin.

Too much or too little hardener will result in mounts not cured to their full potential and is not recommended.

How Much Should I Mix?

Mix as a minimum 25 g to obtain a good precision in your mixture, but mix only an amount that can be used within the pot life of about 2 hours.

Calculating the amount of Hardener and Resin

If you need to produce a certain amount of epoxy mixture Z [g], this can be calculated using the following formula:

Aka-Cure, Quick [g]	= Z [g] x 0.2079
Aka-Resin [g]	= Z [g] x 0.7921

Example: Mixture Z = 100 g:

Aka-Cure Quick:	100 x 0.2079	= 20.79 g
Aka-Resin Liquid Epoxy:	100 x 0.7921	= 79.21 g
Total		=100.00 g

Mixing

Measure first the resin then the hardener in a reusable plastic cup. (Paper cups should only be used if they are made for this purpose, like the cups included in our Cold Mounting Mixing Kit[1])

Mix slowly (in order not to introduce air bubbles) but thoroughly until the mixture is clear without stripes. Spilled epoxy can be washed off the table or mounting cups with ethanol.

For skin contact see above.

Pouring

Pour the mixture slowly into the mounting cup, without trapping air around the sample. You can use the mixing stick to direct the mixture over the sample.

Curing Schedule

Aka-Cure Quick is cured at 80°C for 30 min. by placing it in an oven. If Aka-Cure Quick is not subjected to an elevated temperature it will not cure completely.

Pot-life

The pot-life of the mixture is up to 2 hours.

Covering the Samples

Covering the mounting cup with a piece of paper/plastic or a mixing cup will prevent the attraction of moisture and thus stop the top of the mount from becoming sticky.

[1] Ordinary paper cups are normally coated on the inside to make them waterproof. This layer is often soluble in epoxy, resulting in the mixture seeping through the cup after a while.

Curing Develops Heat

During curing additional heat is generated, therefore the mount gets hotter than the 80°C in the oven. Peak temperature will be between 180°C and 210°C depending on the size of the mount.
If heat sensitive specimens are mounted, pre-curing for 24 hours at room temperature is recommended, followed by a post-cure at 100°C for an hour. This will make sure not to expose the sample to higher temperatures than 100 C
If even lower curing temperatures are required, please use Aka-Cure, Slow.

Very Large Samples

A unique feature of Aka-Cure, Quick is the ability to pre-cure without developing heat. This makes Aka-Cure, Quick ideal for very large mounts.
Mount your sample as usual, but leave the filled mounting cups to cure at room temperature. After 24 hours when the mount is pre-cured, a post-cure at 100°C for 1 hour is performed.
This post-cure is absolutely necessary as curing at room temperature leaves the epoxy in a not fully cured state. The mounting material is very clear/transparent with no sign of overheating and no sticky top surface, however, the mounting material is not suitable for preparation of samples as it is very brittle if not heated to 100 °C for an hour. The mount can be further strengthened by curing at 150°C for another hour.

Extracting

Due to the low shrinkage and the adhesion to almost all types of surfaces, the cured epoxy mount also sticks to the surface of the mounting cup. Here are some tips on extracting the cured mount from the form.

Before pouring the mixed epoxy into the mounting cup, the sides and the bottom part of the mounting cup can be treated with a release agent like Aka-NoStick Liquid. The resulting film acts as a release film and makes it easier to extract the cured mount.

Remove the bottom part of the mounting cup, then apply pressure to the side of the mounting cup to loosen the mount.

Then press the mount out through the bottom opening as the mounting cups are slightly conical.

Impregnation

The mixture of Aka-Cure Quick and Aka-Resin Liquid Epoxy is easy flowing and has a low surface tension which makes it fill small porosities and cracks in porous samples on its own. Combined with a pot-life of about 2 hours, porous samples can often be impregnated without having to use vacuum impregnation.

Impregnation Using Vacuum

When the cracks or pores are very small, air will adhere to the wall of the pores and prevent the epoxy from wetting the surface. Then it becomes necessary to empty the pores for air by using vacuum impregnation.

In vacuum impregnation, the mounting cup with the porous sample is placed in a vacuum unit, the air is pumped out and the pores with access to the sample surface are thus emptied. After evacuation is completed, epoxy resin is led into the vacuum chamber and the mounting cup is filled. Now the sample is completely covered with epoxy that can fill the empty cracks and pores. When atmospheric air is allowed back into the vacuum chamber, the air is pressing the epoxy into the cracks and pores connected to the surface. This can further be strengthened by placing the sample in a pressure chamber for curing.
The best vacuum devices allow placing only the mounting cups with the samples under vacuum. Hereby the sample can be evacuated for hours at the lowest possible pressure without boiling off components of the resin-hardener mixture.

Refractive Index

The refractive index of the cured mix is: 1,563±0,001.

Additional Information

To see the entire process in detail you can watch our video The correct use of Epoxy Cold Mounting Resins on YouTube:

https://youtu.be/PchzrYkKtI4 or:

Lifetime

When stored correctly, at about 22°C in a dark place, the lifetime of both resin and hardener is at least 2 years from the production date.
After opening, the lifetime is 1 year when the lid is tightened securely immediately after each use and the bottle is stored at about 22°C in a dark place.

Should the hardener crystallise due to transportation or storage at too low temperatures, it can be heated in a water bath to about 40°C to dissolve the crystals again.

When the resin shows some white sediment due to storage at low temperatures it can be heated in a water bath to about 40°C to dissolve the sediment again.