

GENERAL SPECIFICATION

CORROSION

GS EP COR 352

Internal protection of equipment by painting

10	10/2012	General review - New paint Supplier
08	10/2011	General review - New paint Supplier - Methanol Tanks paint systems
07	10/2009	General and standard list review
06	10/2008	General review
00	02/2001	First issue
Rev.	Date	Purpose of the revision

Owning entity: DEV/TEC	Managing entity: DEV/TEC/COR
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General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 2 of 81

Contents

1. Scope	4
2. Reference documents.....	4
3. Painting systems.....	5
3.1 Reference code for identification of painting systems.....	5
3.2 Approved systems	6
4. General philosophy.....	6
5. Certification of personnel.....	6
5.1 Operators.....	6
5.2 Inspectors	6
6. Technical content of tenders	7
7. Surface Preparation	7
7.1 Design and preparation before blasting of surfaces to be painted	7
7.2 Quality of abrasives	8
7.3 Blast cleaning of carbon steel (AF).....	8
7.4 Blast cleaning of carbon steel (AF) on automatic production lines.....	8
7.5 Blast cleaning of stainless steels (AI)	8
7.6 Surface preparation of galvanised steel (AG)	9
7.7 Preparation of zinc or cadmium plated bichromated surfaces (AB)	9
8. Paint application	9
8.1 Procurement and storage.....	9
8.2 Samples for QA/QC purposes.....	9
8.3 Qualification of application procedure for each system.....	9
8.4 Kick off meeting	10
8.5 Application	10
8.6 Repairs	11
9. Checks, inspection and acceptance.....	11
9.1 Checks.....	11
9.2 Inspection test plan	13

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 3 of 81

9.3	Company inspection	13
9.4	Provisional acceptance	13
9.5	Guarantee.....	13
9.6	Final acceptance.....	13
10.	Technical file	14
	Bibliography.....	15
Appendix 1	Approved list of Suppliers.....	16
Appendix 2	List of systems	17
Appendix 3	Suppliers' systems.....	19

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 4 of 81

1. Scope

This document defines the technical requirements for the execution of painting works for high durability internal protection of equipment against corrosion and/or of products against pollution or contamination.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of this document.

Reference	Title
ACQPA	"Association pour la Certification et la Qualification en Peinture Anticorrosion". Certified systems by ACQPA
ASTM D 4752	Standard test method for measuring MEK resistance of ethyl silicate (inorganic) Zinc-rich primer by solvent rub
ASTM D 4940	Standard test method for conductimetric analysis of water soluble ionic contamination of Blasting abrasives
ASTM D 5162	Standard Practice for Discontinuity (Holiday) Testing of Nonconductive Protective Coating on Metallic Substrates
ISO 12944 (Parts 1; 2; 3; 4; 7; 8)	Paints and varnishes - Corrosion protection of steel structures by paint systems - Parts 1; 2; 3; 4; 7; 8
ISO 16276 (Parts 1; 2)	Corrosion protection of steel structures by protective paint systems - Assessment of, and acceptance criteria for, the adhesion/cohesion (fracture strength) of a coating - Parts 1; 2
ISO 19840	Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces
ISO 4628 (Parts 1; 2; 3; 4; 5; 6)	Evaluation of paint and varnish defects. Designation of intensity, quantity and size of common types of defect - Parts 1; 2; 3; 4; 5; 6
ISO 8501 (Parts 1; 2; 3)	Preparation of steel substrates before application of paints and related products. Visual assessment of surface cleanliness - Parts 1; 2; 3
ISO 8502 (Parts 1; 2; 3; 4; 6; 9)	Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness - Parts 1; 2; 3; 4; 6; 9
ISO 8503 (Parts 1; 2; 3; 4)	Preparation of steel substrates before application of paints and related products. Surface profile of abrasive blast-cleaned steel - Parts 1; 2; 3; 4

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 5 of 81

Reference	Title
ISO 8504 (Parts 1; 2; 3)	Preparation of steel substrates before application of paints and related products. Methods for surface preparation - Parts 1; 2; 3

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published in the applicable yearly collection.

Reference	Title
Not applicable	

3. Painting systems

Painting systems are defined according to the following parameters:

- Type of substrate
- Minimum and maximum operating temperatures
- Nature of the product in contact with the coating and type of equipment.

3.1 Reference code for identification of painting systems

3.1.1 Coding system

Part 1: Substrate

AF	Carbon steel or cast iron
AI	Stainless steels and other alloys (including monel, Ni alloys...)

Part 2: Operating temperature

SNNN/SNNN where:

- S is either + or -
- NNN indicates the minimum and maximum operating temperatures (3 digits).

Part 3: System number

These are indicated in Suppliers' system sheets figuring in Appendix 3.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 6 of 81

3.1.2 Identification of painting systems

Systems are identified as follows:

AF	+121/+300	PXXXX
Parameter 1	Parameter 2	System number

The above identification denotes a painting system for carbon steel, with a minimum operating temperature of 120°C and a maximum operating temperature of 300°C.

3.2 Approved systems

The painting systems approved by Company are given in Appendix 3. They have been qualified through in house testing in TOTAL laboratories, or when relevant, through Third Party testing. They also reflect the result of Company experience and operational feedback.

Each year, approved paint Supplier will fill in the tables of Appendix 3, thereby proposing the painting systems for the new revision of the present specification. A meeting will be held between Supplier and Company in order to discuss new proposals and to finalise the list of approved painting systems for the coming year. Following this, Supplier will then issue a statement certifying that no alternative painting system (already qualified or not) than these agreed during the meeting will be submitted for Company projects or maintenance works unless previously discussed with, and duly authorised by TEC/COR.

Supplier's painting systems will not be included in the present specification unless such statement has been issued.

4. General philosophy

When a painting system is used for internal protection of equipment, it will usually be associated with cathodic protection by sacrificial anodes, unless otherwise specified. The chosen painting system should therefore be compatible with cathodic protection.

In order to avoid rapid consumption of sacrificial anodes, internals of vessels and tanks shall be painted wherever possible, especially if these internals are made of stainless steel. From an economic standpoint, careful consideration shall therefore be given to the use of carbon steel when internals can be painted.

5. Certification of personnel

5.1 Operators

Operators shall be individually certified by an approved organization ([ACQPA](#), FROSIO, etc.).

5.2 Inspectors

Inspectors shall be individually certified by an approved organization ([ACQPA](#), FROSIO, NACE international minimum level 3, etc.).

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 7 of 81

6. Technical content of tenders

Tenders shall include the following information:

- Proposed paint systems for each category / location of item to be painted
- Product data sheets
- Proposed qualification program if any
- List of derogations to the present General Specification, if any. Derogations will not be granted for painting systems after Contract award
- Terms and conditions of guarantee
- A statement showing that all parties involved (Contractor, Supplier, and Applicator) will be carrying out the work according to the present specification, or if relevant, to the project particular specification, including derogations duly agreed by TEC/COR before Contract award. This statement shall also show that the guarantee is jointly underwritten by all parties and specify the durations and performance levels of the guarantee. This statement can consist in either a certificate of homologation by OHGPI (Organisme d'Homologation des Garanties en Peinture Industrielles) or a letter signed by the head office of each party involved.
- Maximum thickness tolerable for each coat and for the each full painting system
- Surface preparation and painting procedures
- Inspection test plan with acceptance criteria and frequency of inspection
- A list of inspection and painting equipment to be used
- Colours to be used for each item of equipment and for the different coats, in accordance with the colour chart chosen for the project by Company
- Methods of protection of items to be painted against adverse weather conditions
- Certificates ([ACQPA](#), FROSIO, NACE, or equivalent) of Operators and Inspectors.

7. Surface Preparation

7.1 Design and preparation before blasting of surfaces to be painted

All equipment shall be designed according to [ISO 12944](#) international standard for high durability paint systems.

All Sharp edges shall be rounded (minimum radius > 2 mm).

The design of the item to be painted shall be such that it creates no interstice and inaccessible area.

All oil or grease shall be removed by washing the item to be painted with appropriate solvents or any other suitable means before beginning blast-cleaning operations. This includes bolt holes in piping assemblies.

Weld spatter and remains of temporary welds, deposits or surface defects shall be eliminated by appropriate means; removal by deep grinding is subject to Company approval.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 8 of 81

All mating surfaces of equipment shall be coated with the full coating system prior to assembly (base plates, bolted components, flanges, etc.).

Contractor shall protect all equipment that is not to be painted or may be affected by the presence of abrasives or paint. Special attention shall be paid to avoid splashes of zinc paint on equipment made of austenitic steels.

7.2 Quality of abrasives

Abrasives shall be sealed in watertight packaging. Any product delivered in defective packaging shall be rejected. Products must be stored sheltered from the elements.

Conductivity of abrasives shall be less than $150 \cdot 10^{-6}$ Siemens/cm as per [ASTM D 4940](#).

The use of copper slag or silica sand is **strictly** prohibited.

7.3 Blast cleaning of carbon steel (AF)

All surfaces to be coated shall be blast-cleaned ([ISO 8504](#)) according to:

- The grade of cleanliness ([ISO 8501](#) standard)
- The surface profile Ra ([ISO 8503](#) standard: roughness meter with adapted cut-off or visio tactile surface profile comparator)

specified for each system in Appendix 3.

After blast-cleaning, all dust must be removed using a vacuum cleaner before application of the paint in order to achieve the maximum dust level specified for each system in Appendix 3 ([ISO 8502-3](#)).

All blast-cleaned surfaces shall be coated before the deterioration of the "grade of cleanliness". In any case, any surface that has been blast-cleaned shall be coated on the same day.

Before painting works commence, checks for the contamination of the surface by salts shall be carried out ([ISO 8502-6](#) & [ISO 8502-9](#)).

The blast cleaning procedure shall be submitted to Company for approval.

7.4 Blast cleaning of carbon steel (AF) on automatic production lines

In addition to the requirements of § 7.3:

- All surfaces shall be blast-cleaned to grade of cleanliness Sa 3 ([ISO 8501-1](#)).
- Contractor shall ensure that the grit selected can achieve the required surface profile. This requirement includes determination of grit mix, as well as quantity and frequency of grit renewal. Surface profile shall be checked twice per shift and the results shall be recorded.
- Dust level shall be thoroughly checked ([ISO 8502-3](#)).

The blast cleaning procedure shall be submitted to Company for approval.

7.5 Blast cleaning of stainless steels (AI)

Stainless steels shall be segregated, carbon steel supports for storage shall be systematically painted, and lifting equipment shall prevent iron contamination.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 9 of 81

Stainless steel surfaces to be coated shall be etched or degreased and blast-cleaned with a non-ferrous and chlorine-free abrasive.

The blast cleaning procedure to be submitted to Company shall include:

- Abrasive composition to obtain a surface roughness of Ra = 10 microns (8 microns acceptable locally)
- Dust level (level 2 maximum according to [ISO 8502-3](#))
- Substrate contamination checks. Ferrous contamination / direct colorimetry method using Prussian blue (potassium ferricyanide) - No surface pollution is acceptable.

7.6 Surface preparation of galvanised steel (AG)

Galvanized steel to be coated shall be cleaned, degreased and etched.

7.7 Preparation of zinc or cadmium plated bichromated surfaces (AB)

Zinc or cadmium-plated bichromated surfaces shall be cleaned and degreased.

8. Paint application

8.1 Procurement and storage

The quantities of paint and thinners required to perform the entire job shall be procured before the work commences, except in cases where the shelf life of the product is less than the anticipated duration of the work.

Thinners, solvents, etc. shall be stored in a suitably ventilated fireproofed building, separate from other painting consumables.

The products shall be delivered in their original sealed packaging and stored in such conditions as to avoid their degradation (controlled temperature, etc.). The packaging shall be clearly marked with the product description, the batch number, the fabrication date and the expiry date.

The shelf life from the fabrication dates are:

- For zinc ethyl silicate: 6 months
- For other products: 1 year
- Specific cases: according to Manufacturer's recommendation with Company approval.

8.2 Samples for QA/QC purposes

From each batch of products used during the work, Contractor shall take two samples to be made available to Company.

8.3 Qualification of application procedure for each system

One month before work commences, all the selected systems shall be applied on test plates representative of the item to be painted. The products used shall be sampled from the same batches than these intended for the works.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 10 of 81

The system shall be applied in the presence of the Supplier of the paint and the Company representative, in climatic conditions that are as similar as possible to worst case conditions that can be foreseen during the work on the construction site. Application shall be performed by the painting specialist who will be responsible for application during the work, using the same equipment that will be used during the work.

When the painting systems are fully cured, visual inspection and adhesion testing shall be carried out to confirm that the performance of the painting systems meet those specified for each system in Appendix 3.

8.4 Kick off meeting

A technical kick off meeting shall be organized by Contractor in the presence of Company specialists (TEC/COR) and Paint Supplier to review all the details regarding the work, application procedures, and inspection test plan. All the documentation shall be submitted to Company for review at least two (2) weeks prior to this meeting.

Supplier shall provide Contractor with technical assistance. All recommendations made by Supplier other than these outlined in datasheets or in the present specification shall be supported by a written statement from Supplier head office.

8.5 Application

8.5.1 General

Paint shall always be applied to surfaces that are dry, clean and degreased, for both coating on substrate and previous coat.

Painting works shall not proceed if:

- Temperature of the substrate is less than 3°C above the dew point
- The relative humidity is more than 85% RH (90% RH for inorganic zinc silicates)
- The weather is rainy or foggy, except under shelter, and subject to verification of the atmospheric conditions
- The minimum and maximum temperature of the ambient atmosphere and the substrate are out with the limits given in the product datasheets. Minimum application temperature is usually 10°C.

Contractor shall keep a daily record of the dew point, relative humidity, ambient atmosphere and substrate temperatures (all measured before the work commences and twice per shift and when ambient conditions are obviously changing) to ensure that conditions are acceptable. These records shall be kept and made available to Company.

During the painting works, the Applicator shall also paint two specimen plates (200 mm x 100 mm) per equipment and per system.

Application shall be by airless spray.

Stripe coats shall be applied by brush to all angles, corners, sharp edges, bolt or rivet heads, etc. with the same product than this to be applied on the surface to be painted. The only exception is inorganic zinc silicates where stripe coats shall be applied using the repair system primer i.e. zinc rich epoxy.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 11 of 81

Different colours shall be used for all successive coats of the paint system. The finishing coat of the required colour shall be sufficiently opaque to cover the shade of the undercoat.

The thickness of each coat, including frequency and tolerance shall be checked by the Contractor according to [ISO 19840](#). The values shall be recorded and made available to Company.

8.5.2 Zinc ethyl silicate

During application, the product shall be stirred at all times.

If relative humidity is below 65%, the applied coat shall be sprayed with fresh water for at least two hours after application to enhance curing.

Before the subsequent coat is applied, this primer shall be subjected to a MEK test as per [ASTM D 4752](#) to ensure that hydrolysis is complete. If complete hydrolysis is not obtained within eight days of application, the coating shall be completely removed and re-applied.

8.5.3 Zinc or cadmium-plated bichromated bolting

All surfaces of the bolting assemblies including threads shall be coated. The topcoat shall be applied after assembly is completed.

8.6 Repairs

Any defect shall be repaired before the application of further coats. Subject to the agreement of Company, and after determining the type and size of the defects, the following methods of repair shall be applied:

8.6.1 Major defects

The paint shall be removed completely by abrasive blast-cleaning and the entire system shall be re-applied.

8.6.2 Minor defects (localized appearance, mechanical damage, scratches, etc.)

Subject to the agreement of the Supplier of the product, the system shall be removed by localized blast-cleaning, the edges of the sound coating shall be feathered back about 50 mm, and the repair system shall be applied.

9. Checks, inspection and acceptance

9.1 Checks

Throughout the duration of the work, Contractor's Quality Control department shall check the following points and record the results in its daily quality control report.

- Construction quality:
 - Rounding of corners, sharp edges to 2 mm radius minimum
 - Form, quality and continuity of welds.

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 12 of 81

- Surface preparation quality:
 - Grade of cleanliness: Sa 3 according to [ISO 8501](#)
 - Cleanliness: no grease or oil, dust level 2 maximum according to [ISO 8502-3](#)
 - Anchoring profile: G medium according to [ISO 8503](#).
- Contamination including chlorides: according to [ISO 8502-6](#) and [ISO 8502-9](#), 30 mg/m² maximum.
- Climatic conditions for application (all measured before the work commences and twice per shift and when ambient conditions are obviously changing): temperature of substrate at least 3°C above dew point, maximum humidity 85% RH (90% for inorganic zinc silicates), ambient temperature (>10°C for epoxy, >5°C for polyurethane), weather conditions.
- State of curing of primer and of each coat.
- For inorganic zinc silicate: record of spraying with fresh water to enhance hydrolysis (if relevant) and results of MEK test: Level 5 according to [ASTM D 4752](#).
- Interval between coats (in accordance with Supplier product datasheets).
- Wet film thickness for each coat immediately after application.
- Number of coats, DFT of each coat and of the final system according to [ISO 19840](#).
- Appearance and colour.
- Porosity ([ASTM D 5162](#))

The porosity of the coating shall be checked across the entire surface using a wet sponge or an electrical brush in accordance with the painting system's datasheet. No arcing at the voltages specified in the painting system's data sheet shall be permitted.

- Adherence

The tests shall be carried out on sample plates and shall be carried out only when the system is completely dry and fully cured.

If the results are unsatisfactory, tests shall be carried out on the corresponding surfaces of painted equipment. The required number of in situ tests shall be agreed between Applicator and Company.

- Systems with DFT less than 200 µm: cross-cut test class 0 according to [ISO 16276-2](#)
- Systems with DFT above 200 µm: pull-off test according to [ISO 16276-1](#): Unless specified in the system sheet in Appendix 3, the minimum values acceptable are 3 MPa for checks made with mechanical equipment (type Ersad, Satec, or equivalent) and 5 MPa for checks made with hydraulic equipment (Type PAT or equivalent). The equipment must be fitted with a gauge indicating the pulling force.

The adhesion tests shall be performed with cyano-acrylate glue as LOCTITE 496 or equivalent

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 13 of 81

- Visual inspection results: no defects such as "orange peel", cracking, bubbling, pinholes, runs and sags, blistering, etc.
- Compliance of specimen plates (2 per equipment per painting system).

9.2 Inspection test plan

An inspection test plan including all the points in section 9.1 shall be prepared and submitted to Company. The Inspection Plan shall clearly indicate frequency of testing for each check.

9.3 Company inspection

Company Inspector shall have free access to storage areas, workshops, yards where the works will be performed. Contractor shall also provide Company Inspector with all office facilities necessary for the execution of his work (telephone, fax, handling equipment, measuring instruments with valid calibration certificates, etc.).

Upon arrival of Company Inspector on site, Contractor shall supply him with all relevant documentation regarding the works to be carried out.

9.4 Provisional acceptance

For provisional acceptance, Company shall check that all inspections set out in section 9.1 have been carried out and that all results are satisfactory.

9.5 Guarantee

The Work shall be covered by a specific guarantee given by Contractor to complete Guarantees and warranties defined in the Engineering, Procurement, Supply, Construction and Commissioning Contract (EPSCC 1113 - Article 20 "GUARANTEES AND WARRANTIES").

Contractor guarantees that the Work shall be covered by performance warranties in accordance with the following requirements of the Contract:

- The maximum degree of rust shall be Ri2 according to [ISO 4628](#)
- The maximum degree of cracking, blistering, or flaking shall be 3S3 according to [ISO 4628](#).

Guarantee shall be provided for the duration defined for each paint system in Appendix 3.

Beginning of Warranty Period as defined for each paint system in Appendix 3 starts from the effective date of the PROVISIONAL ACCEPTANCE CERTIFICATE.

9.6 Final acceptance

At the end of the Warranty Period a joint inspection of Work by Company and Contractor shall be carried out before issuance of the FINAL ACCEPTANCE CERTIFICATE for painting works to determine if any claims are raised.

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 14 of 81

10. Technical file

Contractor shall hand over a technical file to Company at the end of the works which shall include:

- All inspection reports.
- Provisional acceptance reports
- Guarantee certificates
- Approval and/or test certificates for coatings in contact with specific products: food products, jet fuel, etc.
- Insurance certificates for the guarantee.



General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 15 of 81

Bibliography

ISO 9223

Corrosion of metals and alloys. Atmospheres' corrosivity.
Classification

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 16 of 81

Appendix 1

Appendix 1 Approved list of Suppliers

Supplier	Code	Phone No.	Fax No.	Remarks
BELZONA	B	02 40 94 82 83	02 40 94 98 23	s/c S.O.P.R.E.M soprem@wanadoo.fr
CARBOLINE	C	+33 1 60 06 55 66	+33 1 60 06 55 70	Carboline.France @stoncor.com
CHUGOKU	Ch	+31 167 526 100	+31 167 522 059	x.hagenaars@cmpeurope.eu
HEMPEL	H	+33 3 44 08 28 90	+33 3 44 08 28 99	jmb@hempel.com dbo@hempel.com
INTERNATIONAL COATINGS	I	+33 2 35 22 13 72	+33 2 35 22 13 78	Frederic.coulon@akzonobel.com
JOTUN	J	+33 1 45 19 38 87	+33 1 45 19 38 94	Xavier.dubois@jotun.com
PPG	P	+33 1 70 03 11 11	+33 1 70 03 11 06	Pascal.digonnet@ppg.com
SAKAPHEN	Sk	02 20 55 22 57	02 20 31 25 20	sakaphen@wanadoo.fr

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 17 of 81

Appendix 2

Appendix 2 List of systems

Important warning: The temperatures indicated in the code are the mini/maxi Operating temperatures.

Item	Code	System N°	Remarks
Storage vessels			
(t < 60°C)		P 103	Hydrocarbons: Crude oil, Condensates, etc.
Hydrocarbons			
Fixed roof	AF -010/+059	P 103	Extend 2 m down from the roof and 1 m up from the bottom
Outer skin roof	AF -010/+059	P 103	
Bottom inner	AF -010/+059	P 103	Additional protection by sacrificial anodes required
Bottom underside	AF -010/+059	P 107	
Industrial water			
Decantation	AF -010/+050	P 104	Additional protection by sacrificial anodes required
Seawater			
Brackish water			
Fire water			
Drinking water & fresh water ([salts]<25 mg/l)			
	AF -010/+050	P 105	Health and safety report
Finished products			
Gas oil	AF -010/+050	P 106	Type approval by authorized organization
Jet fuel	AF -010/+050	P 109	
Methanol	AF -010/+050	P 110	
Factory prepainted			
	AF -010/+400	P 108	Factory prepainting is always eliminated before application of the final system

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 18 of 81

Appendix 2

Item	Code	System N°	Remarks
Process vessels			
Hydrocarbons			
t < 60°C	AF -010/+059	P 101	
t ≥ 60°C	AF -010/+200	P 102	
Industrial water			
Decantation	AF -010/+050	P 104	Additional protection by sacrificial anodes required
Seawater			
Brackish water			
Fire water			
Drinking water			
	AF -010/+050	P 105	Health and safety report
Finished products			
Gas oil	AF -010/+050	P 106	Type approval by authorized organization
Jet fuel	AF -010/+050	P 109	

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 19 of 81

Appendix 3

Appendix 3 Suppliers' systems

Binders coding

Binders	Codes	Remarks
Zinc ethyl silicate	ESI	
Rich Zinc epoxy	EPRZ	[Zn] > 80%
Epoxy	EP	
Phenolic Epoxy	EPPH	
Modified Phenol formaldehyde resin	PFM	
Modified Epoxy	EPM	
Glass flake Epoxy	EPGF	
Vinyl-ester	VY	
Novolac Epoxy	EPN	

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 20 of 81

Appendix 3

System No. **P 102 B**
Coating **Process Vessels**
Supplier **BELZONA**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - coarse(C) ([ISO 8503-2](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPPH	Belzona 1391	1000 microns	100	85	-	-

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPPH	Belzona 1391	1000 microns	100	85	-	-

4. Remarks

Use without H₂S
Application only with rough brush and specific tool.

Operating temperature resistance:		less than 130°C
Guarantee:	3 years	No Blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

System No. **P 101 C**
Coating **Process Vessels**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Phenoline 1205	200 microns	70	85	16 hours	7 days
Tie-coat							
Intermediate	EPPH	Phenoline 1205	200 microns	70	85	16 hours	7 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Phenoline 1205	200 microns	70	85	16 hours	7 days
Tie-coat							
Intermediate	EPPH	Phenoline 1205	200 microns	70	85	16 hours	7 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 22 of 81	

Appendix 3

System No. **P 102 C**
Coating **Process Vessels**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - coarse(C) (ISO 8503-2:1988)

3. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPN	Plasite 4550S	800 microns	98	80	12 hours	36 hours

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPN	Plasite 4550S	800 microns	98	80	12 hours	36 hours

4. Remarks

Use H₂S

Operating temperature resistance:		less than 150°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

System No. **P 103 C**
Coating **Hydrocarbon Tanks**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 193 VF	40 microns	52	85	1 hours	30 days
Tie-coat							
Intermediate	EPP	Carboguard 942	400 microns	98	85	18 hours	24 hours
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 193 VF	40 microns	52	85	1 hours	30 days
Tie-coat							
Intermediate	EPP	Carboguard 942	400 microns	98	85	18 hours	24 hours
Finish coat							

4. Remarks

Pimer coat only as a holding primer if necessary.

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

System No. **P 104 C**
Coating **Industrial Water Tanks**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 193 VF	40 microns	52	85	1 hours	30 days
Tie-coat							
Intermediate	EPP	Carboguard 942	400 microns	100	85	6 hours	3 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 193 VF	40 microns	52	85	1 hours	30 days
Tie-coat							
Intermediate	EPP	Carboguard 942	400 microns	100	85	6 hours	3 days
Finish coat							

4. Remarks

Pimer coat only as a holding primer if necessary.

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 25 of 81	

Appendix 3

System No. **P 105 C**
Coating **Drinking Water Tank**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 891	125 microns	75	85	8 hours	5 days
Tie-coat							
Intermediate	EP	Carboguard 891	125 microns	75	85	8 hours	5 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Carboguard 891	125 microns	75	85	8 hours	5 days
Tie-coat							
Intermediate	EP	Carboguard 891	125 microns	75	85	8 hours	5 days
Finish coat							

4. Remarks

Health and safety report No. AWWA C210.

Operating temperature resistance:	less than 50°C
Guarantee:	3 years
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 26 of 81	

Appendix 3

System No. **P 106 C**
Coating **Gas-Oil Tanks**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Phenoline 187primer	100 microns	63	85	36 hours	6 days
Tie-coat							
Intermediate	EPPH	Phenoline 187finish	100 microns	63	85	36 hours	6 days
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Phenoline 187primer	100 microns	63	85	36 hours	6 days
Tie-coat							
Intermediate	EPPH	Phenoline 187finish	100 microns	63	85	36 hours	6 days
Finish coat							

4. Remarks

Meets Mil-P-23236

Operating temperature resistance:	less than 50°C
Guarantee:	3 years
	No blistering, cracking, or flaking
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)	

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 27 of 81

Appendix 3

System No. **P 107 C**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPM	Carboguard 890	300 microns	77	85	8 hours	unlimited

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPM	Carboguard 890	300 microns	77	85	8 hours	unlimited

4. Remarks

Operating temperature resistance:	less than 60°C
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 28 of 81

Appendix 3

System No. **P 108 C**
Coating **Factory Prepainted Surfaces**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Carboweld 11 P	25 microns	43	95	24 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance: less than 400°C

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 29 of 81

Appendix 3

System No. **P 109 C**
Coating **Jet Fuel Tank**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Carboline 187primer	130 microns	65	85	36 hours	6 days
Tie-coat							
Intermediate	EPPH	Carboline 187finish	130 microns	63	85	36 hours	6 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Carboline 187primer	130 microns	65	85	36 hours	6 days
Tie-coat							
Intermediate	EPPH	Carboline 187finish	130 microns	63	85	36 hours	6 days
Finish coat							

4. Remarks

NAVSEC approval 23236-75

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 30 of 81

Appendix 3

System No. **P 110 C**
Coating **Methanol Tank**
Supplier **CARBOLINE**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

3. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Carbozinc 11	60 microns	61.5	95	24 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Carbozinc 11	60 microns	61.5	95	24 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C		
Guarantee:	5 years	Degree of rusting Ri 2	
Qualification / acceptance requirements: NA			

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 31 of 81	

Appendix 3

System No. **P 101 Ch**
Coating **Process Vessels**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	EPICON T-800 HS	200 microns	77	85	14 hours	14 days
Tie-coat							
Intermediate	EPPH	EPICON T-800 HS	200 microns	77	85	14 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	EPICON T-800 HS	200 microns	77	85	14 hours	14 days
Tie-coat							
Intermediate	EPPH	EPICON T-800 HS	200 microns	77	85	14 hours	14 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 32 of 81

Appendix 3

System No. **P 102 Ch**
Coating **Process Vessels**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Permax NO 1000HB	600 microns	82	85	24 hours	5 days
Intermediate	VY	Permax NO 1000HB	600 microns	82	85	24 hours	5 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Permax NO 1000HB	600 microns	82	85	24 hours	5 days
Intermediate	VY	Permax NO 1000HB	600 microns	82	85	24 hours	5 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 120°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 33 of 81

Appendix 3

System No. **P 103 Ch**
Coating **Hydrocarbon Tanks**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Epicon T-800 holding primer	30 microns	37	85	5 hours	21 days
Tie-coat	EPPH	Epicon T-800 HS	200 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	200 microns	77	85	14 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Epicon T-800 HS	200 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	200 microns	77	85	14 hours	14 days
Finish coat							

4. Remarks

Primer coat used only as a holding primer if necessary

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 34 of 81

Appendix 3

System No. **P 104 Ch**
Coating **Industrial Water Tanks**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EP	Epicon T-500 HS	200 microns	74	85	14 hours	14 days
Intermediate	EP	Epicon T-500 HS	200 microns	74	85	14 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EP	Epicon T-500 HS	200 microns	74	85	14 hours	14 days
Intermediate	EP	Epicon T-500 HS	200 microns	74	85	14 hours	14 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 35 of 81	

Appendix 3

System No. **P 105 Ch**
Coating **Drinking Water Tank**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

1. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Cleankeep 5500 cream	200 microns	100	85	32 hours	14 days
Tie-coat							
Intermediate	EP	Cleankeep 5500 cream	200 microns	100	85	32 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Cleankeep 5500 cream	200 microns	100	85	32 hours	14 days
Tie-coat							
Intermediate	EP	Cleankeep 5500 cream	200 microns	100	85	32 hours	14 days
Finish coat							

4. Remarks

NSF certificate n° PM0367 dated May 27, 2010

Operating temperature resistance:	less than 50°C
Guarantee:	3 years No blistering, flaking, or cracking
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 36 of 81	

Appendix 3

System No. **P 106 Ch**
Coating **Gas-Oil Tanks**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Epicon T-800 HS	100 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	100 microns	77	85	14 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Epicon T-800 HS	100 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	100 microns	77	85	14 hours	14 days
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C		
Guarantee:	3 years	No blistering, cracking, or flaking	
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)			

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 37 of 81

Appendix 3

System No. **P 107 Ch**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPGF	Permax NO 3300	300 microns	80	85	12 hours	3 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPGF	Permax NO 3300	300 microns	80	85	12 hours	3 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 60°C
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 38 of 81

Appendix 3

System No. **P 108 Ch**
Coating **Factory Prepainted Surfaces**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Cerabond 2000	20 microns	33	90	7 days	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance: less than 60°C

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 39 of 81

Appendix 3

System No. **P 109 Ch**
Coating **Jet Fuel Tank**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Epicon T-800 HS	125 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	125 microns	77	85	14 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Epicon T-800 HS	125 microns	77	85	14 hours	14 days
Intermediate	EPPH	Epicon T-800 HS	125 microns	77	85	14 hours	14 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 40 of 81	

Appendix 3

System No. **P 110 Ch**
Coating **Methanol Tank**
Supplier **CHUGOKU**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Galbon S-HB	60 microns	60	90	24 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Galbon S-HB	60 microns	60	90	24 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C
Guarantee:	5 years Degree of rusting Ri 2
Qualification / acceptance requirements:	NA

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 41 of 81

Appendix 3

System No. **P 101 H**
Coating **Process Vessels**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	Hempadur 4575	200 microns	81	85	6 hours	3 days
Tie-coat							
Intermediate	EPM	Hempadur 4575	200 microns	81	85	6 hours	3 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	Hempadur 4575	200 microns	81	85	6 hours	3 days
Tie-coat							
Intermediate	EPM	Hempadur 4575	200 microns	81	85	6 hours	3 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 42 of 81

Appendix 3

System No. **P 102 H**
Coating **Process Vessels**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - coarse(C) ([ISO 8503-2:1988](#)) - Ra 13/15 microns

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Hempadur 3591	600 microns	100	85	5 hours	24 hours
Intermediate	VY	Hempadur 3591	600 microns	100	85	5 hours	24 hours
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Hempadur 3591	600 microns	100	85	5 hours	24 hours
Intermediate	VY	Hempadur 3591	600 microns	100	85	5 hours	24 hours
Finish coat							

4. Remarks

Use without H₂S

Operating temperature resistance:		less than 90°C
Guarantee:	3 years	No Blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 43 of 81

Appendix 3

System No. **P 103 H**
Coating **Hydrocarbon Tanks**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 1559	40 microns	44	80	8 hours	1 month
Tie-coat							
Intermediate	EPPH	Hempadur 3576	400 microns	100	85	16 hours	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 1559	40 microns	44	80	8 hours	1 month
Tie-coat							
Intermediate	EPPH	Hempadur 3576	400 microns	100	85	16 hours	30 days
Finish coat							

4. Remarks

Pimer coat only as a holding primer if necessary.

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 44 of 81	

Appendix 3

System No. **P 104 H**
Coating **Industrial Water Tanks**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Hempadur 4554	400 microns	84	85	16 hours	5 days

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Hempadur 4554	400 microns	84	85	16 hours	5 days

4. Remarks

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 45 of 81	

Appendix 3

System No. **P 105 H**
Coating **Drinking Water Tank**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 3556	150 microns	100	85	1 day	30 days
Tie-coat							
Intermediate	EP	Hempadur 3556	150 microns	100	85	1 day	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 3556	150 microns	100	85	1 day	30 days
Tie-coat							
Intermediate	EP	Hempadur 3556	150 microns	100	85	1 day	30 days
Finish coat							

4. Remarks

Certificate from "Water research centre, Slough, England" - Fresh water tank and pipes internal - test report n° MA3362/0.

Operating temperature resistance:	less than 50°C
Guarantee:	3 years
	No blistering, cracking, or flaking
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)	

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 46 of 81	

Appendix 3

System No. **P 106 H**
 Coating **Gas-Oil Tanks**
 Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
 Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 8567	100 microns	68	80	3 hours	10 days
Tie-coat							
Intermediate	EP	Hempadur 8567	100 microns	68	80	3 hours	10 days
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 8567	100 microns	68	80	3 hours	10 days
Tie-coat							
Intermediate	EP	Hempadur 8567	100 microns	68	80	3 hours	10 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering, cracking, or flaking
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 47 of 81

Appendix 3

System No. **P 107 H**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	Hempadur multi-strength 4554	300 microns	84	85	6 hours	30 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	Hempadur multi-strength 4554	300 microns	84	85	6 hours	30 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance: less than 60°C

Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 48 of 81

Appendix 3

System No. **P 108 H**
Coating **Factory Prepainted Surfaces**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Shopprimer ZS 1589	20 microns	25	85	4 hours	1 year
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance: less than 400°C

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 49 of 81	

Appendix 3

System No. **P 109 H**
Coating **Jet Fuel Tank**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days
Tie-coat							
Intermediate	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days
Finish coat	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days
Tie-coat							
Intermediate	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days
Finish coat	EP	Hempadur 1540	80 microns	48	80	10 hours	21 days

4. Remarks

Aviation certificate: BP - BP/4/46

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 50 of 81

Appendix 3

System No. **P 110 H**
Coating **Methanol Tank**
Supplier **HEMPEL**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Galvosil 1570	60 microns	64	90	36 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Galvosil 1570	60 microns	64	90	36 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C
Guarantee:	5 years Degree of rusting Ri 2
Qualification / acceptance requirements: NA	

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 51 of 81

Appendix 3

System No. **P 101 I**
Coating **Process Vessels**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EP	Interline 975	200 microns	100	85	16 hours	14 days
Intermediate	EP	Interline 975	200 microns	100	85	16 hours	14 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EP	Interline 975	200 microns	100	85	16 hours	14 days
Intermediate	EP	Interline 975	200 microns	100	85	16 hours	14 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 52 of 81	

Appendix 3

System No. **P 102 I**
Coating **Process Vessels**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - coarse(C) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Interline 955	600 microns	85	80	2 hours	24 hours
Intermediate	VY	Interline 955	600 microns	85	80	2 hours	24 hours
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Interline 955	600 microns	85	80	2 hours	24 hours
Intermediate	VY	Interline 955	600 microns	85	80	2 hours	24 hours
Finish coat							

4. Remarks

Use without H₂S

Operating temperature resistance:		less than 90°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

System No. **P 103 I**
Coating **Hydrocarbon Tanks**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Interline 982	30 microns	30	85	24 hours	28 days
Tie-coat							
Intermediate	EPPH	Interline 984	400 microns	100	85	8 hours	28 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Interline 982	30 microns	30	85	24 hours	28 days
Tie-coat							
Intermediate	EPPH	Interline 984	400 microns	100	85	8 hours	28 days
Finish coat							

4. Remarks

Pimer coat only to protect surface preparation if necessary.

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 54 of 81

Appendix 3

System No. **P 104 I**
Coating **Industrial Water Tanks**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Interline 975	400 microns	100	85	16 hours	14 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Interline 975	400 microns	100	85	16 hours	14 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 55 of 81

Appendix 3

System No. **P 105 I**
Coating **Drinking Water Tank**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Interline 975	400 microns	100	85	16 hours	14 days

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Interline 975	400 microns	100	85	16 hours	14 days

4. Remarks

The Water Quality Center certificate ref: P 22368/C23592/2400

Operating temperature resistance:	less than 50°C
Guarantee:	3 years No blistering, cracking, or flaking
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 56 of 81

Appendix 3

System No. **P 106 I**
Coating **Gas-Oil Tanks**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Interline 984	200 microns	100	85	8 hours	28 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Interline 984	200 microns	100	85	8 hours	28 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C		
Guarantee:	3 years	No blistering, cracking, or flaking	
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)			

System No. **P 107 I**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPM	Interzone 954	300 microns	85	85	12 hours	14 days

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPM	Interzone 954	300 microns	85	85	12 hours	14 days

4. Remarks

Operating temperature resistance:	less than 60°C
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 58 of 81

Appendix 3

System No. **P 108 I**
Coating **Factory Prepainted Surfaces**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Interplate 855	25 microns	30	90	7 days	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

IS approval No. 26192 according to French standard NF J17-115 (REF: DLC/790 425)

Operating temperature resistance: less than 400°C

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 59 of 81

Appendix 3

System No. **P 109 I**
Coating **Jet Fuel Tank**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Interline 984	350 microns	100	85	8 hours	28 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Interline 984	350 microns	100	85	8 hours	28 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Air BP specification F2D2 and UK DEF Stan80-97 certification.

Operating temperature resistance: less than 50°C		
Guarantee:	3 years 3 years	No blistering Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 60 of 81

Appendix 3

System No. **P 110 I**
Coating **Methanol Tank**
Supplier **INTERNATIONAL COATINGS**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Interzinc 22	60 microns	63	90	4 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Interzinc 22	60 microns	63	90	4 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C		
Guarantee:	5 years	Degree of rusting Ri 2	
Qualification / acceptance requirements: NA			

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 61 of 81

Appendix 3

System No. **P 101 J**
Coating **Process Vessels**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 62 of 81	

Appendix 3

System No. **P 102 J**
Coating **Process Vessels**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - coarse (C) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Chemflake special	600 microns	96	80	2 hours	24 hours
Intermediate	VY	Chemflake special	600 microns	96	80	-	-
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	VY	Chemflake special	600 microns	96	80	2 hours	24 hours
Intermediate	VY	Chemflake special	600 microns	96	80	-	-
Finish coat							

4. Remarks

Use without H₂S

Operating temperature resistance:		less than 120°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 63 of 81

Appendix 3

System No. **P 103 J**
Coating **Hydrocarbon Tanks**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Penguard Tie coat 100	40 microns	42	85	6 hours	unlimited
Tie-coat	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Penguard Tie coat 100	40 microns	42	85	6 hours	unlimited
Tie-coat	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

4. Remarks

Primer coat only to protect surface preparation if necessary.

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 64 of 81

Appendix 3

System No. **P 104 J**
Coating **Industrial Water Tanks**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Tie-coat							
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Tie-coat							
Intermediate	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 65 of 81

Appendix 3

System No. **P 105 J**
Coating **Drinking Water Tank**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Tankguard DW	150 microns	100	85	12 hours	48 hours
Tie-coat							
Intermediate	EP	Tankguard DW	150 microns	100	85	12 hours	48 hours
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Tankguard DW	150 microns	100	85	12 hours	48 hours
Tie-coat							
Intermediate	EP	Tankguard DW	150 microns	100	85	12 hours	48 hours
Finish coat							

4. Remarks

Norwegian Institute of Public Health (Folkehelsa) has approved the white and red colours for use in contact with potable water. The approval requires curing at temperature min 23°C for 7 days after application.

Operating temperature resistance:	less than 50°C
Guarantee:	3 years
	No blistering, cracking, or flaking
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)	

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 66 of 81

Appendix 3

System No. **P 106 J**
Coating **Gas-Oil tanks**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPPH	Tankguard storage	200 microns	63	85	10 hours	30 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 67 of 81

Appendix 3

System No. **P 107 J**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Jotacote Universal	150 microns	72	85	4 hours	unlimited

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	Jotacote Universal	150 microns	72	85	4 hours	unlimited

4. Remarks

Operating temperature resistance:	up to 60°C
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 68 of 81

Appendix 3

System No. **P 108 J**
Coating **Factory Prepainted Surfaces**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Muki EPS	25 microns	25	95	7 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Muki EPS	25 microns	25	95	7 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Lloyd's Register of Shipping certificate

Operating temperature resistance: less than 400°C

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 69 of 81

Appendix 3

System No. **P 109 J**
Coating **Jet Fuel Tank**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Tankguard storage	125 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	125 microns	63	85	10 hours	30 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat	EPPH	Tankguard storage	125 microns	63	85	10 hours	30 days
Intermediate	EPPH	Tankguard storage	125 microns	63	85	10 hours	30 days
Finish coat							

4. Remarks

Approvals according to Defence standard 80-97 Annex G issue 3 by DERA Paints and Coatings

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 70 of 81

Appendix 3

System No. **P 110 J**
Coating **Methanol Tank**
Supplier **JOTUN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Resist GTI	60 microns	67	95	12 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Resist GTI	60 microns	67	95	12 hours	unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C
Guarantee:	5 years Degree of rusting Ri 2
Qualification / acceptance requirements:	NA

System No. **P 101 P**
Coating **Process Vessels**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binde r	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binde r	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification		GS EP COR 352
Internal protection of equipment by painting		
Rev.: 10	Effective date: 10/2012	Page: 72 of 81

Appendix 3

System No. **P 103 P**
Coating **Hydrocarbon Tanks**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Sigmacover 522	50 microns	60	85	8 hours	6 months
Tie-coat	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Sigmacover 522	50 microns	60	85	8 hours	6 months
Tie-coat	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

4. Remarks

Pimer coat only as holding primer if necessary.

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 73 of 81	

Appendix 3

System No. **P 104 P**
Coating **Industrial Water Tanks**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Sigmacover 522	50 microns	60	85	8 hours	6 months
Tie-coat	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	Sigmacover 522	50 microns	60	85	8 hours	6 months
Tie-coat	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Intermediate	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Finish coat							

4. Remarks

Operating temperature resistance:		less than 60°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 74 of 81

Appendix 3

System No. **P 105 P**
Coating **Drinking Water Tank**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	SigmaGuard CSF 585	300 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EPM	SigmaGuard CSF 585	300 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Certificate from "KIWA, Holland, ref. K12 827/03 and National Institute of Public Health. Norway, ref. No. 99/730-MINT/ARMII/523.2".

Operating temperature resistance:		less than 50°C
Guarantee:	3 years	Blistering 1 (S2)
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 75 of 81

Appendix 3

System No. **P 106 P**
Coating **Gas-Oil Tanks**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	EP	SigmaGuard CSF 650	200 microns	100	85	24 hours	20 days
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C		
Guarantee:	3 years	No blistering, cracking, or flaking	
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)			

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 76 of 81

Appendix 3

System No. **P 107 P**
Coating **Hydrocarbon Tanks (Underside)**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPGF	Sigmashield 825	200 microns	91	85	24 hours	3 months

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EPGF	Sigmashield 825	200 microns	91	85	24 hours	3 months

4. Remarks

Operating temperature resistance:	less than 60°C
Qualification / acceptance requirements:	Minimum mechanical pull-off test value of 4 MPa (mechanical tester)

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 77 of 81

Appendix 3

System No. **P 108 P**
Coating **Factory Prepainted Surfaces**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Sigmaweld 199	25 microns	25	90	3 days	6 months
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer							
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 400°C
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Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 78 of 81

Appendix 3

System No. **P 109 P**
Coating **Jet Fuel Tank**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	SigmaGuard CSF 650	300 microns	100	85	24 hours	20 days

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer Tie-coat Intermediate Finish coat	EP	SigmaGuard CSF 650	300 microns	100	85	24 hours	20 days

4. Remarks

Air BP F2D2 section 2.1 tank lining.

Operating temperature resistance:	less than 50°C	
Guarantee:	3 years 3 years	No blistering Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 4 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 79 of 81

Appendix 3

System No. **P 110 P**
Coating **Methanol Tank**
Supplier **PPG**

1. Surface preparation

Grade of cleanliness Sa 3 (ISO 8501-1:1988)
Roughness Grit - medium(G) (ISO 8503-2:1988)

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Sigmazinc 158	60 microns	65	95	12 hours	Unlimited
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ (ISO 8501-1:1988)

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	ESI	Sigmazinc 158	60 microns	65	95	12 hours	Unlimited
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:	less than 50°C
Guarantee:	5 years Degree of rusting Ri 2
Qualification / acceptance requirements: NA	

General Specification			GS EP COR 352
Internal protection of equipment by painting			
Rev.: 10	Effective date: 10/2012	Page: 80 of 81	

Appendix 3

System No. **P 102 Sk**
 Coating **Process Vessels**
 Supplier **SAKAPHEN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
 Roughness Grit - medium(G) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	PFM	Si 14 EG	250 microns	100	-	-	-
Tie-coat							
Intermediate							
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	PFM	Si 14 EG RE	250 microns	100	70	-	-
Tie-coat							
Intermediate							
Finish coat							

4. Remarks

Operating temperature resistance:		less than 180°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		

Internal protection of equipment by painting

Rev.: 10

Effective date: 10/2012

Page: 81 of 81

Appendix 3

System No. **P 102 Sk bis**
Coating **Process Vessels**
Supplier **SAKAPHEN**

1. Surface preparation

Grade of cleanliness Sa 3 ([ISO 8501-1:1988](#))
Roughness Grit - (Coarse) ([ISO 8503-2:1988](#))

2. Coating system

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	VY	VCF 14 EG	600 microns	100	65	8 hours	72 hours
Tie-coat							
Intermediate	VY	VCF 14 EG	600 microns	100	65	-	-
Finish coat							

3. Repair system

Grade of cleanliness Sa 2 ½ ([ISO 8501-1:1988](#))

Constitution	Binder	Supplier's reference	Nominal thickness	Volume of solids (%)	RH max. (%)	Interval between coats @ 20°C & 60% RH	
						min.	max.
Primer	VY	VCF 14 EG	600 microns	100	65	8 hours	72 hours
Tie-coat							
Intermediate	VY	VCF 14 EG	600 microns	100	65	-	-
Finish coat							

4. Remarks

Use without H₂S

Operating temperature resistance:		less than 180°C
Guarantee:	3 years	No blistering
	3 years	Degree of rusting Ri 2
Qualification / acceptance requirements: Minimum mechanical pull-off test value of 6 MPa (mechanical tester)		