

IMPERMAX 2K FLEX VR

RAYSTON
products

Sprayed, hot-applied variable ratio polyurethane waterproofing membrane



DESCRIPTION

Impermax 2K Flex VR is a 2-component polyurethane resin, which cures very fast for the application of elastic membranes that dot fissures.

This product can only be applied with a hot projection equipment of two components of variable relationship.



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 coatings for retention basins and secondary containment structures, ponds, sanitary fillers, tunnels channels, repair of dams, etc.

PROPERTIES

- Capacity of fissure
- High – elasticity membrane
- Fast curing
- Pigmentable

CERTIFICATES

CE marking, EN-1504-2 protection and repair of concrete structures. Certificate number 0370-CPR-2247.



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 (may darken along storage)	Slightly yellow												
Density	<table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Density (g/cm³)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>1,04</td> </tr> <tr> <td>60</td> <td>1,02</td> </tr> </tbody> </table>	Temperature (°C)	Density (g/cm ³)	20	1,04	60	1,02	<table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Density (g/cm³)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>1,14</td> </tr> <tr> <td>60</td> <td>1,10</td> </tr> </tbody> </table>	Temperature (°C)	Density (g/cm ³)	20	1,14	60	1,10
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Viscosity	Temperature (°C)	Viscosity (mPa.s)	Temperature (°C)	Viscosity (mPa.s)
	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	Maximum elongation: 500% (EN-ISO 527-3) Maximum traction: 14.5 MPa (EN-ISO 527-3) Resistance to wear: 74 N/mm (ISO 34-1 method B)	
Adhesion	Surface	Adherence (MPa)
	Concrete	-
	Concrete (+ Ep100 primer)	-
	Cultivated marble	2.9
	Metal	3.1
	Metal (+ PU primer)	-
Chemical Resistance	Immersion test, 80°C, 7 days (0=worst, 5=best)	
	Agent	Result
	Water	5
	Ammonia 3%	4
	IPA	1
	Xylene	0
	Sulphuric acid 50%	0
UV resistance	Good resistance to UV-induced degradation. Aromatic polyurethanes experience colour change under sunlight, although this does not represent a loss of mechanical properties. An additional UV protection is obtained by an aliphatic finish Impertrans or Colodur types	
Abrasion resistance	Taber, CS10, 1000 cycles, 1 kg: 10 mg	
Adhesion strength by pull-off test (UNE-EN 1542:1999)	1.7 MPa (Primer Epoxy 100) 1.3 MPa (Primer GC)	



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Water vapour permeability (UNE-EN ISO 7783:2012)	Sd = 6.6 (Class II)	30 min	76A
		1 hour	78A
		5 hours	82A
		1 day	83A
Liquid water permeability (UNE-EN 1062-3:2008)	0.005 kg/m ² h ^{0.5}	2 days	84A
		3 days	85A
		7 days	85A
Crack bridging (UNE-EN 1062-7:2004, method A)	Class 5		

SUPPORT REQUIREMENTS

Concrete surfaces

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

1. levelled
2. Compact and cohesive (with a minimum resistance of 1,4 N/mm²).
3. Regular and fine appearance
4. Free of cracks and fissures. If there are, 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%.

SUPPORT PREPARATION

Concrete substrates must be prepared mechanically using an abrasive jet or scarifying to lift the surface and get an open pore.

The supports must be prepared and levelled until a regular surface is obtained.

MIXING

Add the required Pigment spray to the A - component and stir before loading. Recirculate both components while heating up to the required application. **Best Mixing equipment should have extensible blades with overall width equivalent to 1/3 drum diameter.**

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.

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

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 2 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
		Too little product	Apply 2 kg/m ²
No hiding power	Horizontal?	Too little pigment	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 potentially 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.



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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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