SynFlex Elektro GmbH
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Voltacast 3100 Polyurethane casting resin

Voltacast 3100 is a pigmented, filled and cold-curing two-component polyurethane casting resin with low temperature development while curing.

Attributes

- non-abrasive
- elastic
- low water absorption
- resistant to transformer oil and organic solvents and gases such as benzines and carbon hybrides
- good adhesion on most metals and plastics except on anodized, smooth surfaces especially on light metals

Application

Voltacast 3100 is used for embedding and sealing transformers, components and assemblies which are to be UL listed, in particular heat-sensitive electronic components, such as transistors and photo cells. Voltacast 3100 contains non-abrasive fillers and is therefore especially suitable for sensitive mixing and dispensing equipment. In order to achieve special customer requirements in the end product extra fillers ance be added to the casting resin upon customers' wishes.

Standards

- Class E - B (120 - 130 °C)

Class 130	R150HE Table II
	R201HE Table II
	Z130HE Table II

Delivery forms

The resin is delivered in 5 and 20 kg disposable containers.

Storage

The resin can be stored for 12 months and the hardener for 4 months at max. 25 °C if sealed correctly in original containers.
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 (about 10 °C).

Hardening

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

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Protection

Cured Voltacast 3100 is biologically inactive and not dangerous to health. When processing the liquid components please refer to the respective Material Safety Data Sheets and the regulations of your local authority. Safety-relevant information, transport regulations and labeling are subject to constant adaptation in accordance with legal regulations. They can be found in the EC safety data sheet.

Processing

Due to the contents of fillers which will settle to the ground during a longer storage period, Voltacast 3100 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 e shortened by storing the resin at appr. 60 °C or at a vaccum of appr. 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 must be protected against humidity!

The temperature in the working area must exceed 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 appr. 50 °C for about 1 h, as otherwise the resin may form gas bubbles while curing.

Hardener Voltacast H131, respectively Voltacast H132 shall be added to the castin resin in the mixing ratio stated above. The mixture has to be stirred homogenously and carefully without including bubbles.

In case of fillers to be added to the casting resin the chosen materials need to be absolutely dry. These fillers need to be mixed homogenously into the casting resin before adding the hardener. Again, we recommend following our degasing procedure as described above.

Voltacast 3100 and Voltacast H131 and resp. H132 can be applied on all common mixing and dispensing equipment with ot without applying vacuum.

Cleaning

As the cured resin is practically insoluble, installations and tools must be cleaned promptly with Voltatex® T050 cleaner.

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Mechanical	Conditions	Values Hardener H131	Values Hardener H132	Test method
Shore-D-hardness	after 3 days	10 ± 5	8 ± 3	acc. DIN 53505
Shore-D-hardness	after 4 weeks	20 ± 5	acc. DIN 53505	
Shore-D-hardness	after 2 months	40 ± 10	-	acc. DIN 53505

Thermal	Unit of measure	Value	Test method
Thermal class	°C	120-130	

Electrical	Unit of measure	Voltacast 3100 with hardener H131	Voltacast 3100 with hardener H132	Test method
Dielectric strength at 23 °C and 50 % r.h.	kV/mm	49-64	-	IEC 60455-2; test method acc. IEC 60243-1
Dielectric strength at 23 °C after 96 h storage at 92 % r.h.	kV/mm	16-25	-	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

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Electrical	Unit of measure	Voltacast 3100 with hardener H131	Voltacast 3100 with hardener H132	Test method
Specific volume resistance at 23 °C	Ω*cm	10^15 - 10^17	10^15 - 10^17	acc. IEC 60455-2;test method acc. IEC 60093
Specific volume resistance at 130 °C	Ω*cm	10^8 - 10^10	10^8 - 10^10	acc. IEC 60455-2; test method acc. IEC 60093
Dielectric constant at 23 °C between 50 Hz and 1 MHz		4.5 - 6.0	-	acc. DIN 53483
Loss factor at 23 °C from 50 Hz and 1 MHz		≤100x10^-3	-	acc. DIN 53483
Loss factor cross section 0.2=200x10^-3	°C	120-140	-	acc. DIN 53483

Liquid phase	Unit of measure	Voltacast 3100 with hardener H131	Voltacast 3100 with hardener H132	Test method
Mixing ratio	Gew-%	100 : 30	100:30	
Viscosity resin + hardener	mPas	1000 ± 350	650 ± 100	acc. DIN 53019 at 25 °C
Curing time	min	48 h - RT	48 h - RT	
Impact on enamelled wires		compatible to all common enamelled wires	compatible to all common enamelled wires	
Mixture density	g/cm³	1.25 ± 0.03	1.23 ± 0.03	acc. DIN 53217 T.5. at 20 °C

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Liquid phase	Unit of measure	Voltacast 3100 with hardener H131	Voltacast 3100 with hardener H132	Test method
Volume shrinkage	%	4.85 ± 0.2	4.85 ± 0.2	after 24 h/RT and 5 h/80 °C
Pot-Life	min	40 ± 10	45 ± 15	(100g-test) at 20-23 °C

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