IMPERMAX ST

Liquid polyurethane waterproofing membrane

DESCRIPTION

One component liquid waterproofing composition, after polymerization gives an elastomeric, cold-applied polyurethane membrane. Slightly thixotropic, low sagging product.
The membrane cures in a continuous and elastic form, as a totally adhered layer.
This waterproofing layer guarantees total watertightness and withstands building movements.

APPLICATION

- Balconies, terraces.
- Baths (showers), kitchens and difficult access spots.
- Flooring with light pedestrian traffic.
- Stairs, stadiums, stands.Krypton Chemical for further details.
- Canals and water tanks

ADVANTAGES

Elastic and seamless coating, weather resistant and excellent bonding. No reinforcement usually required except at critical points.

CERTIFICATIONS

ETA: European Technical Agreement Document Nº 06/0263 – 10 and 25 year CE marking.

TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION	
Chemical description	Solvent borne single-component aromatic polyurethane
Physical state	Liquid
Packaging	Metal cans: 6 / 10 / 25 kg
Non-volatile content (%)	85%
Flash point	45º C (ASTM D 93)
Available colour	See available colours in the current price list
Density	1,3 g/cm3 (20ºC)
Viscosity approximate Brookfield	

Temp (ºC)	Rpm	Viscosity (mPa.s)
20	100	10000
20	5	20000
35	100	5000
35	5	100000

VOC (g/L i %) VOC class as per 2004/42/EC	VOC content: 184 g/l Product subclass: i II Solvent based single-component performance products Limit from 01/01/2010: 500 g/l
Pot life	4 a 6 hours (1 kg, 20ºC, 50% hr)
Storage	Keep at a a temperature below 30ºC, away from ignition sources and moisture
Use before	Product may be used up to 12 months after manufacture in its sealed original container (Note: 9 months if white or black pigmented).

INFORMATION ON THE FINAL PRODUCT	
Final state	Solid elastomeric membrane
Colour	Depending on the chosen pigmentation
Hardness (shore)	65-70A, (ISO 868)
Density of film	1,35 g/cm3
Mechanical properties	

Elongation (%)	Stress (mPa)
100	2.0
200	2.8
300	3.0
400	3.4

Maximum elongation: 421%
Tensile stress: 3,4 MPa
(EN-ISO 527-3)

Chemical resistance — Permanent contact. (0=worst, 5=best)

Chemical	Test conditions	Result
Water	24h, 25ºC	5
Salt water	24h, 90ºC	5
Hydrochloric acid solutions	200 g/l, 24h,25ºC	4
	200 g/l, 2h,80ºC	4
	3 g/l, 24h,25ºC	5
	3 g/l, 24h,80ºC	4
Sodium hydroxide	40 g/l, 24h,25ºC	5
Ammonia (3%)	24h,25ºC	5
Acetone	24h,25ºC	1
Ethyl acetate	24h,25ºC	3
Xylene	24h,25ºC	5
Motor oil	24h,25ºC	5
Brake Fluid	24h,25ºC	2

Adhesion

Surface	Force (m.Pa)
Concrete	2,0
Ceramics	2.6
Polyurethane Foam	1.4

UV resistance	Products includes anti UV additives. A colour change is expected due to its aromatic polyurethane composition. This discolouration does not affect its properties.
Water vapour permeability	µ>1000 (EN 1931) 20 g/m2 day
Tear strength	14 N/mm (ISO 34-1, Method B)
Abrasion	14,3 mg (Taber, 1000 cycles, CS-10, UNE 48250)
Termal resistance	Stable up to 120ºC.
Fire resistance	B roof= t1 (External fire exposure test) External fire exposure test (according to BS 476:Part 3, 2004): Category EXT.F.AC

SUPPORT REQUIREMENTS

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

Support temperature should be between 0ºC and 40º. At higher temperatures, specific precautionary measures must be taken. Please follow manufacturer advice.
Air temperature must be between 0ºC and 30ºC
High moisture conditions can lead to bubble formation under the membrane surface.
In cold weather, or when curing time has to be shorter, accelerators can be used. More information under request.

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APPLICATION GUIDELINES

If needed, the product may be thinned with up to 10% of Rayston solvent, as a viscosity adjustment. Never use universal or unknown solvents (e.g. white spirit or alcohols). Mix preferably by hand without mechanical means.

Apply by roller, brush, spreader or airless equipment. It is useful to apply in 2 differently coloured coats, at 1 kg/m2 each. Although not strictly necessary, it is strongly recommended to use entirely the product of the container. If there is some product left, ensure it is completely sealed after use.

Use a spiked roller immediately after spreading in order to reduce bubbling.

CURING TIME

Curing time is dependent on the environmental conditions. Curing rate increases with temperature and humidity rises. The following table gives a rough estimation of the curing time under diverse conditions for a 1 mm coat.

Temperature (ºC)	RH (%)	Dry to touch (h)
4	60	30-35
24	52	8-9
35	12	15-20
35	50	4

RETURN TO SERVICE

At usual conditions the membrane achieves up to 90% of its final properties in 3 days. Usually walking time is 1 or 2 days. Final hardness is not achieved until 10 or 15 days. It is preferable to wait this time before contact with water is allowed.

TOOL CLEANING

Liquid Impermax ST can be cleaned with Rayston Solvent, acetone and alcohols. Once hardened, it cannot be dissolved.

CLEANING AND MAINTENANCE

A maintenance work must be carried out regularly on the treated roofs according to the intended use.

This work includes the following tasks:

- Leaf removal
- Grass, dirt, moss and other vegetation removal
- Keeping storm water system in good working order.
- Ensure gratings are in place, in order to prevent gutter obstructions.
- Check proper condition of several structures (flashing, seams, retaining walls...)
- Verification of possible damages due to improper use.

If aesthetic appearance of the roof is an important issue, it is essential to regularly clean the surface with water (some mild detergent may be added), according to the use.
It may be necessary to reapply decorative layers (Impertrans, Colodur) if they are worn out due to traffic, weather, corrosion, etc.

For stain removal, a surface treatment with Rayston solvent or isopropyl alcohol may be attempted. Strong acids are totally inadequate. Some solvents may damage the membrane. If this happens, the affected area has to be cut and repaired with a new Impermax ST application.

FAQ

Problem	Question	Cause	Solution
Does not cure	Suitable solvent?	Some thinning solvents are not suitable	Apply a second coat using only Rayston Solvent as a diluant
	Too diluted	An excess of solvent slows the curing rate	Use less diluted product
	Temperature?	Normal at low temperatures	Below 15ºC use of accelerators is advised
Bubbles	Porous support?	High temperature	Wait until temperature drops and apply a first coat, diluted at less than 500 g/m2
	Non-porous support?	Stirring to fast	Wait deaeration after stirring. Use spike roller after application
Blister		Moisture	Use proper priming
		pigment	Cut and repair affected area
Poor hiding power	Horizontal?	Too little product	Follow minimum 1 kg/m2 rule each coat
	Vertical?	Normal in a self-leveling product	Use thixotropy or thickening additives from Rayston.
Gray turns to green	Important?	Aromatic – type isocyanates turn to yellow/brown under sunlight	Last coat in dark colour or provide an aliphatic topcoat
In case of rain			Water droplets will create craters if the membrane has not developed a surface skin yet. Apply a second coat to correct these defects. Overall membrane properties are not affected by slight surface cratering.
What if permanent contact is possible?			Use Impermax Aqua version instead
High viscosity			Normal. Viscosity rises during shelf life. It can be adjusted using Rayston solvent

SAFETY

Impermax ST contains isocyanates and flammable solvents. Always follow the instructions provided in the material safety data sheet and take the precaution described there. As a general rule, a suiable ventilation must be ensured and all ignition sources must be avoided. This product is intended to be used only for the uses and in the way here described. This product is to be used only by industrial or professional users. It is not suitable for DIY-type uses.

ENVIRONMENTAL PRECAUTIONS

Empty containers must be handled taking the same precautions as if they were full. Containers must be considered as hazardous waste, to be tranferred to an authorized waste manager. If there is some residual product in the containers, do not mix it with other substances without checking for possible dangerous reactions.

OTHER INFORMATION

The information contained in this 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 to study 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 versions.