SynFlex Elektro GmbH
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Voltacast 3110 Polyurethane casting resin

Cold-curing 2-component-polyurethane casting resin.

Attributes

Voltacast 3110 is a pigmented, filled and cold-curing two-component polyurethane casting resin with low temperature development while curing, based on polyester containing hydroxyl-functional groups. The hardener is based on an aromatic polyisocyanate.

Application

- Embedding and potting of transformers and electronics, especially of heat-sensitive electronic parts such as transistors, photo cells, etc.
- Voltacast 3110 contains non-abrasive fillers and is therefore especially suitable for sensitive mixing and dispensing equipment.

Standards

- Thermal class E - B (120-130)
- Flame retardant UL 94 V-2
- UL approved file no. E 72640
- Electrical Insulation Systems in acc. with UL 1446 (IEC 61858):

Class 130	R150HE Table II
	Z130HE Table II
Class 155	R201HE Table II

Delivery forms

Voltacast 3110 is supplied in non-returnable one-way containers of 20 kg and in 250 kg. Additionally 1000 kg containers (returnable) are available (not for oversea export).

Color

Grey

Storage

In closed original cans and at 25 °C storage temperature maximum the resin can be stored for 12 months. The hardener can be stored for 4 months under the same conditions. Both resin and hardener have to be protected against water and humidity and therefore must not be stored outside. Additionally the respective hardener must be stored and transported frost-protected (above 10 °C).

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Hardening

After curing of 48 hours at 20°C minimum the resin compound can be fully stressed (both mechanically and electro-technically).

Protection

Cured resin is biologically inactive and not dangerous to health. When processing the liquid components please refer to the respective Material Safety Data Sheets (MSDS's).

Processing

Due to the contents of fillers which will settle to the ground during a longer storage period Voltacast 3110 needs to be stirred up homogenously (without including foam) prior to use. In any case the resin shall rest for about 2 hours after stirring to allow degasing The time needed for degasing the resin may be shortened by storing the resin at approx. 60 °C or at a vacuum of approx. 20 mbar. Provided the mixture is consumed very soon, the hardener Voltacast H131 or Voltacast H132 may be added to the warm resin. Otherwise the resin has to cool down to room temperature again in order to avoid a significant shortening of the mixture's pot life.

Casting resin, hardener and mixtures made must be protected against humidity! The temperature in the working area must be above 18 °C!
The same way it is essential to dry the parts the casting resin shall be applied on. An example for best practice is to extract all humidity on and inside the parts used by drying them at approx. 50 °C for about 1 hour, as otherwise the resin may form gas bubbles while curing.
Hardener Voltacast H131 respectively Voltacast H132 shall be added to the casting resin in the mixing ratio stated above. The mixture has to be stirred homogenously and carefully without including foam. Voltacast 3110 and Voltacast H131 resp. Voltacast H132 can be applied on all common mixing and dispensing equipment with our without applying vacuum.
Pot life of Voltacst 3110 with Voltacast H131: approx. 40 min. at room temperature
Pot life of Voltacast 3110 with Voltacast H132: approx. 50 min. at room temperature

Cleaning

Once cured the resin compound is almost insoluble. Therefore, application equipment should be cleaned regularly with cleaner Voltatex® T050. All equipment cleaning and maintenance should be carried out in accordance with the equipment manufacturer's instructions.

Additional information

Safety-relevant information, transport regulations and labelling are subject to constant adaptation in accordance with legal regulations. They can be found in the EC safety data sheet.

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Mechanical	Unit of measure	Conditions	Values Voltacast H131	Values Voltacast H132	Test method
Shore-A-hardness		after 2 months	-	75 ± 10	acc. to DIN 53505
Shore-D-hardness		after 3 days	20 ± 5	-	acc. to DIN 53505
Shore-D-hardness		after 4 weeks	35 ± 5	-	acc. to DIN 53505
Shore-D-hardness		after 2 months	40 ± 10	-	acc. to DIN 53505
Water absorption	%	after 96h at 23°C	0.17 ± 0.02	-	IEC 60455-2; test method 1 acc. to ISO 62

Thermal	Unit of measure	Values	Test method
Temperature index	°C	120 -130	IEC 60216. 20000h-value. weight loss 5%-limit

Electrical	Unit of measure	Values with H131	Test method

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Electrical	Unit of measure	Values with H131	Test method
Creep resistance		CTI (175-275)M (0.15-0.25)	DIN IEC 112
Dielectric strength at 23 °C and 50 % r.h.	kV/mm	38-57	IEC 60455-2; test method acc. IEC 60243-1
Dielectric strength at 105 °C after 168 h oil immersion	kV/mm	55-73	IEC 60455-2; test method acc. IEC 60243-1
Dielectric constant at 23 °C between 50 Hz and 1 MHz		4.4 - 5.4	acc. DIN 53483
Loss factor cross section 0.2=200x10^-3	°C	120 - 130	acc. DIN 53483
Loss factor at 23 °C from 50 Hz and 1 MHz		0.04 - 0.05	acc. DIN 53483
Dielectric strength at 23 °C after 96 h storage at 90 % r.h.	kV/mm	15-24	IEC 60455-2; test method acc. IEC 60243-1

Liquid phase	Unit of measure	Values Voltacast 3110	Values with H131	Values with H132	Test method
Curing time	min	24 h at RT + 5 h at 80°C			
Impact on enamelled wires		compatible with all common enamelled wires			
Mixing ratio	Gew-%		100 : 30	100 : 30	

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Liquid phase	Unit of measure	Values Voltacast 3110	Values with H131	Values with H132	Test method
Viscosity resin + hardener	mPas	1500 ± 350	1050 ± 350	500 ± 50	DIN 53019 at 25 °C
Pot-Life	min		40 ± 15	50 ± 15	(100g-test) at 20-23 °C
Specific density	g/cm³	1.24 ± 0.03	1.23 ± 0.03	1.23 ± 0.03	

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