

IMPERMAX 2K FLEX VR



Sprayed, hot-applied variable ratio polyurethane waterproofing membrane

DESCRIPTION

Impermax 2K Flex VR is a 2-component polyurethane resin, which cures very fast into an elastic membrane with crack-bridging capability. This product can only be applied by 2-component spraying equipment (Variable Ratio)



Rayston Spray RV – Hot Spray application equipment

APPLICATIONS

Waterproofing of concrete structures, roof, terraces, etc.
Component of parking deck systems for light traffic applications (see Impermax Park system).
Waterproofing of water tanks.
Geomembrane lining for retention basins and secondary containment structures, ponds, landfills, tunnels, canals, dam reparations, etc.

PROPERTIES

Crack bridging ability
Extremely high elastic membrane
Fast curing
Pigmentable

TECHNICAL DATA

PRODUCT INFORMATION BEFORE APPLICATION				
	Component A		Component B	
Chemical description	Polyol/Polyamine		Aromatic isocyanate prepolymer	
Physical State	Liquid		Liquid	
Presentation	Metal container 180 kg		Metal container 208 kg	
Non volatile content (%)	approx 100		100	
Flash point	>100°C		>100°C	
Colour	Dark yellow		Slightly yellow	
Density	<i>Temperature (°C)</i>	<i>Density (g/cm³)</i>	<i>Temperature (°C)</i>	<i>Density (g/cm³)</i>
	20	1,04	20	1,14
	60	1,02	60	1,10
Viscosity	<i>Temperature (°C)</i>	<i>Viscosity (mPa.s)</i>	<i>Temperature (°C)</i>	<i>Viscosity (mPa.s)</i>
	5	3100	5	2500
	10	2100	10	1800
	20	1150	20	800
	30	675	30	450
	40	380	40	300
	50	275	50	200
	60	180	60	120

A/B mixing ratio	A=100 B=75 by weight A=100, B=70 by volume (3 Component A Metal containers per 2 Component B Metal containers)
Density and viscosity of the mixture	Fast polymerization. See Pot life data
Colour	Component A could be pigmented by addition of pigment paste (Pigment Spray) delivered with each kit of Impermax 2K Flex VR
Pot life	Gel time (lab mixture A+B 20 g): 6-7s at 25°C, 4-5s at 60°C Tack-free time (hot-spray application, comp.A & B at 70°C): ~15
Storage	Keep between 10° y 30°C
Use before	12 months after manufacture, provided it is kept in its sealed container.

INFORMATION ON THE FINAL PRODUCT

Final state	Solid elastomeric membrane	
Colour	Available Pigment Spray pastes are Gray RAL 7001, 7011. Tile red, Beige RAL 1001, blue RAL 5015. Other pastes under request.	
Hardness (Shore)	85A	
Mechanical properties	Elongation at break: 500% Tensile strength: 14.5 MPa Tear strength: 74 N/mm	(EN-ISO 527-3) (EN-ISO 527-3) (ISO 34-1 method B)
Adhesion	Surface	Adherence (MPa)
	Cultured marble	2.9
	Metal	3.1
Chemical Resistance	Immersion test, 80°C, 7 days (0=worst, 5=best)	
	Chemical	Result
	Water	5
	Ammonia 3%	4
	IPA	1
	Xylene	0
	Sulphuric acid 50%	0
UV resistance	Good resistance to UV-induced degradation. Aromatic polyurethanes undergo change of colour under sunlight. This change does not affect its mechanical properties. Additional UV protection can be achieved by application of an aliphatic topcoat as Impertrans, Impertrans Eco or Colodur.	
Abrasion resistance	Taber, CS10, 1000 cycles, 1 kg: 10 mg	

SUPPORT REQUIREMENTS

Concrete surfaces

In order to achieve a good penetration and bonding, support must be:

1. Flat and levelled
2. Compact and cohesive (pull off test must show a minimum resistance of 1,4 N/mm²).
3. Even and regular surface
4. Free from cracks and fissures. If any, they must be previously repaired.
5. Clean and dry, free of dust, loose particles, oils, organic residues or laitance

RECOMMENDED ENVIRONMENTAL CONDITIONS

Air temperature should be between 10°C and 40°C. Relative air humidity should be less than 70%.



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SUPPORT PREPARATION

Concrete substrates must be prepared mechanically using high pressure sand or abrasion, in order to remove the surface and obtain an open pore. Substrates must be primed and levelled until a regular surface is obtained. Sharp irregularities are eliminated using an abrading disc machine. Eliminate all dust and loose particles from the substrate by brushing or vacuum cleaning. Failure to adequately priming the surface may lead to premature delamination, cracking or contraction. Metal substrates must be thoroughly sanded and the final surface must be free of dust. A suitable adhesion-promoting primer must be used (e.g. PU Primer) to prevent deformation, cracks or adhesion failure.

MIXING

Add the required Pigment Spray to the A-component and stir before loading. Recirculate both components while heating up to the required application temperatures.

APPLICATION GUIDELINES

Impermax 2K Flex RV must be applied using a 2-component hot spraying equipment (Variable Ratio). Example with Evolution VR (Gama)

Volume Ratio

Component A: 1000
Component B: 700

Recommended temperatures

Component A: 75°C (hose 75°C)
Component B: 70°C (hose 70°C)

Machine / Gun / Mix chamber information

Machine: Evolution VR (Gama)
Spray gun: GDI Mechanical Purge Spray Gun
Mix chamber: number 8 (poli 0.95 mm, iso 0.80 mm)

Pressure

150Kg

During application, check layer thickness and curing speed.

Wind speeds in excess of 25 km/h may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting polyurea surface texture, cure, and physical properties and will cause overspray issues.

Contact Krypton Chemical for more detailed technical information.

CURING TIME

Approximate hardness values are provided as reference only (2 mm, polypropylene support, 25°C 50%)

Time	Hardness Shore
10 min	72A
30 min	76A
1 hour	78A
5 hours	82A
1 day	83A
2 days	84A
3 days	85A
7 days	85A

REAPPLICATION

Usually, necessary thickness can be obtained in one single coat. If necessary, a second coat can be applied immediately afterwards. In any case, do not wait more than 4 hours for a second coat.

RETURN TO SERVICE

Under most usual conditions (25°C, 50% rh), the membrane is resistant to rain droplets after 15 minutes, and able to resist light pedestrian traffic in 1 hour. After 1 day, >90% of the final properties are reached.

TOOL CLEANING

Solvent use for machine component cleaning is discouraged. A cleaning plasticizer fluid like Rayston Fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with this cleaning fluid.

CLEANING AND MAINTENANCE

A maintenance work should be carried out regularly on the treated surfaces according to the intended use

FAQ

Problem	Question	Cause	Solution
Product does not cure	AB ratio is correct?	Pressure differences	Check and correct machine operation
Bubbles or open pores	Porous support?	No primer	Apply suitable primer before Impermax 2K Flex VR
No hiding power	Horizontal?	Too little product Too little pigment	Apply 2 kg/m2 Ensure full A+pigment homogeneization
Color change	Exposed to sunlight?	UV-reaction	Use a last coat in dark grey or red
Can it be applied without pigmentation?	Use of pigment helps to obtain a uniform appearance.		

SAFETY

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. As a general rule, a good ventilation and/or respiratory protection is needed (combined organic vapour filters+particles) along with protective clothing. This product must be used only for the applications here described. This product is intended for industrial and professional use. It is not suitable for DIY-type applications.

ENVIRONMENTAL PRECAUTIONS

LEED-requirements compliant.

EQ Credit 4.2, Low emission materials: Paints and Coatings

Empty containers must be handled with the same precautions as if they were full. Treat empty containers as hazardous waste, and transfer them to an authorized waste manager. If the containers still have some material left, do not mix with other product with no knowledge of potential dangerous reactions. Component A and B may be mixed on a 1/1 ratio in order to get an inert material, but never do it in volumes larger than 5 litres in order to prevent a dangerous heat evolution

OTHER INFORMATION

The information contained in this Technical Data Sheet, as well as our advice, both written as verbal or provided through testing, are based on our experience, and they do not constitute any product guarantee for the installer, who must consider them as simple information. We recommend studying deeply all information provided before proceeding to the use or application of any of our products, and strongly advise to conduct tests "on-site" in order to determine their convenience for a specific project. Our recommendations do not exempt of the obligation of installers to deeply study the right application method for these systems before use, as well as to conduct as many preliminary tests as possible should any doubt arise. The application, use and processing of our products are beyond our control, and therefore under the exclusive responsibility of the installer. In consequence, the installer will be the only responsible of any damage derived from the partial or total in-observation of our indications, and in general, of the inappropriate use or application of these materials.

This Data Sheet supersedes previous version



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