

Interpon PZ 660

Product Description: **Interpon PZ 660** is a powder coating primer containing zinc, which is designed to give enhanced corrosion protection of mild steel. **Interpon PZ 660** has been designed to be over coated with powder topcoats such as **Interpon TC**, **Interpon D1094**, **Interpon D1036**, **Interpon D2525** or **Interpon D2000**. In this data sheet, the **Interpon PZ 660** primer over coated with a finish is termed the "**Interpon PZ 660 system**".

Powder Properties:	Chemical type	Thermosetting epoxy, rich in zinc
	Appearance	Grey metallic, slightly granular film
	Particle size	suitable for electrostatic spray
	Specific gravity	1.8-2.2 g/cm ³
	Storage	Dry, cool conditions below 30°C
	Stoving schedule	12-23 minutes at 160°C (minimum)
	(object temperature)	8-17 minutes at 170°C 2-8 minutes at 200°C 1.5-5.5 minutes at 220°C (maximum)

Test Conditions: The results shown below are based on mechanical and corrosion tests which (unless otherwise indicated) have been carried out under laboratory conditions using a complete coating system and are given for guidance only. Actual product performance will depend upon the circumstances under which the product is used.

Mechanical Tests:	Substrate	Steel, 0.5mm thick
	Pretreatment	Cold trichloroethylene degreasing
	Film Thickness	70±10 microns
	Curing	8 minutes at 200°C (PZ660 alone) 2 minutes at 200°C (as primer for complete system)
	Powder Topcoat	Interpon D36 (RAL9010)
	Film Thickness	70±10 microns
	Curing	8 minutes at 200°C

Corrosion Tests:	Substrate	Steel, 2mm thick
	Pretreatment	As detailed in results tables in Appendix (page 3 & 4)
	Film Thickness	As detailed in results tables in Appendix (page 3 & 4)
	Curing	As detailed in results tables in Appendix (page 3 & 4)

Mechanical Tests:	Adhesion	ISO2409	0 (PZ660 alone) 0 (system)
		(2mm Crosshatch)	
	Erichsen Cupping	ISO1520	Pass 8mm (PZ660 alone) Pass 6mm (system)
	Impact	ISO6272	Pass 0.5kg.m (PZ660 alone) Pass 0.5kg.m (system)
	Flexibility	ISO1519	Pass 4mm (PZ660 alone) Pass 5mm (system)
		(Cylindrical Mandrel)	
		ISO6860	Pass 0cm (PZ660 alone) Pass 0cm (system)
		(Conical Mandrel)	

Corrosion Tests: The **Interpon PZ 660** system provides excellent protection against corrosion on the surface to which it is applied. However the efficiency of this protection depends on the surface, its preparation before coating and the topcoat applied. If there is penetrating damage to the coating system, there may be localised signs of corrosion where damage has occurred but this will not affect the adhesion of the film to the adjacent surface. **Interpon PZ 660** considerably limits the extent of spread of corrosion in the event of coating damage.

Neutral Salt Spray	ISO9227	Results are detailed in Table 1 of the Appendix (page 3)
Cycle 3C	Renault D17 1686	Results are detailed in Table 1 of the Appendix (page 3)
SCAB Corrosion	Volvo STD 1027, 1372	Results are detailed in Table 2 of the Appendix (page 4)
Natural Exposure		Results are detailed in Table 3 of the Appendix (page 4)

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Pretreatment:

For maximum protection it is essential that **Interpon PZ 660** is applied to a clean, dry, oxide-free, ferrous metal surface, followed by an **Interpon** topcoat. Surface preparation depends upon the type of surface, its condition and the required performance. For good protection against corrosion the following is recommended:

Grit blasting to at least SA 2.5 in accordance with ISO8501.1, 1988 (F), roughness equivalent to B9a, B10b or B10a ($R_a = 6-12$ microns) using RUGOTEST no. 3 LCA-CEA, in accordance with NFE05051 (1981)

and/or

Degreasing & phosphating followed by passivation, rinsing with demineralised water and drying. Follow the procedural advice of the pretreatment supplier.

Application:

Interpon PZ 660 can be applied by manual or automatic, tribo-electric or standard electrostatic spray equipment. Tribo application should be tested before commencing production. The application conditions given below are for information only:

Fluidising air pressure:	1.5kg/cm ² initially then 1kg/cm ²
Transport air pressure:	0.5 to 0.8kg/cm
Recommended voltage:	65 to 70kV
Recommended thickness:	70 microns (+20/-10)

Unused powder can be reclaimed using suitable equipment and recycled through the coating system, but a minimum of 80% new powder should always be used. Nozzles must be cleaned regularly by blowing down every 30 minutes during continuous use. Nozzles with deflectors are preferable for easier application and cleaning.

Interpon PZ 660 should be cured, or at least gelled, using the recommended stoving schedules, before application of the topcoat. The object temperature must not be below 130°C nor above 220°C. The primer should be cured in a convection oven, optionally with infra-red heaters, with air temperature not exceeding 220°C.

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 PZ 660** should not be handled if possible. If handling is unavoidable, clean lint-free gloves must be worn.

Topcoat Application:

Interpon PZ 660 should ideally be overcoated on the same site within 4 hours of applying the primer. If the delay exceeds 4 hours the parts should be heated for 10 minutes at 120-150°C (object temperature). The delay must not exceed 12 hours. Refer to the Product Data Sheet for the powder topcoat for application parameters.

To ensure the integrity of the **Interpon PZ 660** system, as well as optimum performance, the whole system must be cured in accordance with the recommended curing conditions for the topcoat. Curing should be carried out in a convection oven, optionally with infra-red heaters. There must be a uniform heat distribution inside the oven.

Note: Failure to comply with the recommended final curing conditions may cause variations in colour and gloss and cause degradation of the coating properties of the system.

A detailed protocol for applying **Interpon PZ 660** and a recommended **Interpon** topcoat is available on request.

Damage Repair:

Any damage to the **Interpon PZ 660** 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 polyurethane topcoat, Interthane 990 <i>Product Data Sheets for these products can be obtained from International Protective Coatings at Felling (Tel: +44 (0) 191 469 6111) or the local office.</i>

Safety Precautions:

When using do not eat, drink or smoke. Do not breathe the dust. In case of insufficient ventilation wear suitable respiratory equipment. For further information please refer to the specific product Material Safety Data Sheet (MSDS).

Disclaimer:

The information given in this sheet is not intended to be exhaustive and any person using the product for any purpose other than that specifically recommended in this 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. Whilst we endeavour to ensure that all advice we give about the product (whether in this sheet or otherwise) is correct we have no control over either the quality or condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability whatsoever or howsoever arising for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of the use of the product. The information contained in this sheet is liable to modification from time to time in the light of experience and our policy of continuous product development.

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Table 1: Neutral Salt Spray (in accordance with ISO9227) and **Cycle 3C** (Renault D17 1686 Test) - one cycle consists of the following stages:

1.24 hours salt spray (5% NaCl) at 35°C
 2.4 x 24 hours in climatic chamber as follows - 8 hours damp heat (40±1°C, 98±2% RH); 16 hours ambient air (20±1°C, 73±2% RH)
 3.48 hours drying in climatic chamber at 20±1°C, 63±2% RH.

		Pretreatment:	Solvent degreasing, grit blast (SA 2.5; R_a 6-12µm)	Alkaline degreasing, iron phosphate, demineralised water rinse & dry	Alkaline degreasing, iron phosphate, Cr passivation, demineralised water rinse & dry			
		Film Thickness:	PZ 660 = 60-70µm Interpon D36 = 80-100µm	PZ 660 = 70-90µm Interpon D36 = 100-120µm	PZ 660 = 70-95µm Interpon D36 = 95-120µm			
		Curing Times (@ 200°C):	PZ 660 = 8 minutes Interpon D36 10 minutes	PZ 660 = 8 minutes Interpon D36 = 10 minutes	PZ 660 = 8 minutes Interpon D36 = 10 minutes			
		Results →	Neutral Salt Spray	Cycle 3C	Neutral Salt Spray	Cycle 3C	Neutral Salt Spray	Cycle 3C
Neutral Salt Spray for 1000 hours & Cycle 3C for 6 cycles	Scribe:	Rust Blister - Size - Spread Adhesion loss	XX/XXX 2-0 2-3 blisters -	X/XX 2-4 4-5mm 3mm	X/XX (6-35mm) Significant delamination - ~20mm	X 4, peeling 3mm 2mm	XX (<1mm) 0 0 ≤1mm	X 0 a few 1mm
	Surface:	Rust, R _i Blister Adhesion	0 0 0	0 0 -	0 0 0	0 0 -	0 0 0	0 0 -
Neutral Salt Spray for 1500 hours & Cycle 3C for 9 cycles	Scribe:	Rust Blister - Size - Spread Adhesion loss	XXX 2-3 2-3 blisters -	- - - -	- - - -	X Peeling 5mm 9mm	- - - -	X 3 2mm 1.5mm
	Surface:	Rust, R _i Blister Adhesion	0 0 0	- - -	- - -	0 0 -	- - -	0 0 -
Neutral Salt Spray for 2000 hours & Cycle 3C for 10 cycles	Scribe:	Rust Blister - Size - Spread Adhesion loss	XXX 3-4 2-3 blisters 3mm	X/XX 3-5 5mm 4-5mm	XX (~60mm) Total delamination - ≥60mm	- - - -	XX (1mm) 0 0 ~8mm	- - - -
	Surface:	Rust, R _i Blister Adhesion	0 0 0	0 0 -	0 0 0	- - -	0 0 0	- - -
Neutral Salt Spray for 2500 hours & Cycle 3C for 15 cycles	Scribe:	Rust Blister - Size - Spread Adhesion loss	XXX 3 2-3 blisters -	XX 3-5 6mm 4-5mm	- - - -	X Peeling ≥12mm 15mm	- - - -	X/XX 4 3mm 3mm
	Surface:	Rust, R _i Blister Adhesion	0 0 0	0 0 -	- - -	0 0 -	- - -	0 0 -
Neutral Salt Spray for 3000 hours & Cycle 3C: Not applicable	Scribe:	Rust Blister - Size - Spread Adhesion loss	XXX 3-4 several blisters 4mm	- - - -	XXX (total) Total delamination - -	- - - -	XXX (1mm) 4 1 large blister ~15-20mm	- - - -
	Surface:	Rust, R _i Blister Adhesion	0 0 0	- - -	0 0 0	- - -	0 0 0	- - -

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Key to Corrosion Test Results (Neutral Salt Spray & Cycle 3C):

	At Scribe	On General Surface
Rust	None 0 Slight X Moderate XX Severe XXX	Rating in accordance with ISO4628 R, 0→5 (Best→Worst)
Blisters	Size in accordance with ISO4628: 0 none (invisible at 10x magnification) 1 just visible (10x magnification) 2 just visible (normal vision) 3 clearly visible (≤0.5mm) 4 0.5 to 5mm 5. >5mm Spread of blistering measured in mm from either side of scribe or as number of blisters	
Adhesion	Loss of adhesion from edge of scribe, in mm (by peeling using a scalpel)	In accordance with ISO2409 Class 0→5 (Best→Worst)

Table 2: SCAB Corrosion Test (Volvo) - Natural exposure at Segé, near Malmö, Sweden, 4km from Baltic coast, in accordance with STD 1027, 1372. Twice weekly spraying with a 5% salt solution.

	<i>Pretreatment:</i>	Solvent degreasing, grit blast (SA 2.5; R _a 6-7µm)
	<i>Film Thickness:</i>	PZ 660 = 50-70µm Interpon D36 = 80-100µm
	<i>Curing Times:</i>	PZ 660 = 12 minutes @ 170°C Interpon D36 = 10 minutes @ 200°C
12 months	Propagation of corrosion from either side of scribe	2 + 2 mm
	General surface corrosion	None
30 months	Propagation of corrosion from either side of scribe	12 + 13 mm
	General surface corrosion	None
36 months	Propagation of corrosion from either side of scribe	14 + 16 mm
	General surface corrosion	None
42 months	Propagation of corrosion from either side of scribe	16 + 16 mm
	General surface corrosion	None

Table 3: Natural Exposure - At the test site of the Swedish Corrosion Institute a few metres from the sea on Bohus-Malmön Island, south-west Sweden

	<i>Pretreatment:</i>	Solvent degreasing, grit blast (SA 2.5; R _a 6-7µm)
	<i>Film Thickness:</i>	PZ 660 = 50-70µm Interpon D36 = 80-100µm
	<i>Curing Times:</i>	PZ 660 = 12 minutes @ 170°C Interpon D36 = 10 minutes @ 200°C
12 months	Propagation of corrosion from either side of scribe	2 + 2 mm
	General surface corrosion	None
30 months	Propagation of corrosion from either side of scribe	12 + 13 mm
	General surface corrosion	None
36 months	Propagation of corrosion from either side of scribe	14 + 16 mm
	General surface corrosion	None
42 months	Propagation of corrosion from either side of scribe	16 + 16 mm
	General surface corrosion	None