

Product Data Sheet

AkzoNobel Powder Coatings

Interpon Redox 3-Layer Corrosion Protection System

Product Description	The Interpon Redox 3-Layer corrosion protection system is designed to be used in highly corrosive environments described in ISO 12944-2 as C4 interior environments and as C4 and C5 exterior environments. This 3-layer system consists of an Interpon Redox PZ, Zinc-rich primer, an intermediate layer of Interpon Redox Plus barrier protective primer, and a polyester topcoat (exterior use) or hybrid topcoat (interior use). The primary use is for steel protection with a surface pre-treatment obtained by grit blasting or shot blasting.		
Coating Aspect	This is a high build coating system, finish is dependent on substrate quality and topcoat selection.		
Test Conditions	The results shown below are based on mechanical and chemical tests which (unless otherwise indicated) have been carried out under laboratory conditions and are given for guidance only. Actual product performance will depend upon the circumstances under which the product is used.		
	Substrate	Steel	
	Pretreatment	Grit blasting (SA 2.5 - Ra 7-8 µm)	
	Film thickness	Interpon Redox PZ Interpon Redox Plus Interpon D	60-90 microns 60-100 microns 70-120 microns
	Curing (object temperature)	Interpon Redox PZ Interpon Redox Plus Interpon D	8' at 170°C 8' at 170°C 10' at 200°C
Mechanical Tests	Flexibility (Cylindrical Mandrel)	ISO 1519	Pass 10 mm (System)
	Adhesion	ISO 2409 (3 mm crosshatch)	Class 0 (Primer) Class 0 (System)
	Erichsen Cupping	ISO 1520	Pass 5 mm (Primer) Pass 3 mm (System)
	Impact	ISO 6272	Pass 0.25 kg.m (System) Direct
Corrosion Tests Mild Steel	The results shown are based on tests which (unless otherwise indicated) have been carried out under laboratory conditions and are given for advice only, actual performance depends upon the circumstances under which the product is used.		
	Neutral Salt Spray	ISO 9227	Results are detailed in Table 1 of Appendix

Pretreatment

Surface preparation depends upon the metal, the type of surface, its conditions and the required performance. See our recommendation for pretreatment to be used with Interpon Redox PZ.

Substrate	Mechanical pretreatment	Chemical pretreatment
Mild steel	Grit Blasting Sa 2.5 in accordance with ISO NF EN 8501-1. Roughness: Rz 42-64 µm / Ra 6-8 µm	Banned
Cast steel		
Electro Zinc steel	Banned	
Hot dip galvanized steel	Banned	Banned
Zinc sprayed (gas flame/electrical deposition)	Banned	Banned

For maximum protection it is essential that the Interpon Redox PZ primer layer is applied to a clean, dry, oxide free ferrous metal surface, this is then followed by the Interpon Redox Plus and Interpon topcoat. Surface preparation depends upon the type of surface, its condition and the required performance.

Application

A recommendation for Industrial application is outlined below. Further detailed protocols for applying Interpon Redox Three-layer system on request as are specific technical datasheets for each coating product.

Note: Failure to comply with the recommended curing conditions may affect the adhesion of the topcoat and cause degradation of the coating properties of the system. Parts coated with Interpon Redox PZ should not be handled if possible. If handling is unavoidable, clean lint-free gloves must be worn.

Part Design:

- Welds on the parts must be continuous and leak tight
- Air gaps must be closed by welding

The preparation grade of the parts must be in accordance with ISO 8501-3 "Preparation grades of welds, edges and other areas with surface imperfections" at grade P3. At P3 grade:

- Weld ripple/profile: Surface shall be fully dressed i.e. smooth
- Edges made by punching, shearing, sawing and drilling: Edges shall be rounded with a radius of not less the 2mm

For preparation by grit blasting:

For all types of parts, the degree of rust before preparation must not exceed state "B" according to ISO 8501-1 or Swedish standard SIS 05.09.00.

Coatings	Layer Thickness
Interpon Redox PZ	60 - 90 µ
Interpon Redox Plus	60 - 100 µ
Interpon Redox PZ + Redox Plus	120 - 190 µ
Interpon topcoat	70 - 120 µ
Interpon Redox 3-Layer (3 layers)	190 - 310 µ

Curing

Interpon Redox PZ shows a wide curing range must allowing application on substrates of different nature and thicknesses.

Curing schedule for Interpon Redox PZ

Object temperature	Green curing		Full curing	
	Min	Max	Min	Max
110°C	15'	40'		
130°C	10'	30'		
160°C			12'	23'
170°C			8'	17'
180°C			6'	13'

If the thickness of the Interpon Redox PZ primer is too thin, then it may be recoated with a second Interpon Redox PZ layer in order to achieve the target film thickness. After application a second intermediate backing process must be completed.

Curing schedule for Interpon Redox Plus

Maximum period after applying Interpon Redox PZ before application of Interpon Redox Plus: 12 hours.

Object temperature	Green Curing		Full curing	
	Min	Max	Min	Max
130°C	15'	60'		
160°C			10'	40'
170°C			6'	35'
200°C			2'	30'

*Between 12 and 24 hours the parts can be stove for 10 minutes at 120-150°C (object temperature).

If the thickness of the Interpon Redox Plus intermediate coat is too thin, then, in order to avoid over-bake, the total system thickness can be achieved by increasing the film build of the topcoat. eg if the Interpon Redox Plus layer is 40 µ (20 µ too thin) the topcoat thickness can be increased by 20 µ.

Interpon topcoat

Maximum period after applying Interpon Redox Plus before application of Interpon topcoat: 24 hours

Curing:

To achieve good inter-coat adhesion between the 3 coatings in the system the final cure must take place according to the curing conditions of the Interpon topcoat being used.

Damage repair

Any damage to the Interpon Redox Three-layer system must be repaired as soon as possible.

Surface preparation

Damaged areas must be clean and free of grease or rust. Dry-sand the area with 600 grade paper down to the substrate. The area must be completely free of dust and cleaned with a non-aggressive solvent before proceeding.

Application

For repairs the following two-coat liquid paint system from International Protective Coatings is recommended:

- 1st Coat: two-pack zinc-rich epoxy primer, Interzinc 72
- 2nd Coat: two pack epoxy primer, Intergard 475
- 3rd Coat : two-pack polyurethane topcoat, Interthane 990

Safety Precautions

This product is intended for use only by professional applicators in industrial environments and should not be used without reference to the relevant health and safety data sheet which Akzo Nobel has provided to its customers.

Disclaimer

IMPORTANT NOTE: The information in this data sheet is not intended to be exhaustive and is based on the present state of our knowledge and on current laws: any person using the product for any purpose other than that specifically recommended in the technical data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. Always read the Material Data Sheet and the Technical Data Sheet for this product if available. All advice we give or any statement made about the product by us (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product.

Therefore, unless we specifically agree in writing otherwise, we do not accept any liability whatsoever for the performance of the product or for any loss or damage arising out of the use of the product. All products supplied and technical advices given are subject to our standard terms and conditions of sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is subject to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to verify that this data sheet is current prior to using the product.

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Appendix 1: Performance tables Neutral Salt Spray

Coating System			Interpon Redox Three-layer system Interpon Redox PZ + Interpon Redox Plus + Interpon D1036		
Conditions	Substrate		Steel 2mm		
	Pretreatment		Grit blasting SA 2.5 – Ra 6-8 µm		
	Primer thickness		Interpon Redox PZ	80 - 90 µm	
			Interpon Redox Plus	60 - 70 µm	
	Topcoat thickness		Interpon D1036	70 - 90 µm	
	Total System		Interpon Redox 3 layers 210 - 250 µm		
Adhesion on surface before test			Class 0		
Neutral Salt Spray ISO 9227	Time	Location	Corrosion	Blistering	Adhesion
	1000 hours	Scribe	X	None	-
		Surface	Ri 0	None	Class 0
	2000 hours	Scribe	XX	3 (S2)	-
		Surface	Ri 0	None	Class 0
	3000 hours	Scribe	XXX	5 (S2)	Loss 0,2 mm
		Surface	Ri 0	None	Class 0

Appendix 2: Resistance to humid atmospheres containing Sulphur dioxide ISO 3231

Coating System			Interpon Redox Three-layer system Interpon Redox PZ + Interpon Redox Plus + Interpon D1036		
Conditions	Substrate		Steel 2mm		
	Pretreatment		Grit blasting SA 2.5 – Ra 6-12µm		
	Primer thickness		Interpon Redox PZ	80 - 90 µm	
			Interpon Redox Plus	90 - 110 µm	
	Topcoat thickness		Interpon D1036	110 - 130 µm	
	Total System		Interpon Redox 3 layers	270 - 330 µm	
Adhesion on surface before test			Class 0		
Resistance to humid atmospheres containing Sulphur dioxide ISO 3231	Time	Location	Corrosion	Blistering	Adhesion
	30 cycles	Surface	Ri 0	O(S0)	O(S0)

Appendix 3: Resistance to humidity ISO 6270-2

Coating System			Interpon Redox Three-layer system Interpon Redox PZ + Interpon Redox Plus + Interpon D1036		
Conditions	Substrate		Steel 3 mm		
	Pretreatment		Grit blasting SA 2.5 – Ra 6-12µm		
	Primer thickness		Interpon Redox PZ	65 - 85 µm	
			Interpon Redox Plus	75 - 95 µm	
	Topcoat thickness		Interpon D1036	80 - 100 µm	
	Total System		Interpon Redox 3 layers	220 - 280 µm	
Adhesion on surface before test			Class 0		
Resistance to humidity ISO 6270-2	Time	Location	Corrosion	Blistering	Adhesion
	720 hours	Surface	Ri 0	O(S0)	O(S0)

<http://www.interpon.com/contact-us/>

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