Technical Information

ALBIFLEX® 297

ALBIFLEX® 297 is a bisphenol-A-epoxy-silicone block copolymer resin which is used to manufacture high-performance elastomers. ALBIFLEX® 297 is liquid at ambient temperature, epoxy reactive and cures with all aliphatic and cycloaliphatic epoxy resin curing agents. It can be processed by all conventional casting or molding techniques. The specially designed block copolymer structure of ALBIFLEX® 297, made up of epoxy and silicone segments, provides an outstanding combination of properties:

- high thermal shock resistance and temperature stability
- a glass transition temperature that is less reduced compared to other plasticizers
- excellent elongation
- high mechanical stability
- good adhesion on most substrates
- high hydrolysis stability
- very low moisture absorption
- lower water vapour permeability than silicones

Upon curing ALBIFLEX® 297 forms a segmented molecular structure consisting of soft polysiloxane and rigid polyepoxy segments. The combination of polysiloxane and epoxy units in the polymer structure creates an elastomeric material combining the outstanding electrical and thermal properties of silicones with the high mechanical strength and the excellent adhesion of epoxy resins.

Applications

ALBIFLEX® 297 is particularly well suited for use in elastic bonding, jointing and sealing compounds in electrical/electronics applications, for use as a binding agent in high-quality coating systems for printed circuit boards and as a base polymer for potting and casting compounds for electronic components. Along with excellent mechanical properties, ALBIFLEX® 297 provides outstanding compatibility with aromatic resins and hardeners.

Formulations and processing

ALBIFLEX® 297 can be cured with almost any epoxy resin curing agent including all kinds of aliphatic or cycloaliphatic amines and amides, acid anhydrides and catalytic curing agents (e. g. tertiary amines and boron trifluoride complexes). Elastomer products with high thermal stability, strength and elongation at break can be obtained by curing with cycloaliphatic amines, anhydrides, or DICY. ALBIFLEX® 297 can also be cured with resin/curing agent pre-adducts or pre-condensates or with mixed curing agent systems.

ALBIFLEX® 297 shows only limited compatibility with aromatic amines. Suitable curing agents include precondensates, adducts and mixed curing agent systems. Curing agents should be avoided which show turbidity (i.e. increased turbidity as compared to ALBIFLEX®) upon mixing with ALBIFLEX® 297 as this is an indication of incompatibility. However, possible whitening during curing is not an indication of a problem but instead of the desired separation in soft and rigid phases.

ALBIFLEX® 297 can be formulated with other epoxy resins, reactive diluents, plasticizers, etc. for further modification of finished product properties. Since ALBIFLEX® 297 has only limited compatibility with aromatic epoxy resins (e.g. formulations based on bisphenol A-F or novolac), formulations with these resins must include solubilizing aliphatic or cycloaliphatic-based resins, diluents, etc. Examples of suitable solubilizing agents include hexanedioldiglycidylether and cycloaliphatic epoxy resins.

Registration status

The ingredients of Albiflex® 297 are listed in the following chemical inventories:

EINECS/ELINCS, TSCA, NDSL

Further information is available on request

Technical data (no specification)

Property	Unit	Typical Values
Appearance		yellowish, opaque liquid
Viscosity @ 25 °C	[mPa·s]	15,000 – 40,000
Epoxy equivalent weight	[g/mol]	650 – 900
Storage life	[months]	max. 12 *
Packaging		25 kg drums

*if stored in the original unopened container

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