

APM Epicol 325

| Description | |
|---------------|--|
| System: | 2-component or 1-component frozen adhesive |
| Colour: | dark red, amber |
| Viscosity: | pourable liquid |
| Solid bodies: | 100% / solvent-free |
| Pot life: | 3 hours |
| Curing: | 80°C 35 min or 120°C 3 min |
| Temp. range: | -55°C to +250 °C Continuous |

| Specifications | |
|----------------------|------------------------------|
| RoHS compatible | |
| compliant with REACH | |
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| Biocompatibility | ISO 10993-5 und ISO 10993-12 |
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APM Epicol 325 is a two component, high temperature epoxy adhesive.. APM Epicol 325 is typically used in the optics, fiber optic, medical, electronics and the semiconductor applications. APM Epicol 325 shows superior performance and reliability. APM Epicol 325 shows an amber colour change upon cure.

| Properties of fluid adhesive | |
|--|---------------------|
| Colour of resin component A: clear | |
| Colour of resin component B: yellowish | |
| Resin component: | mod. epoxy resin |
| Hardener component: | mod. amine hardener |
| Viscosity | |
| Mixture (25°C): | 3000 – 5000 mPa*s |
| Mixture ratio A/B: | 100 : 10 (weight) |
| Pot life at 25°C: | 3 hours |

aqueous ultrasound cleaning method at raised temperature. Clean metallic surfaces with aqueous cleaners or clean solvents. For these materials and in particular plastics, surface pretreatment using oxygen plasma has proven successful. Plasma treatment dries the surface and improves wettability. This achieves good adhesion of the adhesive. With plastics, the surface is also chemically modified. With poor adhesive plastics this produces an adhesive surface. Primers are no replacement for surface pretreatment. Adhesion and ageing resistance can also be improved by using primers.

Surface pretreatment / cleaning

The surfaces to be bonded must be dry and free from dust, oil, separating agents and other impurities. The selected type of surface treatment depends on the requirements profile (cleanliness, mechanical strength, ageing resistance). Above all, mechanical pretreatment, e.g. grinding or sand-blasting, achieves an improvement in adhesion for metals and in many cases for non-ferrous surfaces as well. It is best to clean glass surfaces using the

Mixing the adhesive components

The two adhesive components are weighed in the clean mixing beakers in the specified mixing ratio. The components must be machine mixed (Speedmixer) or manually without admixing air bubbles. To obtain a perfect mixture, produce at least 10 g of the mixture. After mixing it must then be free from streaks.

Curing the adhesive

| | | |
|-----------------|--------|--------|
| Heating cabinet | 80 °C | 35 min |
| Heating cabinet | 100 °C | 12 min |
| Heating cabinet | 120 °C | 3 min |

Properties of cured adhesive

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|---|--------------------------|
| Colour: | dark red, amber |
| Shore D (25°C): | 80-90 |
| Tensile shear strength (25°C): | > 15.0 N/mm ² |
| E-modulus: | > 2270 MPa |
| Thermal conductivity: | N/A |
| Glass transition temp. (T _g ; °C): | > 100 °C |
| CTE below T _g : | 55*10 ⁻⁶ |
| CTE above T _g : | 189*10 ⁻⁶ |
| Degradation Temp.: | > 400 °C |

Using deep-frozen mixtures

Remove the deep-frozen adhesive from the deep freeze and allow it to reach room temperature in the air. This requires 5 to 10 minutes depending on the cartridge size. As soon as the cartridge is no longer covered with condensation and the adhesive is fluid, work can start with dosing.

Applying the adhesive

The ideal processing temperature is between 20°C and 28°C. Viscosity falls at higher temperature and pot life shortens.

Normally, the adhesive can be applied from the cartridge using a dosing device. The capillary tendency of this adhesive is unusually high. This means that the adhesive flows into even very fine adhesive bonds at room temperature and bonds the substrates permanently.

Safety instructions

Avoid contact with skin and eyes. When applying the adhesive, always wear gloves and safety

goggles. If adhesive comes into contact with the skin, do not use solvents to remove. Instead wash the affected area (hands) with warm water and soap and then dry. Liquid adhesive irritates on contact with the eyes and may lead to permanent eye damage. Before use, please observe the instructions in the safety data sheet.

Storage

The adhesive has maximum shelf life at temperatures between 15°C and 25°C. The shelf life of the two components is at least **24 months** under these conditions. Higher temperatures shorten the standard shelf life. Lower temperatures temporarily cause higher viscosity and may lead to crystallisation.

Deep-frozen 1-component adhesive (in cartridges) must always be stored at a temperature of below -40°C. At this temperature the mixture has a shelf life of at least **3 months**. Never defrost the cartridges, otherwise the pot life is shorter or the adhesive is already cured. As a result the product is always delivered with dry ice at -78°C.

Disposal

The liquid components of the adhesive must be disposed of as hazardous waste in the same way as synthetic resin or paint components. Under no circumstances mix large quantities (> 100 g) of the components for curing since the curing process is strongly exothermic and could result in the mixture heating up to a dangerous extent. Cured adhesive is disposed of as hazardous waste in the same way as thermosetting plastics depending on local legal requirements or as domestic waste.

The specifications in this data sheet are based on meticulous tests and our previous experience in everyday practice. They are non-binding instructions, in the same way as our application advisories are also non-binding, whether verbal, in writing or by trials since we cannot accept any liability due to the wide variety of possible influences during processing and application. APM Technica AG disclaims all other explicit or implicit warranties, conditions and terms, be they of real or legal nature, including those which refer to usual market quality, their suitability for a particular use, satisfactory quality or observance of third-party trademarks. APM Technica excludes all liability to the extent permitted by law – whether arising from contract, quasi contract or tort (including negligence) – for direct, indirect and consequential damages, punitive damages awarded by court, loss of business of all kinds, loss of information or data or any other financial losses which may result from the sale, installation, maintenance, use, performance, failure or interruption of operation of the product or in connection therewith, even if we were informed of the possibility of occurrence of such damages. Data and other specifications concerning the nature and suitability of our products are non-binding general conditions and specifically represent no guarantee of certain characteristics. We advise you to perform your own adequate tests to determine the suitability of our products for your specific application. The user is himself responsible for defining the suitability of production methods mentioned in the technical data sheet for his purposes and for taking precautionary measures which are suitable to protect assets and persons from any danger which may occur during the handling and usage of these products. In all other cases our General Terms and Conditions of Business shall apply.