

VELOSIT® PU 456

Single component,
Coal-Tar Free,
VOC, Quick-Drying
Bitumen-Modified Polyurethane
Fluid Applied,
Liquid Membrane



Application fields

VELOSIT PU 456 is a coal-tar free, quick-drying, high-solids, fluid-applied liquid membrane based on polyurethane and bituminous resins. VELOSIT PU 456 is easily applied by brush, roller, trowel or spray to form a root-resistant, seamless and monolithic waterproof membrane over concrete, cementitious screeds, and metal surfaces. VELOSIT PU 456 is VOC-compliant.

Once cured, VELOSIT PU 456 creates an elastomeric yet resilient, long lasting coat capable of accommodating underlying substrate movements. Typical application fields include protection and waterproofing of:

- Flat slabs, green roofs, flower pots
- Below tiles in balconies, bathrooms, kitchens and toilets
- Basements and foundations
- Flat roofs under thermal insulation foam/boards
- Tunnels, highway underpasses & bridge decks

Properties

VELOSIT PU 456 is designed to comply with the requirements of EN 1504-2 for coatings (C) and can be used according to the principles 3.1 and 3.3 acc. to EN 1504-9 (coating for surface protection of concrete). VELOSIT PU 456 is also designed to resist root penetration.

VELOSIT PU 456 offers the following advantages:

- Excellent adhesion to most substrates
- Easily applied by brush, roller, trowel or spray
- Quick-drying: tack free in 1/2 to 2 1/2 hours
- Recoatable in 2 to 24 hours
- Accommodates irregular surfaces (can be applied in thick layers)
- Excellent elongation & crack bridging; 1200%
- Excellent mechanical and chemical resistance
- Good abrasion and tear resistance
- Can be used for sealing cracks after chasing out
- Easy spot repairs possible long after application
- Does not soften at elevated temperatures (up to 80°C) & withstands thermal shocks up to +140°C

- Remains elastic even at sub-zero temperatures (down to -40°C)

Application

1.) Surface preparation

Substrates must have an open pore surface of sound load-bearing capacity and free from cracks, dust, paint, oil or any adhesion inhibiting substances with a minimum compressive strength of 15 MPa and residual moisture below 4%. Always observe that the RH does not exceed 85% in the first 6 hours of application.

2.) Priming and levelling

Priming

When necessary or when humidity levels exceed 4%, primers such as VELOSIT PU 412 or VELOSIT PR 303 may be used on absorbent substrates such as concrete or cementitious screeds.

For metal surfaces, ensure all surfaces are thoroughly cleaned and all traces of rust, scale, grease or any adhesion-impairing substances are removed using wire brushes, grinders or grit-blasting. Use a zinc-rich epoxy primer (to prevent future corrosion) and then apply VELOSIT PU 456 within the open time.

Levelling of undulations

VELOSIT PU 456 can be applied on irregular surfaces as it is possible to apply in thick layers. To reduce VELOSIT PU 456 consumption use VELOSIT WP 100 or VELOSIT WP 101 to level off undulations. Allow a waiting time of 8/14 hours @ 25°C from application of VELOSIT WP 100/101 before applying VELOSIT PU 456.

3.) Processing

Gently stir VELOSIT PU 456 using a slow speed drill attached with an appropriate mixing paddle for one minute (to counter any separation that may have

occurred during shipping or due to lengthy storage). AVOID AIR ENTRAPMENT & EXCESSIVE STIRRING. Apply in 2 to 3 perpendicular layers at a maximum rate of 1.4 -1.7 kg/m² total with a waiting time of 2 to 24 hours between each layer.

Cracks

Cracks smaller than 1 mm should be chased out to a width and a depth of 5mm & fill with VELOSIT PU 456. Allow to cure for at least 1 & 1/2 hours prior to application of VELOSIT PU 456 liquid membrane.

Brush/roller

Use a soft bristle brush or short nap roller and work in two perpendicular coats observing a 2 to 24 hour waiting interval between coats.

Trowel

Use an appropriate notched trowel to spread the liquid membrane and smooth off after 5 minutes to help release any air entrapped.

Airless spray

To adjust the viscosity for spray, it may be necessary to dilute VELOSIT PU 456 with up to 3% Xylene.

Sand broadcast for subsequent tiling

It is necessary to broadcast clean, dry coarse sand (0.3 mm to 0.8 mm at a rate of 3.0kg/m²) "to-rejection" onto the freshly applied (still tacky) VELOSIT PU 456 to create a mechanical key for subsequent tiling. Prior to tiling (after min. 24 hours), remove excess sand with an industrial vacuum cleaner.

4.) Protection

Protect VELOSIT PU 456 from rain/water for at least 10 hours after application.

5.) Curing

No curing is required. VELOSIT PU 456 is fully cured within 3 days @ 25°C.

Estimating

Consumption depends on surface roughness and absorptivity and will range from 1.4 kg/m² to 1.7 kg/m².

A 23 kg pack of VELOSIT PU 456 will typically cover between 13.5 m² to 16.5 m² depending on surface roughness and required dry film thickness/number of coats.

Cleaning

Fresh VELOSIT PU 456 may be removed with Xylene. Once cured, VELOSIT PU 456 can only be removed mechanically.

Quality features

Typical properties of VELOSIT PU 456 @ 25°C:

Color:	Black
Density:	1.28 kg/lit (+/- 0.02)
Viscosity (Brookfield - ASTM D2196-86):	9100 cP (+/- 500)
Maximum Elongation (DIN 53504):	1200% (+/- 5)
Tensile strength (DIN 53504):	310 N/mm ²
Shore A hardness (DIN 53505):	30 (+/- 1)
Tear resistance:	10 N/mm
Capillary water absorption (10 days):	< 0.1kg/m ² x h ^{0.5}
Water Vapor permeability:	Class I (permeable)
Permeability to CO ₂ (ASTM E96):	Sd > 50 m
Adhesion to concrete (EN 1542):	2.4 N/mm ²
Crack bridging @ 1.4 mm thickness:	3.3 mm @ -30°C
Tack-free:	1½ hrs to 2 ½ hrs
Re-coat open time:	2 to 24 hours
Light foot traffic:	12 hours
Full cure:	3 days
Service temperature:	-40°C to +80°C
Intermittent temperatures:	250°C
Reaction to fire (EN 13501-1):	Euroclass F

Packaging

VELOSIT PU 456 is available in 23 kg kits containers.

Storage

VELOSIT PU 456 has a minimum shelf life of 12 months when stored in original unopened containers (elevated from floor), in a dry area and away from direct sunlight where temperatures are maintained between +5°C and +30°C.

Safety

Please observe the actual valid material safety data sheet and follow the described safety measures for handling of the product.

Recommendations

VELOSIT PU 456 is only available for professional applicators.

VELOSIT PU 456 is not suitable for swimming pools or drinking water tanks.

All described product features are determined under controlled laboratory conditions according to the relevant international standards. Values determined under job site conditions may deviate from the stated values.

Please always use the latest version of this data sheet available from our website www.velosit.de.

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