

System Datasheet



BU Powder Coatings

AkzoNobel

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Interpon PZ770 + Interpon BPP330 + Interpon topcoat

System description

The **Interpon** PZ770 + **Interpon** BPP330 system + **Interpon** topcoat is designed to be used in highly corrosive environments described in ISO 12944-2 as C4 interior environments and as C4 and C5-M exterior environments.

This 3 layer system consists of a zinc rich primer **Interpon** PZ770, a barrier protective primer **Interpon** BPP330 as an intermediate layer and a polyester topcoat (exterior use) or hybrid topcoat (interior use).

It is mainly intended for steel protection with a surface pre-treatment obtained by grit blasting or by crystalline Zn-Ni phosphating with passivation.

This reinforced system combines the benefits of cathodic protection of **Interpon** PZ770 and the high barrier effect of **Interpon** BPP330.

Coating Aspect

High build coating system, finish depending on the selected topcoat

Mechanical tests

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.

Substrate		Steel 0,5 mm
Pre-treatment		Degreasing
Interpon PZ770 thickness	ISO 2360	60 – 80 µm
Interpon PZ770 curing		10 min at 130°C (object temp.)
Interpon BPP330 thickness	ISO 2360	60 – 80 µm
Interpon BPP330 curing		25 min at 130°C (object temp.)
Interpon D1036 Ral 6005 gloss thickness	ISO 2360	70 – 90 µm
Interpon D1036 topcoat curing		10 min at 200°C (object temp.)
Adhesion	ISO 2409	Class 0 (system)
Erichsen cupping	ISO 1520	5 mm (system)
Impact	ISO 6272	0,25 kg.m (system)
Flexibility (cylindrical mandrel)	ISO 1519	10 mm (system)

Corrosion tests on 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 1
Resistance to humid atmospheres	ISO 3231	Results are detailed in Table 2 of Appendix 2
Resistance to humid atmospheres containing sulphur dioxide (Kesternich)		
Resistance to humidity	ISO 6270-2	Results are detailed in Table 3 of Appendix 2

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Industrial application conditions

Initial condition of the parts to be coated

Parts 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 according to ISO 8501-3 "Preparation grades of welds, edges and other areas with surface imperfections" at grade P3.

In particular at the P3 grade:

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

For a 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.

For a preparation by phosphating

The mild steel parts, must be free from all traces of oxidation.

Pre-treatment

For maximum protection it is essential that the coating system is applied to a clean, dry, oxide-free surface. Surface preparation depends upon the metal, the type of surface, its condition and the required performance.

For good steel protection against corrosion the following is recommended:

- Grit blasting to at least SA 2.5 in accordance with ISO 8501.1, 1998(F), roughness Rz 35 – 65 µm (Ra 6 – 10 µm), equivalent to B9a, B10b or B10a using Rugotest n°3 LCA-CEA, in accordance with NFE 05051 (1981) and/or
- Degreasing & crystalline Zn-Ni Phosphating followed by passivation, DW rinsing and drying.

Application

A detailed protocol for applying **Interpon PZ770 + Interpon BPP330 + Interpon topcoat** is available on request as well as the specific technical datasheet of each product.

> Coating of **Interpon PZ770**

Recommended layer thickness: 60 – 120 µm

Curing:

Primer to bake		Interpon PZ770	
Minimum temperature of the parts		110°C	
Maximum temperature of the parts		220°C	
Maximum oven ambience temperature		220°C	
Curing conditions	Parts temperature	Minimum time	Maximum time
	110°C	15 min (green cure)	40 min (green cure)
	130°C	12 min (green cure)	30 min (green cure)
	160°C	12 min	23 min
	170°C	8 min	17 min
	180°C		
	200°C	2 min	8 min
220°C	1 min 30 sec	5 min 30 sec (maximum)	

If the thickness of the primer is too thin an over coating with the primer, followed by a new intermediate baking process must be done.

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Maximum period before applying the intermediate layer: 12 hours
Over 12 hours but not over 24 hours the parts must be stored for 10 minutes at 120°C +30/-0 (parts temperature)

> Coating of the intermediate layer of **Interpon BPP330**

Recommended layer thickness: 60 – 120 µm
(including the first **Interpon PZ770** layer: 120 – 240 µm)

Curing:

Intermediate layer to bake		Interpon BPP330	
Minimum temperature of the parts		130°C	
Maximum temperature of the parts		180°C	
Maximum oven ambience temperature		no peak over 190°C	
Curing conditions	Parts temperature	Minimum time	Maximum time
	130°C	15 min (green cure)	60 min (green cure)
	160°C	10 min	40 min
	170°C	6 min	35 min
	180°C	2 min	30 min (maximum)

If the thickness is too thin and to avoid an over curing of the system, the required total thickness can be obtained by increasing the film build of the topcoat.

For instance if the thickness of the intermediate layer **Interpon BPP** is 40 microns instead of the minimum of 60 microns (20 microns missing), the topcoat thickness to apply will be: normal minimum topcoat thickness requirement + 20 microns.

Maximum period before applying the **Interpon** topcoat: 24 hours

> Coating of the **Interpon** topcoat

Recommended layer thickness: 70 – 120 µm
(including the first and second layers: 190 – 360 µm)

Curing:

To achieve good inter-coat adhesion between the primer or the intermediate layer and the topcoat, and to obtain the best performance of the **Interpon** system, the final baking of the system must take place in accordance with the curing conditions of the particular **Interpon** topcoat being used.

Damage Repair

To repair the system we would recommend:

- cleaning of the damaged area (grease and rust elimination)
- sanding to expose the steel surface
- dust removal
- final cleaning with a non aggressive solvent

before applying the following liquid repair system:
a zinc rich epoxy primer + an epoxy intermediate + a PU (1 or 2K) paint.

Interpon PZ770 + Interpon BPP330 + Interpon topcoat

Table 1 - Neutral salt spray in accordance with ISO 9227

System	Interpon PZ770 + Interpon BPP330 + Interpon D1036 topcoat		
Test conditions	Panels		Steel 2 mm
	Surface pre-treatment		Grit blasting with corundum SA 2,5 - Ra 7-8 µm
	Coatings thicknesses	Interpon PZ770	85 µm
		Interpon BPP330 Interpon D1036 Total system	65 µm 80 µm 230 µm
Surface adhesion before test			Class 0
Neutral Salt Spray ISO 9227 Test time	1000 h	Scribe Rust Blisters Size Blisters Degree	X None
		Surface Rust Blisters Size Blisters Degree Adhesion	Ri0 None
	1500 h	Scribe Rust Blisters Size Blisters Degree	X None
		Surface Rust Blisters Size Blisters Degree Adhesion	Ri0 None Class 0
	2000 h	Scribe Rust Blisters Size Blisters Degree	XX 3 Deg 2
		Surface Rust Blisters Size Blisters Degree Adhesion	Ri0 None
	2500 h	Scribe Rust Blisters Size Blisters Degree	XXX 4 Deg 2
		Surface Rust Blisters Size Blisters Degree Adhesion	Ri0 None -
	3000 h	Scribe Rust Blisters Size Blisters Degree Adhesion loss	XXX 4 to 5 Deg 2 0,2 mm
		Surface Rust Blisters Size Blisters Degree Adhesion	Ri0 None Class 0

Results rating of accelerated ageing tests

	Adhesion	Rust	Blistering	Cracking
At Scribe	Loss of adhesion from edge of scribe, in mm (by peeling using a scalpel)	0 None X Slight XX Moderate XXX Severe	Degree (quantity) of blistering in accordance with ISO 4628 0 : None, i.e. no detectable defects 1 : Very few, i.e. some just significant defects 2 : Few, i.e. small but significant amount of defects 3 : Moderate, i.e. medium amount of defects 4 : Considerable, i.e. serious amount of defects 5 : Dense, i.e. dense pattern of defects	Degree (quantity) of cracking in accordance with ISO 4628 0 : None, i.e. no detectable defects 1 : Very few, i.e. some just significant defects 2 : Few, i.e. small but significant amount of defects 3 : Moderate, i.e. medium amount of defects 4 : Considerable, i.e. serious amount of defects 5 : Dense, i.e. dense pattern of defects
On general Surface	In accordance with ISO 2409 Class 0 : no peeling to Class 5 : total peeling	In accordance with ISO 4628 Ri0 : 0% Ri1 : 0,05% Ri2 : 0,5% Ri3 : 1% Ri4 : 8% Ri5 : 40 to 50%	Blisters size in accordance with ISO 4628 0 : None (invisible at 10x magnification) 1 : Just visible (10x magnification) 2 : Just visible (normal vision) 3 : Clearly visible (≤ 0,5 mm) 4 : 0,5 to 5 mm 5 : > 5 mm Type of rating on surface: degree 2, size 2 = 2(S2)	Cracking size in accordance with ISO 4628 0 : None (invisible at 10x magnification) 1 : Just visible (10x magnification) 2 : Just visible (normal vision) 3 : Clearly visible (≤ 0,5 mm) 4 : 0,5 to 5 mm 5 : > 5 mm Type of rating on surface: degree 1, size 2 = 1(S2)

Table 2 - Resistance to humid atmospheres containing sulfur dioxide (Kesternich) in accordance with ISO 3231

System		Interpon PZ770 + Interpon BPP330 + Interpon 610 topcoat		
Test conditions	Panels		Steel thickness 3 mm	
	Surface pre-treatment		Grit blasting SA 2.5 - Ra 8-11 μm	
	Coatings thicknesses	Interpon PZ770		80 \pm 10 μm
		Interpon BPP330		100 \pm 10 μm
		Interpon 610		120 \pm 10 μm
		<i>Total system</i>	<i>300 μm</i>	
Surface adhesion before test		Class 0		
Resistance to humid atmospheres containing sulfur dioxide (Kesternich)	720 h	Surface	Blistering	0(S0)
			Cracking	0(S0)
			Corrosion	Ri0
ISO 3231	30 cycles			
Test time				

Table 3 - Resistance to humidity in accordance with ISO 6270-2

System		Interpon PZ770 + Interpon BPP330 + Interpon 610 topcoat		
Test conditions	Panels		Steel thickness 3 mm	
	Surface pre-treatment		Grit blasting SA 2.5 - Ra 8-11 μm	
	Coatings thicknesses	Interpon PZ770		75 \pm 10 μm
		Interpon BPP330		85 \pm 10 μm
		Interpon 610		90 \pm 10 μm
		<i>Total system</i>	<i>250 μm</i>	
Surface adhesion before test		Class 0		
Resistance to humidity	720 h	Surface	Blistering	0(S0)
			Cracking	0(S0)
			Corrosion	Ri0
ISO 6270-2				
Test time				