STEEL STRUCTURES

Vulmproepox RD

ENVIRONMENTALLY FRIENDLY PRODUCT

WATER-BASED COATING

HEALTHY – ELIMINATION OF HARMFUL EFFECTS ON HUMAN HEALTH

Anti-corrosion primer

Product description:

Vulmproepox RD is a two-component water-based coating consisting of component A (aqueous dispersion, epoxy resin containing additives, pigments and fillers) and component B (polyamine hardener).

Use:

It is used for coating of metal structures (also from light metals and alloys) as an anti-corrosion protection with a high degree of corrosion inhibition and as a protection against various chemical and mechanical effects. **Vulmproepox RD** is recommended for surfaces in moderate to highly corrosive environment (category C4-C5-M) such as exterior and interior of ships in coastal environments with high salinity and high air pollution, steel structures, bridges, indoor walls and warehouses and factory premises, steel doors. Coatings are very resilient, but also hard and resistant to abrasion. It is resistant to water, chemicals, detergents, oil, oil products and salty marine environment.

Benefits:

- use in marine environments with high levels of salinity and air pollution
- resilient and hard surface
- high mechanical resistance
- extreme resistance to impacts and shocks
- good chemical and mechanical resistance
- resists penetration of liquids
- adhesive even to a slightly greasy surface
- possibility to achieve a greater thickness in one coating

Test data:

TSÚS 353/2005	STN EN ISO 6270-1 (67 2012)
	STN EN ISO 2808 (67 3061)
	STN EN 2409 (67 3085)
	STN EN ISO 7253 (67 3092)

- corrosion in the cross-section by a method according to Annex A, STN EN ISO 12944-6

Product data:

colour:	RAL according to customer's choice
appearance:	matte, semi-gloss
shelf life:	12 months in original packaging in dry conditions at the temperature 10 – 35 °C
limit VOC:	according to Ministry of Environment Decree no. 127/2011 Coll.: 200 g/l measured value: 12,4 g/l

Physical data:

binder content:	20 %
solids content:	65 %
water content:	15 %
flow:	15,9 cm

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hardness:	after 24 hours	60 Shore D
	3 days	70 Shore D
	7 days	78 Shore D
	28 days	82 Shore D
	at a relative air humidity of 65 % and temperature of 20 °C	
abrasion resistance:	156 md/1000 cycles	
handling time:	45 minutes	
density:		
component A:	2,37 g/ml	
component B:	1,08 g/ml	
component A + B:	2,07 g/ml	

Processing temperature:

minimum temperature of the substrate:	5 °C
maximum temperature of the substrate:	30 °C
ideal temperature for processing:	20 °C
maximum relative air humidity:	85 %

Theoretical capacity:

6,7 – 10 m^2/kg	1x coating thickness 80 µm
2,2 – 3,3 m^2/kg	2 – 3x coating thickness 250 µm

Application methods:

roller, brush, spray

Instructions for use:

The mixture of components A and B is in a ratio of 10 : 1.4 (by weight – 1 kg of component A and 0.14 kg of component B). Mixing of the reactive components takes 2 – 3 minutes, but ends after achieving a homogeneous mixture. Viscosity is adjusted by the addition of water (max. 10 %). The prepared material is applied by brush, roller or spray, independently of the thickness of layer. The material should be applied within 45 minutes after mixing, since afterwards it begins to solidify.

The coating is applied in one or two layers (as necessary).

Substrate:

The substrate must be sufficiently coherent and supporting. Surface must be flat, solid, free of dirt and loose particles. The coating can be applied on slightly oily surfaces. Surface must be dusted and without rough particles, preferably cleaned by pressurized water. Degreasing is not necessary.

Time data for application:

processability of the mixed material:	approx. 45 minutes
dry to touch and re-coating interval:	approx. 2 – 4 hours
walkable:	24 hours
fully loadable:	65 hours

at a relative air humidity of 65 % and temperature of 20 °C

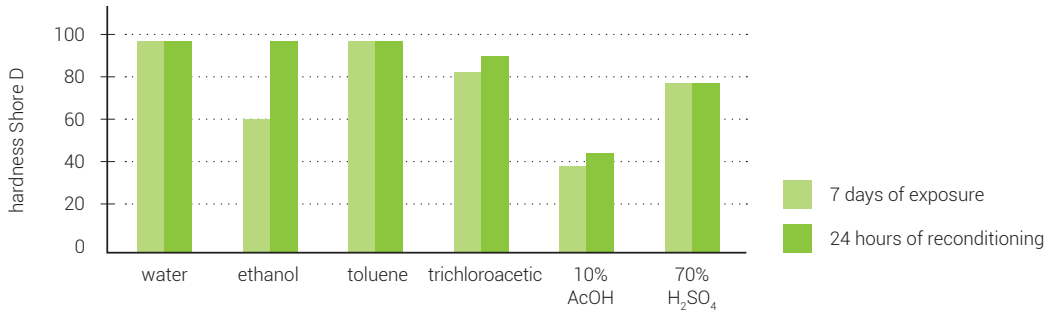
Cleaning of tools:

Immediately after use, with water.

Resistance:

- withstands high mechanical loads
- resistant to chemicals, solvents, detergents and cleaners
- resistant to heat of up to 140 °C (short-term), does not change characteristics at 100 °C
- corrosion resistant (category C4 (long durability) and C5-M (medium durability))

Chemical resistance:



Safety:

Vulmproepox RD – when handling, proceed in accordance with the general safety measures, follow the safety instructions on the packaging labels and on safety data sheets. Data, specifications, directions and recommendations given in this technical data sheet are based on experience gained in modeling of supposed ways of applications, or under specially defined conditions. Their accuracy, completeness or appropriateness under the actual conditions of any intended use is not guaranteed and must be determined by the user. The manufacturer and distributor are not responsible for the results achieved, loss, direct or consequential damages arising from failure to comply with the recommended use of the product, which go beyond the conditions herein.

Name of the test, or the name of the tested characteristics and a number of a standard, or other identifier of the test method, procedure:

test in the condensation chamber	STN EN ISO 6270-1 (67 2012)
coat thickness	STN EN ISO 2808 (67 3061)
adhesion by cross-cut test	STN EN 2409 (67 3085)
test in neutral salt spray	STN EN ISO 7253 (67 3092)
chemical resistance	STN EN 64 0242

List of measuring and other devices used:

corrosion chamber	Z 90 0006
water bath – 40 l	Z 90 0011
coating thickness gauge Minitest 500 FN	M 90 0024
microscope (20x magnification)	-
cutting tool	-

Test surface:

Steel sheet thick. 2 mm – surface abrasively blasted to Sa 21/2

Composition of the coating system: (application by brush)

Anti-corrosion coating substance PRO EPOX-RD

- 1x primer PRO EPOX-RD
- 3 hours drying
- 1x primer PRO EPOX-RD
- 3 hours drying
- 1x primer PRO EPOX-RD
- total thickness of the dried coating (213 – 252) µm
- conditioning before testing 21 days

Evaluation of coatings after the end of exposure for the corrosion resistance test:

Evaluated immediately after exposure:

- degree of blistering by a method according to STN EN ISO 4628-2
- degree of corrosion by a method according to STN EN ISO 4628-3
- degree of cracking by a method according to STN EN ISO 4628-4
- degree of peeling by a method according to STN EN ISO 4628-5

Evaluated 24 hours after the end of exposure:

- adhesion of coatings in cross-cut test by a method according to STN EN ISO 2409
- corrosion in cut by the method according to Annex A, STN EN ISO 12944-6 (only after the exposure in neutral salt spray)

Results of measurement:

Coat thickness

- each sample was subjected to three measurements
- presented values are average values of the three measurements

Sample no.	Coat thickness (µm)
1	213
2	237
3	245
Arithmetic mean	232

Adhesion by cross-cut test before the exposure

- cut distance 3 mm
- each sample was subjected to three measurements
- presented values are average values of the three measurements

Sample no.	Coat thickness (µm)
1	0
2	0
3	0

Corrosion resistance

test on a steel substrate

dexposure times meet the requirements for the corrosivity degrees:

C4 – high durability of coatings

C5-M – medium durability of coatings

Test in the condensation chamber

exposure time 480 h

Sample no.	Degree of blistering	Degree of corrosion	Degree of cracking	Degree of spalling	Adhesion (grade)
4	0 (So)	Ri 0	0 (So)	0 (So)	0
5	0 (So)	Ri 0	0 (So)	0 (So)	0
6	0 (So)	Ri 0	0 (So)	0 (So)	0

Adhesion and coating thickness after the exposure in the condensation chamber

- cut distance 3 mm
- each sample was subjected to three measurements
- presented values are average values of the three measurements

Sample no.	Coat thickness (µm)	Adhesion (grade)
4	252	0
5	238	0
6	243	0
Diameter	244	0

Test in the neutral salt spray

- exposure time 720 h

Sample no.	Degree of blistering	Degree of corrosion	Degree of cracking	Degree of spalling	Corrosion in cross-section
(mm)	0 (So)	Ri 0	0 (So)	0 (So)	0
7	0 (So)	Ri 0	0 (So)	0 (So)	0
8	0 (So)	Ri 0	0 (So)	0 (So)	0
9	0 (So)	Ri 0	0 (So)	0 (So)	0
Diameter	0 (So)	Ri 0	0 (So)	0 (So)	0

Adhesion and coating thickness after the exposure in the neutral salt spray

- cut distance 3 mm
- each sample was subjected to three measurements
- presented values are average values of the three measurements

Sample no.	Coat thickness (µm)	Adhesion (grade)
1	249	0
2	237	0
3	244	0
Diameter	243	0

Anti-corrosion coating substance PRO EPOX-RD

Property	Declared value or class	Number of test report and laboratory reference
Release of pollutants into the environment	Existence of Safety Data Sheet	–
Corrosion resistance (AO)	degree of corrosivity of the atmosphere: C2 – high durability of coatings C3 medium durability of coatings	[1] Test Report no. č. 353/2005
Test in the condensation chamber degree of blistering degree of corrosion degree of cracking degree of peeling adhesion after exposure	 degree 0 (S0) degree Ri 0 degree 0 (S0) degree 0 (S0) degree 0 up to 1 (coating thickness < 250 µm) There must be no adhesive fracture from the substrate at the pull-off value < 5 MPa (coating thickness > 250 µm)	
Test in the neutral salt spray degree of blistering degree of corrosion degree of cracking degree of peeling corrosion in cross-section adhesion after exposure	 degree 0 (S0) degree Ri 0 degree 0 (S0) degree 0 (S0) max. 1 mm degree 0 up to 1 (coating thickness < 250 µm) There must be no adhesive fracture from the substrate at the pull-off value < 5 MPa (coating thickness > 250 µm)	
Adhesion	stupeň 0 až 1 (Coat thickness < 250 µm) nesmie dôjsť k adhéznemu lomu od podkladu pri hodnote odtrhu < 5 MPa (Coat thickness > 250 µm)	[1] Test Report no. č. 353/2005