

VUKOL N62 *UL* cetrification



VUKUR POTTING MATERIALS

Characteristics

VUKOL N62 is the resin part of a two component polyurethane system, with low initial viscosity of the resin-hardener mixture, and high hardness after curing. It is liquid of white color, containing inorganic fillers, free of solvents (VOC content < 1 %) or halogenated compounds. The curing takes place at room temperature; alternatively, the process can be accelerated in an oven (2 h at 80 °C, then 1 day at r.t.). Full hardening is reached after approx. 2 weeks at r.t. After curing, a hard material results, with considerable adhesion to common metals (steel, aluminium, copper, stainless or galvanized steel, etc.), with good thermal conductivity and V2 class of flame retardancy (UL 94 certified).

Field of application

This product is generally suitable for potting/encapsulating of electrical equipment. It is characterized by good electrical insulating properties, low internal stress, and mechanical robustness. It is applicable to a wide range of applications, e.g. potting of transformers, distribution boxes, electronics, as well as outside electrical engineering. The low initial viscosity of the resin-hardener mixture makes it possible to fill even narrow gaps or cavities. Due to the low abrasiveness, the material is suitable for use in continuous mixing and potting devices. The curing is accompanied with a moderate heat evolution; volume shrinkage is negligible.

Processing

- VUKIT LV is used as the default hardener. Optionally, VUKIT M can be used instead, with the same mixing ratio.
- During mixing, the temperature of the components should be between 15 – 25 °C. At higher temperature, the hardening takes place more rapidly, thus shortening the pot life of the mixture.
- Moisture must be strictly avoided during all steps of work-up, until the resin is hardened. All workpieces and processing tools must be dry before use, possibly stored at ambient temperature, to avoid condensation of air moisture on cold surfaces.
- During storage, slight sedimentation of the fillers in the resin can occur, so VUKOL N62 should always be stirred up thoroughly before mixing with the hardener.
- The mixing ratio of polyol component VUKOL N62 and hardener is 100 : 29 (weight mixing ratio).

For manual work-up:

- The amount of resin-hardener mixture prepared at once should be adjusted to the number of the workpieces, as they should be casted/potted within the pot life. As soon as the viscosity of the mixture reaches double to triple of the initial value, it should not be used any more.
- For cleaning of the tools, it is recommended to use VUKI thinner T5.

In case of automatic application:

- According to the device manufacturer/supplier specific instructions.

Detailed instructions for manual processing are available in the document: "VUKOL N – Processing Instructions for PUR compounds.pdf". They are available on the VUKI website within the "Downloads" section.

CAUTION: In case of humidity higher than 55 %, bubbles may arise in castings, therefore application in such conditions is not recommended.

Labor safety and environmental information is detailed in the „Safety data sheets“ of the product. Follow the safety instructions in the Safety Data Sheet during all the works.

Hardening

Hardening conditions:

- conventional hardening: 24 hours at 23 °C, rel. air humidity: < 55 % (recommended)
- oven hardening: 2 hours at 80 °C
- full hardening: 2 weeks at 23 °C



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Properties of components

Parameter	Standard	Condition	VUKOL N62	VUKIT M or VUKIT LV	Unit	Description
Appearance	HZS 003		moderately viscous liquid	brown liquid		VUKOL N62 natural VUKOL N62 black VUKOL N62 gray
Density	STN EN ISO 2811-1	25 °C	1,42 – 1,48	1,20 – 1,24	g/cm ³	= kg/l
Viscosity	STN 67 3014	25 °C	3 500 – 5 500	VUKIT M: 70 – 250 VUKIT LV: 20 – 40	mPa.s	
Non-volatile content			> 99	> 99	%	
Flash point	STN EN ISO 2592		> 220	> 200	°C	
Shelf life		15 – 25 °C	12	12	months	

Mixing ratio	Weight mixing ratio
VUKOL N62 : VUKIT M (or VUKIT LV)	100 : 29

Properties of mixture

Parameter	Standard	Condition	VUKOL N62 + hardener	Unit	Description
Final color		VUKOL N62 natural VUKOL N62 black VUKOL N62 gray	yellowish white black grey		other colors possible on request
Initial viscosity of mixture	STN 67 3014	25 °C	300 – 600 (VUKIT LV) 1 400 – 2 000 (VUKIT M)	mPa.s	
Processing time: Time till 3000 mPa.s	STN 67 3014	23 °C	10 – 20 (VUKIT M or VUKIT LV)	min	100 g
Hardening time		23 °C	24	hours	humidity: max. 45 – 55 %
Full hardening time		23 °C	14	days	



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Parameters of the hardened material (after 7 days at 23 °C)

Parameter	Standard	Condition	Value	Unit	Description
Tensile strength	STN EN ISO 527-2		> 12	MPa	4 mm
Hardness	STN EN ISO 868	Shore D	60 (VUKIT LV) 70 (VUKIT M)		after 14 days at 23 °C
Dielectric strength	STN EN 60243-1	23 °C	23	kV/mm	2 mm thickness sample
Volume resistivity	STN EN 62631-3-1	23 °C after 24 hours in water	$3,8 \cdot 10^{12}$ $\cdot 10^{11}$	$\Omega \cdot \text{cm}$	
Surface resistivity	STN EN 62631-3-2	23 °C after 24 hours in water	$2,1 \cdot 10^{15}$ $\cdot 10^{14}$	Ω	
Thermal index	STN IEC 60216		B (130°C)		
Thermal conductivity	STN EN ISO 10456		0,52	W/(m.K)	2 cm
Water absorption	ISO 62	25 °C, 24 hours	max 0,25	%	
Combustibility class	UL 94	UL certified laboratory	V2		4 mm
tg δ	STN EN 60455-2		0,067		
Permittivity	STN EN 60455-2		4,6		
Tg	STN EN ISO 11357-2		33,6	°C	VUKIT LV

Certification

- flammability according to UL 94, testing laboratory: Underwriters Laboratories US

Packing, storing and manipulation

VUKOL N62 and VUKIT M or VUKIT LV are supplied in non-returnable, clean, metal containers. Should be stored in tightly closed containers in a dry, ventilated place at + 5 ° C to + 25 ° C. When the storage conditions are met, the quality of the unhardened resin is guaranteed 12 months from the date of manufacture.

CAUTION: Prevent the infiltration of moisture or air humidity into the material, it causes degradation!

Alternative version – on request

It is possible to deliver versions **with accelerated curing**, according to customer requirements. The basic versions are of natural (pale yellow) or black color. Other colors are available on request.



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NOTE

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<http://www.vuki.sk/en/impregnating-substances-and-potting-materials>

Version

2023-03-02

