



AkzoNobel
Tomorrow's Answers Today

APPLICATION SPECIFICATIONS

Steel Anticorrosion systems

Interpon APP system

Interpon BPP system

Interpon PZ systems

Interpon PZ + **Interpon** BPP system

1 - DEFINITIONS

Interpon APP system

"**Interpon APP system**" is a term used to describe a 2-coat system of powder finish over powder primer, where the powder primer is **Interpon APP**, an active protective epoxy-polyester powder, and the finish is an exterior durable polyester powder for outdoor exposure or an epoxy-polyester powder for indoor exposure.

The current generation of this primer is named Interpon APP120.

Interpon BPP system

"**Interpon BPP system**" is a term used to describe a 2-coat system of powder finish over powder primer, where the powder primer is **Interpon BPP**, a barrier protective pure epoxy powder, and the finish is an exterior durable polyester powder for outdoor exposure or an epoxy-polyester powder for indoor exposure.

The current generation of this primer is named Interpon BPP330.

Interpon PZ systems

"**Interpon PZ system**" is a term used to describe a 2-coat system of powder finish over powder primer, where the powder primer is **Interpon PZ**, a zinc rich epoxy powder, and the finish is an exterior durable polyester powder for outdoor exposure or an epoxy-polyester powder for indoor exposure.

Two generations of Interpon PZ are available : Interpon PZ 660 and Interpon PZ 770.

Interpon PZ 770 + Interpon BPP system

"**Interpon PZ 770 + Interpon BPP system**" is a term used to describe a 3-coat system including the primer Interpon PZ 770, an intermediate layer made of Interpon BPP and a topcoat which could be an exterior durable polyester powder for outdoor exposure or an epoxy-polyester powder for indoor exposure.

2 INSTALLATIONS AND WORK ORGANIZATION REQUIREMENTS

2.1 Storage and transfer of parts

Parts in the process of being treated should be protected from condensation, airborne chemical contaminants such as from surface treatment baths, contaminants from the blast-cleaning area and exterior exposure.

For this reason, the grit-blasting operation must be carried out on the same site as the powder coatings application to avoid any transfer of parts under exterior exposure.

2.2 Storage of powder paints

The storage of powder paints – primers and topcoats - should be in accordance with the storage conditions indicated the relevant product data sheet.

2.3 Documentation and test equipment requirements

The application of the different anticorrosion systems in accordance with these Application Specifications requires the availability of different documents and test equipments: refer to Appendix I

The measurement equipments must be calibrated at least once per year.

2.4 Degreasing installation

The parts which should be grit-blasted must be free from any dirt, in particular, of any trace of oil or grease. A degreasing station must be available to treat the parts spattered with grease. The degreasing could be done either by alkaline method with rinsing or using solvent.

2.5 Grit-blasting installation

The grit-blasting installation, with free jet or turbine, must have a separator and a dust extractor.

The compressed air supply must be capable of producing dry oil free air. This will normally require a refrigerated air drier and coalescent oil filters with secondary de-oiler and water trap. Advice should be sought from the compressor supplier.

- Manual grit-blasting with free jet

To obtain the required grit-blasting result, we recommend an angular grit, hardness 54-56 Rockwell, type GL40 with a blast air pressure of 6 bar approximately.

This type of grit could be made of steel or stainless steel.

Corundum grit could be also used but it is less suitable.

- Automatic grit-blasting with turbine

The choice of the steel grit should be made in accordance with the turbine type:

- turbine manufactured in non-treated steel : hardness type GP – the lowest hardness

- turbine manufactured in carbide : hardness until type GL – middle hardness

and to obtain the required grit-blasting result – Ra between 6 and 10 microns - we recommend a particles size type 40 (0,3 mm approximately).

This type of grit could be made of steel or stainless steel.

We recommend that the following checks are made:

- granulometry check (sieve analysis check),

- cleanliness check: visual examination and blotting paper test.

Refer to the abrasives supplier for testing support.

The frequency of these tests will depend on the frequency of use of the grit-blasting unit.

2.6 Pre-treatment installation by phosphating

● Installation

The installation is constructed according to user requirements and industry guidelines.

Because proprietary chemical conversion coatings may vary from supplier to supplier, it is the responsibility of the Applicator to determine that the chosen phosphate system is capable of delivering the required performance or conformance to specification.

● Sequence

The minimum surface treatment sequence must include the following stages:

- Degreasing,
- Rinsing,
- Phosphating,
- Rinsing,
- Passivation, chromic or non-chromic
- Rinse in de-mineralised water,
- Drying.

In the case of the phosphating treatment is used as an additional treatment to the grit-blasting and only in this case, a stage combining degreasing and phosphating in a single bath is accepted.

The best performance is obtained with crystalline phosphating, bi or trication, followed by passivation and rinsing with de-mineralised water.

● Monitoring the surface treatment

All stages of the treatment are checked by their parameters:

- mechanical : time (conveyor speed), temperature, pressure, outflows
- chemical : concentration, pH, resistivity (DW)

The installation is kept in good working order by preventive and repair maintenance, including in particular periodic de-scaling of the spray systems.

2.7 Ovens and curing tunnels

The ovens must be designed to obtain the best uniformity of temperature.

Temperature/time curves should be plotted for parts of different thermal masses that are representative of the products. A periodic check (preferably weekly and at least monthly) of the baking conditions should be carried out and systematically after any intervention or incident that may affect cure.

The oven should be cleaned and maintained regularly.

In the case of using oven boxes we strongly recommend an alarm installation.

3. PREPARATION OF THE SUBSTRATE

3.1 Preparation by grit-blasting

● Initial condition of the parts

For all types of parts, the degree of rust before preparation must not exceed the following states according to ISO 8501-1 2007 or Swedish standard SIS 05.09.00. and regarding the different systems :

- Interpon APP system : state "C"
- Interpon BPP system : state "C"
- Interpon PZ systems : state "C"
- Interpon PZ + Interpon BPP system : state "B"

Parts design :

- welds on the parts must be continuous and leak tight,
- air-gaps must be closed by welding.

As a supplement of these requirements it is recommended to advise the parts designer to follow the design considerations for coated steel parts of the ISO 12944-3 standard.

Depending on the different systems, 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 :

- Interpon APP system : grade P2
- Interpon BPP system : grade P2
- Interpon PZ systems : grade P2
- Interpon PZ + Interpon BPP system : grade P3

for instance at grade P2 the edges must be chamfered and at grade P3 the edges must be rounded.

Assembled or shaped parts with areas inaccessible to the system coatings must have these areas protected against corrosion before or after assembly or shaping, using a liquid paint system or a mastic compatible with subsequent operations, or by metallisation.

The parts must be free from any dirt, contamination or impurities and, in particular, of any trace of oil or grease. If necessary, the parts must be degreased. The parts must be perfectly dry before the blasting operation.

● Grit-blasting conditions

Blast-cleaning is done on a dry surface with a clean abrasive free from impurities and using dry air free from any traces of grease or oil.

When:

- the relative atmospheric humidity exceeds 85%,
 - the temperature of the object is less than 3°C above the dew point
- blast-cleaning should not be started or continued.

It is advised to bring the parts into the workshop some hours before the grit-blasting operation to have the parts at the same temperature as the workshop.

● Final grit-blasting standard

Depending on the different systems, the grit-blasted surface must be prepared to standards:

Systems	Roughness profile				Cleanliness level
	Targeted values		Approach with comparators		
	Rz μ	Ra μ	Plates of RUGOTEST n°3 LCA-CEA in accordance with NFE 05051 1981	Segment of ISO 8503-1 Comparator G	
Interpon APP system	35 - 65	6 - 10	B9a - B10b - B10a	over segment 1 and not over segment 2	\geq SA 2.5
Interpon BPP system	35 - 65	6 - 10	B9a - B10b - B10a	over segment 1 and not over segment 2	\geq SA 2.5
Interpon PZ systems	35 - 65	6 - 10	B9a - B10b - B10a	over segment 1 and not over segment 2	\geq SA 2.5
Interpon PZ 770 + Interpon BPP system	35 - 65	6 - 10	B9a - B10b - B10a	over segment 1 and not over segment 2	\geq SA 2.5

In the case of castings, the roughness profile should preferably be towards the smaller roughness levels. The roughness check will mainly be visual.

● Dust removal

Remove dust by blowing with clean dry air or brush with a soft brush. Make sure that the particles removed do not contaminate other surfaces that have already been dusted or coated or are being coated.

Make sure that the surfaces are clean of any non-adherent foreign objects (scale and/or oxide, abrasive residue, dust), using the following check, for example:

apply a piece of standard commercial transparent adhesive tape of at least 19 mm wide to the blast

cleaned part over a length of approximately 10 cm to pick up any non-adherent particles. Examination of the back of the tape must only reveal a minimum of residual grit-blasting particles.

● Handling grit-blasted parts

Blast-cleaned parts must not be handled with bare hands. Use clean, lint-free gloves.

● Additional treatment by phosphating

To reinforce the anti-corrosion protection, or for practical assembly line reasons, an additional treatment by phosphating may be done after blast cleaning and dust removal.

If it is done, this treatment must comply with the conditions of **2.6** and **3.2**.

- **Maximum time before applying the primer**

The primer must be applied quickly to obtain efficient protection and within a maximum period of:

Maximum period	Relative atmospheric humidity
12 hours	less than 60%
6 hours	between 60% and 75%
4 hours	greater than 75% not exceeding 85%

Any part not blast-cleaned and coated under these conditions and within these times or not having remained at a cleanliness degree \geq SA 2.5 must undergo a new blast-cleaning operation.

3.2 Preparation by phosphating

● Initial condition of the parts

Parts design :

- welds on the parts must be continuous and leak tight,
- air-gaps must be closed by welding.

As a supplement of these requirements it is recommended to advise the parts designer to follow the design considerations for coated steel parts of the ISO 12944-3 standard.

Depending on the different systems, 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 :

- Interpon APP system : grade P2
- Interpon BPP system : grade P2
- Interpon PZ systems : grade P2
- Interpon PZ + Interpon BPP system : grade P3

for instance at grade P2 the edges must be chamfered and at grade P3 the edges must be rounded.

The mild steel parts, must be free from all traces of oxidation, oil, grease or burned grease.

Greasy residues permissible:

- quantity : lower than 2g / chemical m² (measured by weighing the plates before and after solvent degreasing either by machine in the trichloroethylene phase or using a cloth soaked in acetone),
- quality : degreasability, free from silicone.

Be aware that the design of the pieces and their suspension ensures complete drainage and perfect drying.

● Phosphating conditions

An operating method for surface treatment by phosphating must be determined with the surface treatment supplier and validated by that supplier.

This operating method will define in particular the various "bath" parameters (concentration, pH, temperature, water quality), the treatment conditions (time, pressure), the film weight to be obtained, the checks to be made.

Drying must take place immediately after the last rinse with de-mineralised water.

4. COATINGS APPLICATION

4.1 General application conditions

The work organization must be such that:

- parts recently powder coated are protected from the weather, draughts, dust or any abrasive element likely to affect the parts
- the coated parts are not damaged during handling,
- the recommendations of the manual entitled "Safe Powder Coating Guidelines", 7th edition 2005 from CEPE have been observed (available at www.cepe.org).

Powder coating is prohibited if:

- the temperature of the part to be powder coated is less than 3°C above the dew point
- the relative atmospheric humidity exceeds 85%.

4.2 Coating of the primer

4.2.1 Application conditions for the primers

The primer of the concerned system must be applied under the conditions below:

System		Interpon APP system	Interpon BPP system	Interpon PZ system	Interpon PZ + Interpon BPP system
Primer to apply		Interpon APP	Interpon BPP	Interpon PZ	
Temperature of the parts to spray		≤ 120°C	≤ 120°C	≤ 120°C	
Corona spraying capability		Suitable	Suitable	Suitable	
Tribo spraying capability		Depending on the tribo spraying equipment: to test	Depending on the tribo spraying equipment: to test	Depending on the tribo spraying equipment: to test	
Recommended spraying conditions (to adjust)	Fluidisation air pressure	1 to 2 kg/cm ²	1 to 2 kg/cm ²	1,5 kg/cm ² at the beginning and then 1 kg/cm ²	
	Transport air pressure	0,5 to 1 kg/cm ²	0,5 to 1 kg/cm ²	0,5 to 0,8 kg/cm ²	
	Voltage	60 to 80 kV	60 to 80 kV	65 to 70 kV	
Use of vibrating table		Suitable	Suitable	Not suitable	
Thickness of primer to apply (after baking)	Minimum at all points on the parts	60 microns	60 microns	60 microns	
	Maximum, to preserve the mechanical characteristics of the coatings	90 microns	100 microns	120 microns	
Recycling : minimum of new powder content		70%	70%	80%	
Other instructions				Nozzles with spreaders are preferred to facilitate application and cleaning. Nozzles must be cleaned regularly by blowing every 30 minutes in continuous use. The fluidised bed must be cleaned at least every week.	

4.2.2 Baking of the primers

- For an immediate overcoating of the primers

The different primers must be baked under the following conditions:

For an immediate covering of the primers with the topcoat and to have the best adhesion between them we recommend the green cure conditions of the primers.

System	Interpon APP system	Interpon BPP system	Interpon PZ system	Interpon PZ + Interpon BPP system			
Primer to bake	Interpon APP	Interpon BPP	Interpon PZ				
Minimum temperature of the parts	130°C	130°C	110°C				
Maximum temperature of the parts	220°C	180°C	220°C				
Maximum oven ambience temperature	220°C	no peak over 180°C	220°C				
Curing conditions	Parts temperature	Minimum time	Maximum time	Minimum time	Maximum time	Minimum time	Maximum time
	110°C	<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>	15 min (green cure)	40 min (green cure)
	130°C	10 min (green cure)	30 min (green cure)	15 min (green cure)	30 min (green cure)	12 min (green cure)	30 min (green cure)
	160°C	10 min	20 min	10 min	14 min	12 min	23 min
	170°C	8 min 30 sec	17 min	6 min	10 min	8 min	17 min
	180°C	7 min	14 min	2 min	4 min (maximum)		
	200°C	5 min	10 min	<i>Not Applicable</i>	<i>Not Applicable</i>	2 min	8 min
	220°C	3 min	6 min (maximum)	<i>Not Applicable</i>	<i>Not Applicable</i>	1 min 30 sec	5 min 30 sec (maximum)

● **For a use of Interpon APP or Interpon BPP as holding primer**

Interpon APP and Interpon BPP can be used as holding primers for a powder or liquid topcoat by utilising a maximum period before overcoating of:

- 6 weeks for Interpon APP and
- 1 week for Interpon BPP.

Before over coating the holding primer should be cleaned.

For a use of Interpon APP or Interpon BPP as holding primers, the primers must be baked under the following conditions:

System		Interpon APP system		Interpon BPP system	
Primer to bake		Interpon APP		Interpon BPP	
Minimum temperature of the parts		130°C		130°C	
Maximum temperature of the parts		220°C		180°C	
Maximum oven ambience temperature		220°C		no peak over 180°C	
Curing conditions for a use as holding primer	Parts temperature	Minimum time	Maximum time	Minimum time	Maximum time
	160°C	10 min	20 min	10 min	14 min
	170°C	8 min 30 sec	17 min	6 min	10 min
	180°C	7 min	14 min	2 min	4 min (maximum)
	200°C	5 min	10 min	<i>Not Applicable</i>	<i>Not Applicable</i>

Convection ovens and infra-red with convection combination ovens are suitable. The heat distribution in the oven must be homogenous.

Failure to observe the correct baking conditions may cause adhesion defects of the second layer and deterioration of the properties of the system.

4.2.3 Handling parts coated with the primers

Parts coated with Interpon PZ primer should not be handled at all if possible. If it is necessary, clean lint-free gloves must be used.

Any contact with bare hands will cause adhesion defects of the finish.

Parts coated with Interpon APP or Interpon BPP should be handled carefully avoiding any surface contamination.

4.2.4 Quality checking of the coated parts

Coating film thickness checks should be carried out in accordance with ISO 2360 and in accordance with the instructions in 5.1 and 5.2 for the best results.

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 in the following conditions

Thickness correction of the primer				
System	Interpon APP system	Interpon BPP system	Interpon PZ system	Interpon PZ + Interpon BPP system
Primer to over coat	Interpon APP	Interpon BPP	Interpon PZ	
Maximum period before over coating with the primer	24 hours	24 hours	4 hours	
Temperature of the parts before over coating	≤ 120°C	≤ 120°C	≤ 120°C	
Curing conditions for an immediate overcoating of the primer	Same curing conditions of the primer "For an immediate covering of the primer"			
Curing conditions for a use as holding primer	Same curing conditions of the primer "For a use of the primer as holding primer"		<i>Not Applicable</i>	

4.2.5 Maximum period before applying the second layer

The second layer must be applied within a maximum period depending on the primer type :

System	Interpon APP system	Interpon BPP system	Interpon PZ system	Interpon PZ + Interpon BPP system
Primer applied	Interpon APP	Interpon BPP	Interpon PZ	
Maximum period before applying the second layer	24 hours if only green cured or 6 weeks if cured for a use as holding primer	24 hours if only green cured or 1 week if cured for a use as holding primer	12 hours Over 12 hours and not over 24 hours a stoving of the parts is required during 10 minutes at 120°C +30/-0 (parts temperature)	

Any parts not coated with the second layer within these times must be re-treated to obtain an initial state in accordance with "Initial condition of the parts" of chapter 3.1 or 3.2, depending on the surface preparation.

4.3 Coating of the intermediate layer

This chapter relates only to the Interpon PZ 770 + Interpon BPP 3 layer system

4.3.1 Application of the intermediate layer Interpon BPP

The Interpon BPP intermediate layer of the Interpon PZ 770 + Interpon BPP system must be applied under the conditions below:

System	Interpon PZ 770 + Interpon BPP system	
Intermediate layer to apply	Interpon BPP	
Temperature of the parts to spray	≤ 120°C	
Corona spraying capability	Suitable	
Tribo spraying capability	Suitable	
Recommended spraying conditions (to adjust)	Fluidisation air pressure	1 to 2 kg/cm ²
	Transport air pressure	0,5 to 1 kg/cm ²
	Voltage	60 to 80 kV
Use of vibrating table	Suitable	
Thickness of Interpon BPP to apply (after baking, excluding the thickness of Interpon PZ 770)	Minimum at all points on the parts	60 microns (120 μ including the first Interpon PZ layer)
	Maximum, to preserve the mechanical characteristics of the coatings	100 microns (220 μ including the first Interpon PZ layer)
Recycling : minimum of new powder content	70%	

4.3.2 Baking of the intermediate layer Interpon BPP

The Interpon BPP intermediate layer must be baked under the following conditions:

System	Interpon PZ 770 + Interpon BPP system		
Intermediate layer to bake	Interpon BPP		
Minimum temperature of the parts	130°C		
Maximum temperature of the parts	180°C		
Maximum oven ambience temperature	no peak over 180°C		
Curing conditions	Parts temperature	Minimum time	Maximum time
	130°C	15 min (green cure)	30 min (green cure)
	160°C	10 min	14 min
	170°C	6 min	10 min
	180°C	2 min	4 min (maximum)

Failure to observe the correct baking conditions may cause adhesion defects of the finish and deterioration of the properties of the system.

4.3.3 Handling parts coated with the intermediated layer

Parts coated with the 2 layers Interpon PZ 770 + Interpon BPP should be handled carefully avoiding any surface contamination.

4.3.4 Quality checking of the coated parts

Coating film thickness checks should be carried out in accordance with ISO 2360 and in accordance with the instructions in **5.1** and **5.2** for the best results.

If the thickness is too thin and to avoid an over curing of the system, the missing thickness will be offsetted by applying a thicker thickness of the finish coat.

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.

4.3.5 Maximum period before applying the Interpon finish coating

The Interpon finish coating must be applied within a maximum period of 24 hours.

4.4 Coating of the Interpon finish

4.4.1 Interpon finish selection

Depending on the environment type different Interpon finishes could be used as topcoat for the systems :

Interpon finishes suitable per system and per environment		
Systems	Interior	Exterior
Interpon APP system Interpon BPP system Interpon PZ systems	Interpon 700*	
	Interpon 310*	
	Interpon 610, TC	Interpon 610, TC
		Interpon 810
	Interpon D1036	Interpon D1036
	Interpon D1094	Interpon D1094
	Interpon D2525	
Interpon PZ 770 + Interpon BPP system	Interpon D1036	Interpon D1036
	Interpon D1094	Interpon D1094
		Interpon D2525

*NB - Some Interpon 700 or Interpon 310 powders containing metal pigments cannot not be used in humid environments: seek advice from our technical specialists.

4.4.2 Application of the Interpon finish

The Interpon finish applied over the primer or the intermediate layer must be applied on the same site in accordance with the application parameters given in the relevant finish product data sheet.

Depending on the system and the environment type, the Interpon finish must be applied under the following conditions:

System		Interpon APP system		Interpon BPP system		Interpon PZ systems		Interpon PZ 770 + Interpon BPP system	
Temperature of the parts for the finish coat spray		≤ 120°C		≤ 120°C		≤ 80°C		≤ 120°C	
Thickness of the finish coat	Environment	Minimum thickness microns *1	Maximum thickness microns *2	Minimum thickness microns *1	Maximum thickness microns *2	Minimum thickness microns *1	Maximum thickness microns *2	Minimum thickness microns *1	Maximum thickness microns *2
	Interior	60	120	60	120	70	120	70	120
	Exterior	70	120	70	120	70	120	70	120

NB

*1 For some finishes or colours the minimum thickness could be higher, please refer to the technical data sheet specific to the finish/colour to apply.

*2 Higher film thicknesses support anticorrosion protection but affect the impact resistance.

4.4.3 Final baking of the Interpon systems

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

Convection ovens and infra-red with convection combination ovens are suitable for use. The heat distribution in the oven must be homogenous and its temperature must not exceed 220°C.

Failure to observe the final baking conditions, particularly exceeding the maximum temperature, may cause differences in colour, gloss and the deterioration of the system properties.

5. FINAL INSPECTION

5.1 Controls and correcting actions

The final inspection relates to:

- The compliance of finish (film structure, colour, gloss) with the order,
- The appearance of the painted surface, which must be free from dirt or dust, blisters and without defect at the welds.
In case of appearance defect : depending on the defect found, total or partial reworking of the part.

- The total thickness of the system and therefore the thickness of the finish coat is measured in accordance with ISO 2360. The minimum thickness of each coat must be observed. On each part submitted to this control the thickness measure must be done on minimum 10 points distributed over the part (5 points for part of less than 0,5 m²).

System	Interpon APP system		Interpon BPP system		Interpon PZ systems		Interpon PZ 770 + Interpon BPP system		
Primer	Interpon APP		Interpon BPP		Interpon PZ		Interpon PZ		
Intermediate layer	<i>not any</i>		<i>not any</i>		<i>not any</i>		Interpon BPP		
Thicknesses	Minimum thickness microns	Maximum thickness microns	Minimum thickness microns	Maximum thickness microns	Minimum thickness microns	Maximum thickness microns	Minimum thickness microns	Maximum thickness microns	
Primer	60	90	60	100	60	120	60	120	
Intermediate layer							60	100	
Finish coat	Interior	60	120	60	120	70	120	70	120
	Exterior	70	120	70	120	70	120	70	120
Total system	Interior	120	210	120	220	130	240	190	340
	Exterior	130	210	130	220	130	240	190	340

In case of thickness defects in the Interpon finish: over coat within 12 hours of the parts pre-heated at a temperature not higher than 120°C, followed by a further final stove at curing schedule.

- The adhesion of the system using a cross cut test in accordance with ISO 2409 (with the cuts 2 mm apart), made on parts - preferably on an area which is not visible on installation – or on plates representative of the production. On the part, this area must be repaired according to the relevant repair system: refer to Appendix II. The result to be obtained is maximum class 1 with no interlayer detachment. If the result is lower, make 2 additional controls and calculate the average of the 3.

In case of adhesion defect : complete re-treatment of the parts to obtain an initial state in accordance with “Initial condition of the parts” of chapter 3.1 or 3.2, depending on the surface preparation.

5.2 Controls frequency

- The compliance of finish with the order: per lot
- The appearance of the painted surface: all the parts treated must undergo a general appearance inspection

- The total thickness of the system and of the finish coat: in accordance with the sampling plan below
- The adhesion of the system: in accordance with the sampling plan below

SIZE OF LOT	< 3	4 to 7	8 to 15	16 to 30	30 to 100	> 100
N1 Number of parts to be checked	all	3	4	6	8	8 % of lot
A1 Number of defective parts of N1 resulting in acceptance of the lot	0	0	0	0	0	1
R1 Number of defective parts resulting in second check	lot to be re-treated	1	1	1	1	2
N2 Number of parts subjected to second check		remainder of the lot	8	12	16	16 % of lot
A2 Number of defective parts from N2 resulting in acceptance of the lot		0	0	0	0	1
R2 Number of defective parts from N2 leading to inspection of the complete lot		lot to be re-treated	1	1	1	2

6. USE AND MAINTENANCE OF THE COATED PARTS

It is the responsibility of the applicator to ensure a correct storage and transport of the coated parts and to inform the parts recipients of instructions in Appendix II for storage, assembly on site and maintenance.

APPENDIX I – Documentation and test equipment requirements

DOCUMENTATION AND EQUIPMENT		Surface preparation used	Essential / Advised / Optional	Remarks	
Standards	ISO 8501-1 2001 (F) ou norme SIS 05.09.00 Preparation of steel substrates - Visual assessment of surface cleanliness	Grit blasting	Essential		
	ISO 2409 Paints - Cross-cut test	Grit blasting or Phosphating	Essential		
	ISO 2813 Paints - Determination of specular gloss of non-metallic paint film.	Grit blasting or Phosphating	Optional		
	ISO 4628-1/2/3 Paints - Evaluation of degradation of coatings 1/ general designation 2/ degree of blistering 3/ degree of rusting	Grit blasting or Phosphating	Advised		
	ISO 2360 Paints - Measurement of coating thickness	Grit blasting or Phosphating	Essential		
	ISO 12944-2 Corrosion protection of steel structures - Classification of environments	Grit blasting or Phosphating	Optional		
	ISO 12944-3 Corrosion protection of steel structures - Design considerations	Grit blasting or Phosphating	Advised		
	ISO 8501-3 Corrosion protection of steel structures - Preparation grades of welds, edges, ...	Grit blasting or Phosphating	Advised		
Documentation	Safety Powder Coating Guideline - last edition available	Grit blasting or Phosphating	Essential	Available at www.cepe.org	
	Technical and Safety data sheets of the different powder coatings used	Grit blasting or Phosphating	Essential		
	Operating method of the relevant supplier for surface pre-treatment and technical documentation including instructions, operating parameters, controls.	Phosphating	Essential		
Equipments	Grit blasting	NFE 05-051 1981 - Rugotest n°3 LCA-CEA Etat de surface des produits, moyens de mesure, échantillons de mesure visiotactile (Roughness profils - visiotactile samples) or ISO 8503-1 grit angular blast comparator plate	Grit blasting	Essential	Could be replaced with a roughness measurement device
		Roughness measurement device	Grit blasting	Optional	Preferably a portable and not fragile
		Atmospheric thermometer	Grit blasting	Essential	These devices could be combined
		Hygrometer	Grit blasting	Essential	
		Contact thermometer	Grit blasting	Essential	
	Phosphating	Titration equipment	Phosphating	Essential	
		pHmeter	Phosphating	Essential	
		Conductance measurement device	Phosphating	Essential	
	Curing	Temperature recorder according to time (3 object points ; 1 ambiance point)	Grit blasting or Phosphating	Essential	
	Coatings control	Sharp tool for adhesion test according to ISO 2409	Grit blasting or Phosphating	Essential	
		Gloss measurement device according to ISO 2813	Grit blasting or Phosphating	Optional	
		Microscope - magnifying glass X 30		Optional	
		Coating thickness measurement device according to ISO 2360	Grit blasting or Phosphating	Essential	
Coating thickness measurement by destruction method			Optional		

APPENDIX II – Instructions for transport, storage, assembly and maintenance of the coated parts

The way to use the coated parts and to ensure their maintenance is an important durability factor.

● Transport

During transport, coated parts should be packed and fastened to avoid any damage or degradation of the coating.

● Storage

When possible, parts should be stored inside. If stored outside, the sealed wrapping should be removed to avoid any marks or accelerated corrosion due to the confined atmosphere.

It is recommended to use wood or plastic braces to avoid the contact between parts and to provide good ventilation.

Never stock coated parts on a damp surface (lawn, sand,...) or in an aggressive environment (near chemicals for instance).

Concerning the parts just coated with a holding primer they must be protected from dust or any stain and stored at room temperature (not near the oven for instance). The possible wrapping should not be airtight and no adhesive should be stuck on the coating. The parts must be handled carefully.

Before over coating, the holding primer should be cleaned.

● Assembly

Take away the temporary protective film immediately after assembly.

In case of boring or cutting the protection of the exposed surface by an appropriate system is imperative.

If the coating is damaged during assembly, it should be repaired immediately .

Contamination of any kind (cement, plaster, solvent, acid,etc.) must be removed immediately.

● Maintenance

The maintenance of coated surfaces includes a cleaning and the possible repair of damage or degradation.

> Frequency

The maintenance frequency depends on the corrosivity of the environment:

- for C1,C2 environments (very low to low corrosivity) the maintenance frequency is in general annually for the surfaces which are periodically washed by the rain

- for C3, C4, C5 environments (medium to very high corrosivity) the rain exposed surfaces need generally a twice-yearly maintenance

- for surfaces not exposed to rain a more frequently cleaning is recommended.

For coated surfaces exposed to dust, mud, sand or salt retention, meticulous cleaning is necessary.

> Cleaning

The cleaning of powder coatings consists in a wash with water and soft detergent (pH between 5 and 8 added) followed by careful rinsing with clear water and wiping.

Notice that some solvents, alkaline solvents or acids, can degrade the coatings: consult the chemicals resistance of the different topcoats before using any type of chemicals.

> Repairing

Concerning the repairing we 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 systems :

- for the Interpon APP 120 or Interpon BPP 330 + Interpon D systems: a PU (1 or 2K) paint

- for the Interpon PZ + Interpon D systems: a zinc rich epoxy primer over coated with a PU (1 or 2K) paint

- for the Interpon PZ 770 + Interpon BPP 330 + Interpon D system: a zinc rich epoxy primer + an epoxy intermediate + a PU (1 or 2K) paint.