

Technical Data Sheet PU Topcoat 1-K

Aliphatic one-component polyurethane resin for the protection of swimming pools

DESCRIPTION

PU Topcoat 1-K is a high-performance polyurethane resin based on aliphatic isocyanate that hardens when reacting with humidity and produces hard and flexible coatings. PU Topcoat 1-K is an excellent surface protection for water-prone structures such as swimming pools, ponds and water park slides and pools. This product does not yellow when exposed to sunlight.

APPLICATIONS

- Swimming pools
- Ponds
- Water reservoir
- Water Channels and Tanks
- slides and other water park structures.

FEATURES

- Clear, glossy top coat.
- One-component product. Easy to use.
- Color and UV stability.
- Resistant to chlorinated water.
- Can be pigmented

CERTIFICATES

- Applus independent laboratory: Mechanical properties, artificial weathering, watertightness and water permeability. Certificate. N° 08/32307407, Abrasion: 08/32309984, 10/101.589-1432, Slip: 10/1709-1862
- Rescoll Laboratory. Salt and chlorinated water immersion test. Exp. 218.

TECHNICAL DATA

INFORMATION ABOUT THE PRODUCT BEFORE USE

Chemical Description	One-component solvent-based aliphatic polyurethane
Delivery	Metal container 20kg
Contents	Liquid
Non-volatile proportion (%)	>50%
Flash point	36°C
Color	colorless
Density	0.95g/cm ³ (20°C)



PU Topcoat 1-K

Viscosity	Temperature (°C)	Viscosity (mPas)
Approximate Values Brookfield	5	890
	10	600
	20	400
	30	250

Pot life	6 hours (1kg, 20°C, 50% RH.)
Storage	Keep away from ignition sources and moisture at a temperature below 30°C.
Shelf life	The product can be used in the original sealed container for up to 6 months after manufacture.

INFORMATION ABOUT THE FINAL PRODUCT

final state	Solid elastomer membrane
Color	according to the specific pigmentation
Hardness (Shore)	53D
Density of the film	1.35g/cm ³
Mechanical properties	Maximum Elongation: 170% Tensile strength: 27 MPa
Water vapor permeability	2,7g/m ² Tag, (UNE EN ISO 7783)
Abrasion	11mg (Taber, CS-10, 1 kg)

Chemical resistance	Constant contact (0 = worst, 5 = best)		
	Medium	Situation (d=Tag)	Result
	Water	15d, 80°C	5
	Salt water (saturated)	5d, 80°C	5
	Chlorinated water (15 mg/L)	5d, 80°C	5
	Hydrochloric acid (200 g/l)	7d, 80°C	0
	Hydrochloric acid (20 g/l)	7d, 80°C	3 (Discoloration)
	Sodium hydroxide (40 g/l)	28d, 80°C	4
	Sodium hydroxide (4 g/l)	28d, 80°C	5
	Ammonia	28d, 80°C	5
	Bleaching agent, pure	28d, 80°C	3
	Bleach (10% solution)	28d, 80°C	4
	Xylene	7d, 80°C	0
	Isopropyl alcohol	7d, 80°C	0
	Engine oil	28d, 80°C	5
	Diesel	16d, 80°C	3 (Discoloration)

PU Topcoat 1-K

	Surface contact (0 = worst, 5 = best)		
	Chemical	Situation	Result
	Hydrochloric acid (20%)	1h	4
		7 days	2
	Skydrol	7 days	4

UV resistance	UV-resistant. Aliphatic polyurethanes are colour-stable and do not yellow.
Heat resistance	Stable up to 80°C

SUBSTRATE REQUIREMENTS

To achieve good penetration and adhesion, the carrier must be:

1. Flat and flat (is self-leveling)
2. Compact and cohesive (the trigger test must have a minimum resistance of 1.4N/mm²).
3. Flat and regular surface
4. Free of cracks and crevices. If present, they must be repaired beforehand.
5. Clean and dry, free of dust, loose particles, oils, organic residues or dirt.

RECOMMENDED ENVIRONMENTAL CONDITIONS

The carrier temperature should be between 10°C and 30°C. Special precautions must be taken at higher temperatures. The relative humidity should be below 80%. High humidity conditions can lead to blistering under the membrane surface. Do not use this product in strong sunlight / high temperatures. This increases the internal moisture pressure and makes it difficult to use.

PREPARATION

It is necessary to prepare all critical points. Consult the application documents we provide.

PU Topcoat 1-K is not effective if an (internal) negative pressure can develop on the membrane. This is the case when water is retained in walls or under the tiles. In this case, using primers (epoxy) as a sealing layer can be useful (keep in mind that the inner epoxy layer can yellow easily).

For all applications on waterproof membranes, apply PU Topcoat 1-K according to the appropriate reapplication guidelines.

MIXING OR HOMOGENIZING

Use a low-speed mixer to minimize air bubbles.

APPLICATION GUIDELINES

Apply with roller, brush or airless sprayer. Although it is not essential, it is highly recommended to use the entire content. If it isn't, make sure the rest is completely sealed.

In the case of airless sprayers, the viscosity will probably need to be adjusted. Excessive pressure, along with high temperature and humidity, can lead to microbubbles that make the surface appear cloudy.

PU Topcoat 1-K

Since it is a self-leveling product, walls require several thin layers to be applied. Approximately up to 7 layers on the walls of the pool to achieve a thickness of 1 mm. 2 to 3 coats are required to cover the pool floor.

For pigmented applications, mix the pigment paste with PU Topcoat 1-K with a slow stirrer and wait a few minutes for the bubbles to disappear. Apply the pigmented color normally. It is recommended to use the entire pigmented mixture.

Always apply to 300-500g/m² per coat.

CURING TIME

The curing time depends on the environmental conditions. The curing rate increases with increasing temperature and humidity. The table below gives a rough estimate of the curing time under different conditions for a 500 micron layer.

Conditions	Dry to the touch (h)
43°C, 50% RH	2
25°C, 50% RH	14

REUSE

A second coat of PU Topcoat 1-K can be applied when the first one is no longer sticky. Do not wait more than 24 hours for the next coat to ensure good interlayer adhesion.

CURING TIME

Under normal conditions (25°C, 50% RH), the membrane can be walked on in 24-48 hours (light traffic). Depending on the final use, it is recommended to wait 7-10 days (normal traffic). The final hardness development can take up to 15 days.

TOOL CLEANING

PU Topcoat 1-K can be cleaned with acetone and alcohols. Once cured, it can no longer be dissolved.

ANSWERS TO FREQUENTLY ASKED QUESTIONS

Problem		Cause	Solution
Bubbles	Porous substrate?	No primer?	Seal with an epoxy-type primer beforehand
	Airless	High pressure	Reduce pressure or apply thinner layers. Environmental conditions can be unfavorable for this method of application.
Too little coverage	Horizontal?	Not enough pigment	Mix well

CLEANING AND MAINTENANCE

Layers may need to be reapplied if they are worn out by traffic, weather, corrosion, etc.



PU Topcoat 1-K

To remove stains, a surface treatment with isopropyl alcohol can be attempted. Strong acids are completely inadequate, and some solvents can damage the membrane. In this case, the affected area must be repaired with a new application. If bubbles form due to water pressure (from the inside), cut off and remove the affected area. Allow the stain to dry and treat the area again.

SECURITY

PU Topcoat 1-K contains isocyanates and flammable solvents. Always follow the instructions in the safety data sheet and take the precautions described there. As a rule, sufficient ventilation must be ensured and all sources of ignition must be avoided. This product is intended for use only as described herein. This product should only be used by commercial or professional users. It is not suitable for DIY use.

DISPOSAL

Empty containers must be treated with the same precautions as if they were full. Containers must be considered hazardous waste and transferred to an authorized waste disposal company. If there are still product residues in the containers, do not mix them with other substances without checking for possible dangerous reactions.

*relative humidity (RH)

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