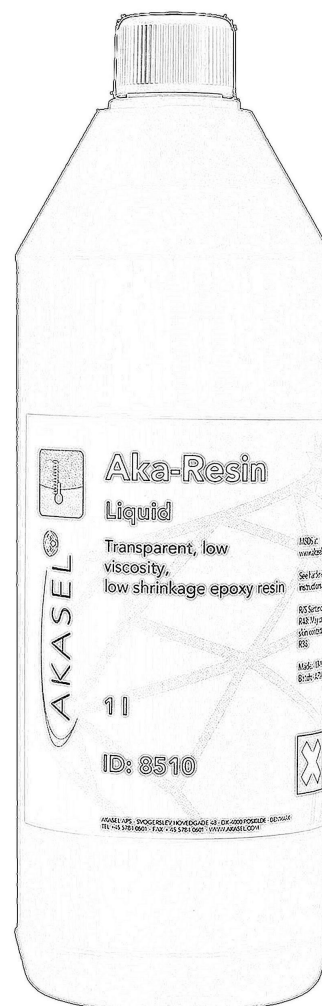
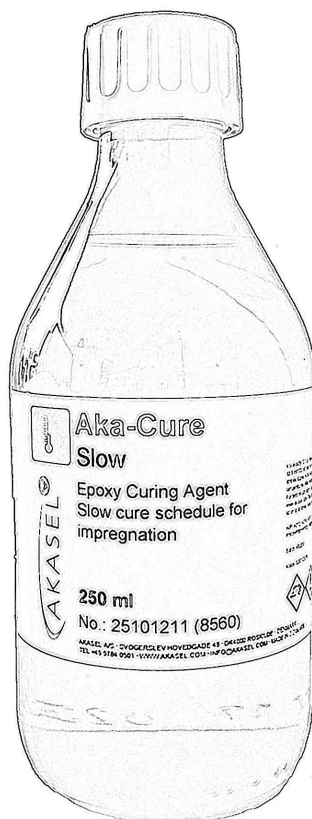


Akasel User Guide

Aka-Cure Slow



Introduction

概述

Aka-Cure Slow is an epoxy hardener to be mixed with Aka-Resin Liquid Epoxy.
Aka-Cure Slow是Aka-Resin液态环氧树脂固化剂。

It is a hardener with a slow curing schedule, curing at room temperature / 22°C. Curing takes between 8 - 24 hours, depending on the surrounding temperature and the size of the mount.
这种固化剂在室温22°C固化，固化步骤很缓慢。固化时间取决于周围环境温度 and 所镶样品得尺寸，一般8到24小时。

Safety Precautions 安全预防措施

- 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.
避免直接与树脂、固化剂和混合的环氧树脂接触。不管什么时候处理环氧树脂，都要佩戴防护乳胶手套和防护衣。如果皮肤上粘上了树脂、硬化剂和混合的环氧树脂，应该尽快清除。树脂不是水溶性的，应该使用不含水的皮肤清洁剂来清除皮肤上的树脂和混合环氧树脂。固化剂时水溶性的，应该用肥皂和热水清洗皮肤上的固化剂。在使用树脂后，一定要使用肥皂和热水彻底清洗。如果环氧树脂贱到了衣服上，应该立即换衣服。
- Protect your eyes from contact with resin, hardeners and mixed epoxy by wearing appropriate eye protection.
通过佩戴合适的护眼镜避免眼睛接触树脂、硬化剂和混合的环氧树脂。
- Avoid breathing concentrated vapours.
避免吸入高浓度的蒸汽。
- Avoid ingesting epoxy. Wash thoroughly after handling epoxy, especially before eating or smoking.
避免咽下环氧树脂。在处理环氧树脂后，特别是吃东西或者吸烟前，应该彻底清洗。

For additional information find the SDS of Aka-Cure Slow and Aka-Resin Liquid Epoxy here:

<https://www.akasel.com/sds-pds/>

请在Aka-Cure Slow和Aka-Resin液态环氧树脂的SDS中查看更多信息

<https://www.akasel.com/sds-pds/>

Mixing Ratio

混合比例

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

用正确并精确的配比非常重要，所以推荐称重测量。

Mix 12 parts by weight of Aka-Cure Slow with 100 parts by weight of Aka-Resin.

混合12重量份Aka-Cure Slow和100重量份Aka-Resin液态树脂。

If weighing is not possible, mix 13.5 parts by volume of Aka-Cure Slow with 100 parts by volume of Aka-Resin.

如果不能称重，就混合13.5体积份Aka-Cure Slow和100体积份Aka-Resin液态树脂。

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

不推荐使用太多或太少的硬化剂，这将使镶样树脂不能发挥其固化潜能。

How Much Should I Mix?

我们应该混合多少？

Mix as a minimum 25 g to obtain a good precision in your mixture, but mix only an amount that can be used within a short time as pot life might be as short as 30 minutes if you have a large amount of mix.

为了使混合时达到高精度，最少需要25g，但是只能混合在短时间内能使用的量，因为大量的混合物的活化时间可能短到只有30分钟。

Calculating the amount of Hardener and Resin

计算固化剂和树脂的量

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

如果你需要得到一定量的环氧树脂混合物Z [g]，可以用以下公式计算：

$$\text{Aka-Cure Slow [g]} = Z [\text{g}] \times 0.1071$$

$$\text{Aka-Resin Liquid Epoxy [g]} = Z [\text{g}] \times 0.8929$$

$$\text{Aka-Resin液态树脂 [g]} = Z [\text{g}] \times 0.8929$$

Example: Mixture Z = 100 g:

例如：混合物 Z = 100 g:

$$\text{Aka-Cure Slow:} \quad 100 \times 0.1071 = 10.71 \text{ g}$$

$$\text{Aka-Resin Liquid Epoxy:} \quad 100 \times 0.8929 = \underline{89.29 \text{ g}}$$

Aka-Resin液态树脂

$$\text{Total} \quad \quad \quad = 100.00 \text{ g}$$

总共

Mixing

混合搅拌

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 Kit¹)

用一个可以重复使用的塑料杯，先称取树脂然后称取固化剂。（纸杯只能选择专门为混合树脂为目的制作的纸杯，如在我们的Cold Mounting Mixing Kit里面的纸杯。

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.

为了不引入气泡，缓慢充分搅拌，直到混合物清澈无条状现象。溢出的树脂可以用丙酮从桌子货值镶样杯中洗去。

For skin contact see above.

皮肤接触树脂，处理办法见上文。

Pouring

倾倒

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.

慢慢将混合物倒入镶样杯中，且避免将样品周围的空气聚集混合物里。你可以使用搅拌棒将混合物直接倾倒到样品上面。

Pot-life

活化期

The pot-life of the mixture is up to 30 minutes. The larger the mixed amount and the higher the room temperature, the shorter the pot-life.

混合物的活化期长达30分钟。混合物的量越大、室温越高活化期就越短。

Covering the Samples

盖住镶样

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.

用一片纸或塑料或者混合的纸杯盖住镶样杯，这样可以防止镶样吸入周围的湿气，从而防止镶样表面变成粘性的。

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.

普通的纸杯里面有防水涂层，这涂层通常可以溶于树脂，这将导致后面混合物渗入杯中。

Curing Schedule

固化步骤

Aka-Cure Slow cures at room temperature, thus no oven or other means of heating is necessary. Curing time is between 8 and 24 hours, depending on mounting cup size and initial temperature of the resin-hardener mix.

Aka-Cure Slow在室温固化，所以不需要炉子等其它加热手段。取决于镶杯尺寸和混合物起开始温度，固化时间在8到24小时，

Curing Develops Heat

固化放热

The chemical reaction that cures mixed epoxy is exothermic, or heat generating. Therefore it is important that the resin-hardener mixture is poured right after mixing.

混合树脂固化的化学反应是放热反应。所以树脂固化混合物在混合后立即倒入镶样杯中很重要。

If the reaction heat is too high, it results in a temperature rise in the resin initiating a faster generation of heat. The result can be a very hot mount with a high amount of shrinkage and possible damage to a heat sensitive sample. This can be avoided by observing the following:
如果反应热太高，这将导致树脂温度上升，从而导致产热更快，结果就是镶样温度很高，收缩很大，也会损坏热敏感样品。这可以通过观察下面条件避免这一现象：

25 mm - 40 mm dia.

直径25-40毫米的镶样

Smaller mounts like 25 mm - 40 mm dia. have usually no problem with excessive heat generation. The peak temperature is limited to about 40°C. Curing can be accelerated slightly by covering the mounting cup while curing. The trapped air reduces heat loss causing a temperature rise of about 10 - 30 °C thus speeding up the curing process.

直径是25-40毫米的镶样通常没有产生过多热量的问题。最高温度大约为40°C。用镶样杯盖住正在固化的镶样能稍微加速固化过程。聚集的空气会减少散热量，引起约10-30°C，从而加速固化过程。

50 mm dia.

直径50毫米的镶样

Larger mounts need some form of active cooling to keep the curing process under control. Cooling is easily adapted by placing the mount in a fume hood where the airflow will keep the temperature within acceptable limits. If a fume hood is not available a small fan can be used. When curing several large mounts there should be sufficient space in between them to avoid excessive heat build-up.

镶大样品需要有效的冷却方式，使得整个固化过程在控制之中。将镶样放入空气流通的通风厨中，冷却过程就能将温度控制在可接受的范围内。如果没有通风厨，小风扇也可以。多个大镶样同时固化时，镶样间应该保持足够的距离，从而避免过多的热量逐渐积累。

Very Large Samples

镶非常大的样品

Very large mounts can generate excessive temperatures and this can have a disastrous influence on the shrinkage and there is also a big risk of discolouring and boiling of the mixture. If the sample can withstand temperatures up to 100°C then it is highly recommended to use the Aka-Cure Quick hardener and apply the method for large samples.

非常大的镶样能产生过多的热量，这将使得镶样有灾难性的收缩，而且很可能使得混合物褪色或者沸腾的风险。如果样品可以经受住达100°C的温度，我们非常推荐使用Aka-Cure Quick固化剂，这也适用于镶大样品。

If Aka-Cure Slow has to be used for mounting, it is recommended to cure multiple layers rather than a single, thick layer.

如果必须要用Aka-Cure Slow来镶大的样品，推荐分层镶嵌，而不是一次镶嵌很厚的一层。

Pour a layer of 10 -15 mm at a time, let it cure and wait until the temperature has decreased to room temperature before the next layer is poured.

每次镶嵌10-15毫米厚的一层，等其固化，直到温度降到室温，然后再倒入下一层的树脂。

Post-Cure

后续固化过程

All room temperature curing epoxies take about 5 - 7 days before they are fully cured. This is also the case for Aka-Cure Slow. The mount is just cured to a functional hardness after the 8 - 24 hours stated as the curing time.

所有在室温固化的树脂，完全的固化过程需要大约5-7天。Aka-Cure Slow正式这种情况。在8-24小时以后，镶样仅仅是固化到了可用的硬度。

Few have the time to wait for 5 - 7 days, however, this time can be substituted with a post-cure at 100°C for 2 hours.

有少量的镶样固化需要5-7天，但是这个时间可以用在100°C固化2小时的后续固化来替代。

It should be noticed that only few will have the need for a post cure, but if you can leave a nail imprint in your mount, or it picks up abrasives on grinding paper, then your mount could benefit from a post cure treatment.

需要提到的是，仅仅只有很少了的镶样需要后续固化过程。如果你在镶样上能留下指印，或者镶样易粘上砂纸上的磨料，这样的话你的镶样就可以通过后续固化来完善。

Extracting

取镶样

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.

由于树脂的低收缩性和在所有类型表面的粘附性，固化后的树脂镶样会粘在镶杯上面。下面是怎么从镶杯里取出镶样的一些技巧。

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.

在将混合树脂倒入镶杯之前，镶杯的侧面和底部需要涂上像Aka-NoStick Liquid这类脱模剂。生成的膜是脱型膜，从而使得我们能更容易取出固化的镶样。

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

把镶杯的底部取下来，然后将在镶杯侧面施力，这样就能使镶样松动。

Then press the mount out through the bottom opening as the mounting cups are slightly conical. 因为镶杯使微圆锥形，然后将镶样从底部推出来。

Impregnation

倾倒

The mixture of Aka-Cure Slow 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 long pot-life of up to 4 hours porous samples can often be impregnated without having to use vacuum impregnation.

Aka-Cure Slow和Aka-Resin Liquid Epoxy的混合物流动性非常好，表面张力也小，这样混合物树脂就能很容易流入样品中的空洞和裂纹。因为长达4小时的活化期，即使没有真空浸渍，多孔隙样品的孔隙中也可以被注入混合树脂。

Impregnation Using Vacuum

使用真空浸渍

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.

如果样品中裂纹和孔隙非常的小，空气会粘附在孔隙和裂纹的表面，从而阻止混合树脂湿润孔隙和裂纹的表面。这时候就需要用真空浸渍将样品中所有空气抽出。

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.

真空浸渍时，将装有多孔隙样品的镶杯放在真空室中，用泵将空气抽出，样品表面的孔隙中的空气就都被抽走了。抽真空完成以后，混合树脂被引入到真空室中并填满镶杯。此时，样品完全被树脂包围了，这时树脂可以进入到表面的裂纹和孔隙。将样品放入用来固化的高压仓里时，效果能更好。

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.

最好的真空设备只允许将装有样品的镶杯放入镶杯。这样样品就可以置于抽真空过程几个小时，从而达到最可能低的压强，并且不会使得树脂和硬化剂混合物蒸发。

Refractive Index

折射率

The refractive index of the cured mix is: $1,558 \pm 0,001$.

固化的混合物折射率为 $1,558 \pm 0,001$.

Additional Information

附加信息

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

你如果想看整个详细的冷镶过程，请在YouTube看视频Epoxy Cold Mounting Resins

<https://youtu.be/PchzrYkKtl4> 或者



Lifetime

使用寿命

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.

在22°C黑暗环境中正确储藏，树脂和硬化剂的寿命至少是生产后两年。

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.

在打开后，如果在每次使用后立即拧紧了盖子，并且储藏在22°C黑暗环境中，那保质期是一年。

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.

在较低温度下储存时，树脂中会出现白色沉淀物，放在40°C的水浴中加热可以使沉淀物溶解。