

# ALBIPOX® 2000

ALBIPOX® 2000 is a high performance elastomer–modified epoxy resin based on Bisphenol A epoxy resin. It is used for the toughening of rigid and brittle epoxy resin systems. The elastomer used is a special nitrile rubber chemically linked to the epoxy resin. During the cure of the resin phase separation occurs, resulting in excellent properties of the end application.

A cured system compared with a similar unmodified epoxy resin shows improved properties:

- Improved toughness (fracture energy, fracture toughness, impact resistance)
- Much better mechanical properties at low temperatures
- Significantly improved adhesion to complicated substrates, e. g. oil–treated steel
- Nearly unchanged heat deflection temperature
- No or minimal reduction in hardness, thermal, chemical and ageing stabilities

Using ALBIPOX® 2000 toughened epoxy resin systems with excellent price/performance ratio can be formulated.

ALBIPOX® 2000 is silicone–free.

ALBIPOX® 2000 can be blended with all epoxy resins; no restrictions or incompatibilities exist. Any epoxy hardener desired can be used; the cure characteristics are not or nearly not affected by the toughening.

## Fields of Application

ALBIPOX® 2000 is used whenever a drastic improvement in toughness over the whole temperature range is required. This product is especially suitable for sophisticated structural adhesives. Some examples of applications are:

- Adhesives (very high toughness, significantly improved crash resistance, excellent adhesion, very good low temperature properties ...)
- Reinforcement patches, e. g. for car construction
- Composites (improved inter laminar shear strength, increased punching resistance, increased pressure resistance of pipes, improved processability ...)
- Casts, structural foams, etc.

## Application Recommendations

Part of the epoxy resin used in the formulation to be improved is replaced by ALBIPOX® 2000. The amount of hardener is reduced corresponding to the new epoxy equivalent of the resin blend. For some non stoichiometric hardeners like Dicyandiamide a change in hardener amount is unnecessary. Fillers and other ingredients of the formulation are used as usual.

If the viscosity of ALBIPOX® 2000 should be too high for the formulating procedure, we recommend to preheat the product to 60 – 80 °C. The viscosity will be decreased below 10 000 mPas.

Best improvements in properties are found usually in the range of 12 – 15 phr rubber (parts per hundred resins).

Formulation examples:

	Original formulation	10 phr NBR	12 phr NBR	15 phr NBR
Standard Bisphenol-A epoxy resin (EEW 185)	100	85	82	77.5
ALBIPOX® 2000 (EEW 330)	-	25	30	37.5
Total mass parts	100	110	112	115
EEW	185	206	210	216

#### Technical data ALBIPOX® 2000 (no specification)

Property	Unit	Typical Values
Appearance		yellowish resin
NBR rubber content	[%]	40
Base resin		Bisphenol A epoxy resin
Density @ 20 °C	[kg/m <sup>3</sup> ]	1 090
Viscosity @ 25 °C	[mPas]	400 000
Epoxy equivalent weight		330
Shelf life	[months]	6*
Packaging		180 kg steel drum, 25 kg can

\*if stored in the original unopened container

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