Product Information

NANOPOX® E 470

PRODUCT DESCRIPTION

NANOPOX® E 470 is a high performance, versatile, silica reinforced Bisphenol A based epoxy resin for the use in electrical and electronic. The silica phase consists of surface-modified synthetic SiO_2 nanospheres of very small size (average diameter of 20 nm) with a narrow particle size distribution (maximum diameter 50 nm).

Despite the high SiO_2 content of 40 wt%, NANOPOX® E 470 has a comparatively low viscosity due to the agglomerate-free colloidal dispersion of the nanoparticles in the resin.

Typical Properties

Property	Unit	Value
Appearance		Opaque liquid
Base Resin		Bisphenol A diglycidyl ether
Density	g/cm³	1.4
Epoxy Equivalent Weight	g/eq	295
Viscosity at 25°C	mPa·s	60000

The data represents typical values (no product specification)

Product Composition

Product Composition	Unit	Value
Silicon Dioxide (SiO_2) Content	wt%	38-42

The data represents typical values (no product specification)

BENEFITS & ADVANTAGES

- Low viscosity (especially when combined with conventional fillers)
- Reduced cure shrinkage & thermal expansion
- Improves heat conductivity, by preventing sedimentation of micro particles
- Improvement on mechanical properties: fracture toughness, impact resistance and modulus
- Penetrates every fillament (glas - , carbon, -basalt fibers, mica, ...)
- Improved scratch & abrasion resistance
- Good dielectrical properties: Low DK and Df

DOSAGE

Replace part of the epoxy resin used in the formulation to be improved with a NANOPOX® E product (up to 100%). The amount of hardener is reduced in proportion to the new epoxy equivalent of the resin blend. For some non-stochiometric hardeners like dicyandiamide, you need not change the amount of hardener. Use fillers and other ingredients of the formulation as you normally would.

HANDLING & PROCESSING

NANOPOX® E 470 can be used as any other Bisphenol A diglycidyl ether. However, the colloidal silica in NANOPOX® products tends to agglomerate if the stabilisation is affected by inappropriate formulation components like hydrocarbon solvents (e. g. xylene).

Therefore the compatibility between NANOPOX® E 470 and all other formulation components should be tested separately before starting formulation development.

NANOPOX® E 470 should be handled in accordance with good industrial practice. Detailed information is provided in the Material Safety Data Sheet.

PACKAGING

Steel drum, 25 kg

Steel drum, 250 kg

Other types on request

STORAGE

Keep container(s) tightly closed when not in use! Store in a dry, cool place. Product can be deep-freezed. In case of crystallization please gently re-melt at 40-50 °C until completely crystall-free.

SHELF LIFE

6 months if stored in the original unopened container.

HAZARDOUS SUBSTANCE

Information concerning

- Classification and labelling according to regulations for transport and for dangerous substances
- Protective measures for storage and handling
- Measures in case of accidents and fire
- Toxicity and ecological effects

is given in our material safety data sheets.

REGISTRATION LISTING SUMMARY

The relevant components of NANOPOX® E 470 are listed/ registered or exempt in the following chemical inventories.

Registration Listings	
Registry	**Status**
China (IECSC)	Yes
EU (EINECS/ELINCS)	Yes
Japan (ENCS)	Yes
South Korea (TCCL)	Yes
Taiwan (TCSI)	Yes
USA (TSCA)	Yes

Evonik Operations GmbH

Interface & Performance
Goldschmidtstraße 100
45127 Essen, Germany
Phone Europe +49 201 173-2665
Phone Asia +86 21 61191 125
Phone Americas +1 804 727 0700
interface-performance@evonik.com
evonik.click/interface-performance