

Technical Information

ALBIDUR® EP 2240 A

ALBIDUR® EP 2240 A is a white, 40 % concentrated dispersion of a high performance elastomer in an epoxy resin based on Bisphenol A. It is used as a toughness modifier for rigid and brittle epoxy resin systems. The elastomeric component is a special silicone rubber which is distributed in the liquid resin as a very finely dispersed second phase. In comparison to equivalent unmodified epoxy resins, cured ALBIDUR®-modified resins exhibit the following characteristics:

- Improved toughness (fracture energy, fracture toughness, impact resistance)
- Essentially unchanged deflection temperature as compared to unmodified resins
- Enhanced surface properties of the cured resin
- No significant reduction in hardness, thermal or chemical resistance, ageing or weathering stability

Unlike conventional toughness modifiers, ALBIDUR® does not significantly degrade physical properties at high temperatures. This is due to the unique properties of the elastomer and the complete phase separation between the elastomer phase and the resin matrix. Due to the low glass transition temperature of the elastomer (below -50 °C), the toughness increase can be achieved at very low temperatures as well.

Applications

Like the other ALBIDUR® resins, ALBIDUR® EP 2240 A is used in all applications where improved toughness of the cured resin is desired without sacrificing other properties, especially heat deflection temperature. Examples of possible uses for ALBIDUR® EP 2240 A includes:

- Fibre-reinforced materials and composites
- Applications in electrical/electronic equipment, e. g. casting, potting, encapsulation
- Protective or decorative solvent-free coatings
- Structural adhesives

Silicone containing resin formulations should not be used in direct neighbourhood to open electromechanical contacts.

Formulation Recommendations

Due to the efficiency of the elastomer within ALBIDUR® EP 2240 A in most applications an elastomer content of 4 to 8 % (equals the addition of 10 – 20 % ALBIDUR®) is sufficient to achieve the desired improvements. This is related to the sum of resin and hardener; fillers etc. are not considered. Therefore ALBIDUR® EP 2240 A is blended with other epoxy resins to obtain the optimum elastomer concentration of the formulation. Any commercial epoxy resin can be used for this purpose.

All common curing agents which are suitable for Bisphenol A based epoxy resins regardless of their chemical nature can be used. The cure characteristics are not affected by the elastomer. The increase in toughness is found for all hardeners, however, due to the network density determined by the hardener, in different magnitudes. Calculation of the required amount of curing agent is done on the basis of the equivalent weights of the resin blend and curing agent as usual.

Fillers may also be used as usual. During compounding vacuum degassing should be performed to improve mechanical properties of the compound. We recommend the use of defoamers.

ALBIDUR® EP 2240 A can crystallize at low temperatures. By stirring at elevated temperatures (40 to 60 °C) the crystallization can be reversed.

Registration status

The ingredients of ALBIDUR® EP 2240 A are listed in the following chemical inventories:

EINECS/ELINCS, TSCA, DSL, TCCL, PICCS, TCSI

Further information is available on request.

Technical data (no specification)

| Property | Unit | Typical Values |
|---|-----------------------|-----------------|
| Appearance | | white liquid |
| Silicone rubber content (addition curing elastomer) | [%] | 39,5–40,5 |
| Density @ 23 °C | [g/cm ³ w] | 1.1 |
| Viscosity @ 25 °C | [mPas] | 30 000 – 42 000 |
| Epoxy equivalent weight | [g/equiv.] | 290 – 315 |
| Shelf life | [months] | 12* |

*if stored in the original unopened container

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