Technical data for VANDEX PUMACRYL membranes

Physical properties	Test method	Test institute	Result
ADHESION TO CONCRETE	N FP 98 282	CETE, France	3.4 MPa (rupture in concrete)
ADHESION TO STEEL (WITH PRIMER CM)		(internal)	4.0 MPa
DYNAMIC IMPACT RESISTANCE, RAILWAY GRAVEL	SNCF method	SNCF, France	> 2 x 10^6 loading cycles
IMPACT BEHAVIOUR (SUBSTRATE: STEEL)	TR-006 ETAG-005	MPA Dortmund, Germany	I 4 highest level
NEGATIVE WATER PRESSURE		Taylor Woodrow	2.5 bar
REBOUND ELASTICITY	DIN 53512	Polymer Institute, Germany	23.3%
SHORE-D-HARDNESS	DIN 53505	(internally)	55
CRACK-BRIDGING CAPACITY (STATIC)	BPG for WHG coatings	Techn. University Munich, Germany	At 23 °C: 8.0 mm At 0 °C: 6.5 mm At –20 °C: 8.8 mm
VAPOUR DIFFUSION	NF EN 1931/B	Bureau Veritas, France	Sd = 10.1 m
WATER ABSORPTION COEFFICIENT	DIN EN 1062-3	Polymer Institute, Germany	ω_{24} = 0.03 Class 3: < 0.1 = low
SHEAR RESISTANCE – ASPHALT	VTT 2647	VTT, Finland	0.72 N/mm^2 required: ≥ 0.15 N/mm^2
– ASPHALTIC CONCRETE	RVS 15.03.13	TVFA TU, Graz	«Requirements ≥ 0.15 N/mm^2 widely exceeded»

Tensile values according to DIN ISO 527

	Ambient temperature	At –10°C	At –20°C
TENSILE STRENGTH [MPa]	8.4	14.7	17.9
ELONGATION AT RUPTURE [%]	370	206	129
Modulus of elasticity [MPa]	78	442	653
TESTED BY	(internally)	MPA, Dortmund	MPA, Dortmund

Vandex®
CONCRETE PROTECTION AND WATERPROOFING

An RPM Company

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VXIBPUMACRYLE0408

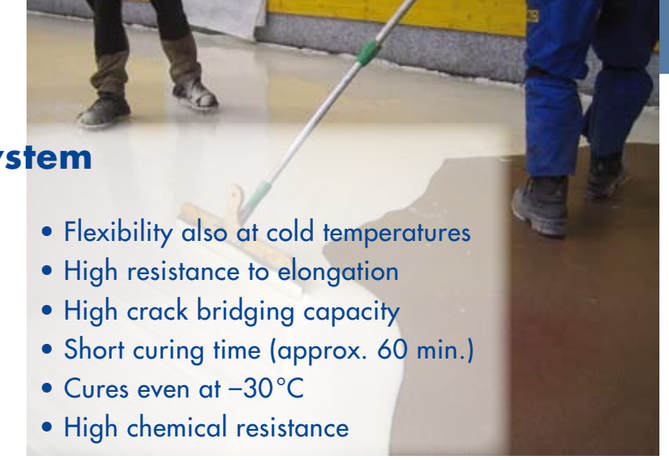
PUMA Waterproofing Technology

Vandex® PUMACRYL

- *Tunnels*
- *Car park decks*
- *Civil engineering*
- *Balconies / terraces*

PUMA Technology
Liquid Resin Waterproofing System

PUMA is a hybrid of elastomeric polyurethane and reactive methylmethacrylate. The waterproofing system merges the characteristic positive properties of PU and MA:



- Flexibility also at cold temperatures
- High resistance to elongation
- High crack bridging capacity
- Short curing time (approx. 60 min.)
- Cures even at –30 °C
- High chemical resistance

PUMACRYL offers the following advantages to clients, engineers and applicators:

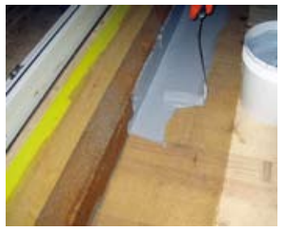
- High resistance to elongation and reliable crack bridging capacity down to –30 °C
- Firm, complete and seamless bonding to the substrate
- Excellent adhesion on almost all substrates like concrete, metal, timber, bitumen etc.
- Easy waterproofing of construction elements, complicated details and junctions
- 2 versions avaliable: for manual or for two-component spray equipment application
- root resistant
- alkali and acid resistant
- Easy to repair and overcoat: The freshly applied layer combines with the old layer and bonds firmly and homogeneously.
- High resistance to mechanical load, e.g. abrasion
- High tolerance to humidity:
  - Application possible on slightly damp concrete surface
  - Residual moisture CM ≤ 6 %
  - Air humidity not relevant
- Application at cold temperatures possible
- Sprayable version can be applied down to –15 °C
- All components need a curing time of approx. 60 min. and can be overcoated after approx. 60 min.
- Resistant to rain after approx. 30 min.

CIVIL ENGINEERING

TERRACES / BALCONIES

VANDEX PUMACRYL –
the waterproofing system of the future

The high performance waterproofing system VANDEX PUMACRYL offers extraordinary advantages in the application. Clients, engineers and applicators benefit from its various positive properties which enable them to realize economical and efficient waterproofing solutions.

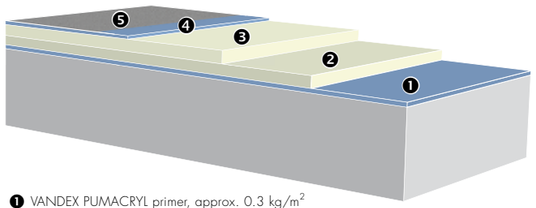


JOINTS
MATERIAL PASSAGES

INFRASTRUCTURE

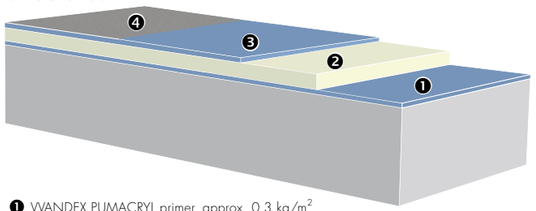
System build-up (examples)

System sequences for waterproofing under asphalt



❶ VANDEX PUMACRYL primer, approx. 0.3 kg/m²
❷ VANDEX PUMACRYL membrane, first layer, approx. 2.5 kg/m²
❸ VANDEX PUMACRYL membrane, second layer, approx. 2.5 kg/m²
❹ VANDEX PUMACRYL sealer, optional, approx. 0.5 kg/m²
❺ Quartz sand 1–3 mm, approx. 1.0–2.0 kg/m²

System sequences for waterproofing below ground structures



❶ VVANDEX PUMACRYL primer, approx. 0.3 kg/m²
❷ VANDEX PUMACRYL membrane, approx. 2.5 kg/m²
❸ VANDEX PUMACRYL sealer, optional, approx. 0.5 kg/m²
❹ Quartz sand 1–3 mm, approx. 1.0–2.0 kg/m²

DECKS / TERRACES