



Characteristics

VUKOL N34 is the resin part of a two component polyurethane system (resin + hardener) for potting or casting. It is white viscous liquid. Non-abrasive fillers allow work-up with a continuous mixing device. The resin contains inorganic fillers and fire retardants, it is free of solvents (VOC < 1%). The system hardens at room temperature. Alternatively, curing can be accelerated in an oven (80 °C, 2 h). Final properties are achieved only after hardening (14 days at r.t.). The cured material is a medium-hard but still flexible type of polyurethane. It is designed for a wide range of applications, especially where good thermal conductivity and high fire protection are required.

Some important properties:

- **fire retardant V0**
- thermal-class B
- excellent dielectric properties
- mechanically robust, with high tensile strength
- very good thermal-shock resistance
- high thermal conductivity
- resistant to salt water, oil and chemicals
- bubble free castings
- suitable for both manual casting and using automatic mixer and feeder
- solvent and halogen free system

Field of application

VUKOL N34 is due to ductility designed for casting materials with different coefficients of thermal expansion. It has a very low internal stress. It is suitable for encapsulating or encapsulating electrical equipment, such as transformers, capacitors, coils, electrical circuits, etc. It provides the possibility of use for a wide range of applications, especially when requiring improved heat dissipation or fire resistance. It is characterized by increased mechanical strength and toughness, compared to similar types of polyurethanes.

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 N34 should always be stirred up thoroughly before mixing with the hardener.
- The mixing ratio of polyol component VUKOL N34 and hardener is 100 : 21 (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: 16 – 24 hours at 23 °C; humidity max. 55 %
- Oven hardening: 2 hours at 80 °C
- full hardening: min. 14 days at 23 °C

Properties of components

Parameter	Standard	Condition	VUKOL N34	VUKIT LV (VUKIT M)	Unit	Description
Appearance	HZS 003		white viscous liquid	brown liquid		VUKOL N34 natural VUKOL N34 black
Density	STN EN ISO 2811-1	25 °C	1,50 – 1,55	1,20 – 1,24	g/cm ³	
Viscosity	STN 67 3014	25 °C	7 000 – 9 500	20 – 40 (VUKIT LV) 70 – 250 (VUKIT M)	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 N34 : VUKIT LV (VUKIT M)	100 : 21

Properties of mixture

Parameter	Standard	Condition	VUKOL N34 + hardener	Unit	Description
Final color		VUKOL N34 natural VUKOL N34 black VUKOL N34 RAL 3013	yellowish white black red		other colors possible on request
Initial viscosity of mixture	STN 67 3014	25 °C	800 – 1 200 (VUKIT LV) 2 000 – 3 000 (VUKIT M)	mPa.s	
Processing time Time till reaching 3 000 mPa.s	STN 67 3014	23 °C	15 – 25 (VUKIT LV) 8 – 15 (VUKIT M)	min	100 g
Hardening time		23 °C	16 – 24	hours	humidity: max. 45 – 55 %
Full hardening time		23 °C	14	days	



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

Parameter	Standard	Condition	Value	Unit	Description
Elongation at break	STN EN ISO 527-2		31	%	VUKIT LV
Tensile strength	STN EN ISO 527-2		11,4	MPa	VUKIT LV
Hardness	STN EN ISO 868	Shore D	40 – 45 (VUKIT LV) aprox. 50 (VUKIT M)		after 14 days at 23 °C
Dielectric strength	STN EN 60243-1	23 °C	24	kV/mm	2 mm thickness sample
Volume resistivity	STN EN 62631-3-1	23 °C	2,4.10 ¹²	Ω.cm	
Surface resistivity	STN EN 62631-3-2	23 °C	5,5.10 ¹⁴	Ω	
Thermal index	STN IEC 60 216		B (130°C)		
Thermal conductivity	STN EN ISO 10456		0,6	W/(m.K)	2 cm
Water absorption	ISO 62	25 °C, 24 hours	max. 0,2	%	
Chemical resistance			Oil products aviation gasoline, de-icing agents, sea water		
Combustibility class	UL 94		V0		4 mm

Packing, storing and manipulation

VUKOL N34 and VUKIT LV (VUKIT M) 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 – on request

As standard, the material is delivered in a natural color - after hardening approx. RAL 1002. On request, it is possible to deliver in a **black version**, or by agreement.

It is possible to deliver versions with **accelerated curing**, according to customer requirements.

NOTE

The information in this document is consistent with our best knowledge of the date of publication. This information can be a subject of revision without prior notice if new knowledge and experience are available. The data provided falls within the normal range of product properties and relates only to the specified material. These data may not apply to materials used in combination with other materials or ingredients or other processes, unless expressly stated otherwise. The data provided should not be used to set limits or used separately as





VUKUR POTTING MATERIALS

a basis for the sample: they are not intended to compensate for any testing that may be necessary to make a decision as to whether the specific material is suitable for your particular purpose. Because VUKI cannot predict all variants of end-use product conditions, VUKI does not provide guarantees and has no responsibility with respect to any use of this information. Nothing in this publication is considered to be a use or recommendation to violate any patent rights.

Contact

VUKI a.s., Rybníčná 38, 831 07 Bratislava 06

Customer service: tel.: +421 906 063 231, +421 906 063 107

e-mail: info@vuki.sk

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

Version

2023-03-02