



Product trade name: **PUK 3D Insulation and Roofing Membrane Adhesive**

**Technical Information:**

Material base:	Isocyanate prepolymer
Component:	1-component
Colour:	Yellow
Odour:	Weak inherent smell, mouldy
Consistency:	Foamy
Processing temperature:	+ 5° C to + 35° C (air-, surface- and material temperature)
Ideal temperature of adhesive:	+ 18° C to + 25° C (air-, surface- and material temperature)
Cleaning detergent:	Acetone/PU-Cleaner
Consumption for flat and closed-cell surfaces:	According to table 1
Diameter of adhesive section (without surface load):	Approx. 30 mm
Curing:	Within 1 to 2 h at + 20° C (depending on temperature and humidity)
Temperature resistance (cured):	- 40° C to + 100° C

Information for safe handling:	<ul style="list-style-type: none"> <li>- Should not get into the hands of children.</li> <li>- Do not inhale the dust.</li> <li>- Avoid skin contact.</li> <li>- In case of eye contact, rinse immediately with plenty of water and seek medical advice.</li> <li>- Do not discharge into the sewerage.</li> <li>- Wear appropriate protective gloves and eye protection.</li> <li>- Immediately consult the doctor after an accident or when feeling unwell.</li> <li>- Keep away from any sources of ignition – no smoking allowed.</li> <li>- As of 24.08.2023, it is mandatory to receive appropriate training prior to use!</li> </ul>
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Risks and dangers:	<ul style="list-style-type: none"> <li>- Easily flammable.</li> <li>- Harmful if inhaled.</li> <li>- Irritates eyes, respiratory organs and skin.</li> <li>- Suspected to cause cancer.</li> </ul>
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	<ul style="list-style-type: none"> <li>– Possible sensitisation through inhalation and skin contact.</li> <li>– Harmful: Danger of serious health impacts after prolonged exposure through inhalation.</li> </ul>
Storage:	<p><b>PUK 3D Roof Insulation Adhesive</b> has to be stored free of frost in a cool and dry place. The adhesive has a shelf life of at least 12 months. Protect the cans from direct sunlight and temperatures above 50° C.</p>
Form of delivery:	<p>12 non-returnable cans in each carton Capacity of each can: 750 ml</p>
Safety data sheet:	<p>Supplementary safety data sheet upon request.</p>

**Customer Information:**

Properties:

**PUK 3D** is a moisture-curing 1-component polyurethane adhesive foam in a can. It contains an environmentally friendly propellant gas that meets the requirements of the latest EU regulations, under which all propellants containing CFCs and HCFCs are prohibited

Purpose:

**PUK 3D** is suitable for the permanent adhesion of insulation materials on e.g. reinforced concrete, foamed concrete, gas concrete, masonry, fibre-cement, PVC-coated steel trapezoidal sheeting as well as applicable roofing membranes.

**PUK 3D** bonds all common insulation materials e.g. polystyrene rigid foam, rigid urethane foam, polyisocyanurate rigid foam, phenolic foam, suitable mineral fiber to a suitable vapor barrier and to each other (as far as permitted by the manufactures guidelines).

For all the insulation materials that have not been mentioned above, it is necessary to carry out preliminary adhesion tests according to the manufacturers' instructions.

**PUK 3D** is suitable for adhesion of system-compatible fleece-covered synthetic roofing and sealing membranes (e.g. Sintofoil RG FR FB, TP FOL V (FR) or LOGICROOG V-GR FB), as well as fleece-covered or mineral-sprinkled polymer bitumen membranes (e.g. SK-Bit® + PUK underlayer membrane, SK-Bit® 1 Plus or ELMO-Flex 4K) on applicable surfaces.

Application:

The surface to be bonded needs to be sustainable, clean, solid, flat, free of bubbles and free of any loose or separating layers and substances (e.g. oil, grease). Puddles or standing water need to dry before application. Sintered layers and cement slurries on mineral based surfaces (e.g. concrete) or loose mineral granules (e.g. bitumen membranes or gravel beds) need to be mechanically removed.

The maximum application temperature should be between + 5° C and + 35° C (air, material and surface temperature). The ideal application temperature is + 18° C to + 25° C.

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Reserving changes. The indicated technical values refer to the date of production.



**PUK 3D** needs to be applied in even strands onto the surface. Put the insulation material onto the fresh adhesive strands immediately and press them down firmly. Should the adhesive carry on to foam the insulation layer needs to be pressed on again. Roofing membranes must be rolled into the fresh adhesive immediately after adhesive application and applied over the entire surface (e.g. with a broom). Only add as much adhesive to the surface as it is possible to cover with the insulation material respectively the roofing membranes within a short time. **PUK 3D** needs to be applied at the same speed as the insulation material respectively the roofing membranes. Adhesive strands that have already reacted (skin formation) are not able to adhere sufficiently. Very rough surfaces may require a surface load for the adhesive to react or harden. Full-surface bonding is not permitted.

A recommendation for the amount of adhesive and the distance between the adhesive strands depends on the points listed in table 1 below. An uncovered fresh adhesive strand diameter should be at least 30mm. The consummated amount of adhesive on very uneven and/or porous surfaces (e.g. pressed gravel roof) needs to be tested and determined depending on its purpose. The loading assumption for the wind load according to DIN EN 1991-1-4/NA:2010-12 has to be taken into consideration.

Steep roofs (over 3° incline) need to be anchored at the lowest point in order to support the insulating material until the adhesive has hardened.

Curing time of the adhesive depends on temperature and humidity. Curing will take between 1 and 2 hours. In low relative humidity and higher temperatures the insulation material will need to be slightly moistened with water before applying the adhesive (avoid the formation of puddles!).

The adhesive needs to be warmed up to approx. + 20° C in low outside temperatures (water bath of no more than + 30° C). Do not heat with an open flame!

Temperatures below + 5° C, rain, snow and ice as well as windy conditions and frost can have an impact on the adherence. Apart from this, the recommended application temperatures for the work on flat roofs apply as defined by the Zentralverband des Dachdeckerhandwerks.

When cured the adhesive film is neither thermoplastic nor brittle or water and solvent sensitive.

Shake the **PUK 3D** can vigorously 20 times before use and then screw the PU spray gun completely onto the can and unscrew the set screw on the back of the spray gun immediately before application. The remaining adhesive in the PU spray gun must be spread and disposed of before starting the actual installation.

An emptied **PUK 3D**-can needs to be screwed off the PU spray gun immediately and replaced by a new one. Never remove the can from the spray gun by force. When the work is interrupted for a short time the PU spray gun needs to be closed using the rotary valve. Immediately remove fresh adhesive build-up from the PU spray gun using a suitable PU-cleaner.

The PU spray gun needs to be rinsed through with the PU-cleaner during longer periods of non-usage. This can be done by screwing the PU-cleaner onto the spray gun and slowly pulling the trigger until the cleaner comes out of the spray gun nozzle. Leave the cleaner to work for about 2 minutes in the spray gun and then press the trigger again until clear PU-cleaner comes out.

Advise: The product is only suitable for the professional use and not for supply to private consumers. As of 24.08.2023, it is mandatory to take a professional training course prior to the industrial or professional use!



Table 1: PUK 3D-Usage for EPS and suitable PUR/PIR insulation boards

Height of the roof area in m	Inner area*	Inside edge area*	Outside edge area*	Corner area*
	Adhesive strands**/m	Adhesive strands**/m	Adhesive strands**/m	Adhesive strands**/m
Wind zone 1, all terrain categories				
up to 20 m	3	3	4	5
over 20 m	Individual calculation	Individual calculation	Individual calculation	Individual calculation
Wind zone 2, terrain categories 2 to 4				
up to 12 m	3	3	4	5
over 12 to 20 m	3	3	5	6
over 20 m	Individual calculation	Individual calculation	Individual calculation	Individual calculation
Wind zone 3, terrain categories 2 to 4				
up to 12 m	3	3	5	6
over 12 to 20 m	3	4	6	7
over 20 m	Individual calculation	Individual calculation	Individual calculation	Individual calculation
<p>* The even distribution of the roof surface is carried out on the basis of the Fachregel für Abdichtungen des ZVDH and DIN EN 1991-1-4/NA:2010-12.</p> <p>** The adhesive strand diameter is at least 30 mm (without surface load). For the bonding of suitable mineral fibre insulation boards with a tensile strength (tensile strength perpendicular to the plane of the board) of at least 15 kPa on a suitable surface, the number of adhesive strands/m needs to be increased by 1 strand. For the adhesion of mineral fibre insulation boards with each other on any part of the roof the adhesive strands/m need to be increased by 2. In order to determine the number of adhesive strips/m in wind zone 3, an object-specific individual verification is required.</p> <p>For buildings with internal pressure, buildings in wind zone 4 or terrain category 1 in wind zones 2 and 3 it is always necessary to do an object-specific individual calculation in compliance with DIN EN 1991-1-4/NA:2010-12.</p>				

Amount of adhesion strands per m <sup>2</sup>	Adhesion coverage for each 750 ml tin
3	approx. 13.0 m <sup>2</sup>
4	approx. 9.5 m <sup>2</sup>
5	approx. 7.5 m <sup>2</sup>
6	approx. 6.5 m <sup>2</sup>
7	approx. 5.5 m <sup>2</sup>

This is based on the following:

- approx. 19 g /running meter of adhesive strand PUK-3D with strands of Ø 30 mm (unloaded)
- 750 g / tin net weight content