

	<b>Standard</b>	<b>Nuclear Engineering</b>
---	-----------------	----------------------------

**Title: Requirements for Protective Coatings for use at Koeberg Nuclear Power Station**

**Document Identifier: 331-170**

**Alternative Reference Number: KSA-106**

**Area of Applicability: Nuclear Engineering**

**Functional Area: Programmes Engineering**

**Revision: 2**

**Total Pages: 145**

**Next Review Date: May 2026**

**Disclosure Classification: Controlled Disclosure**

**Compiled by**



**I Naidoo  
Senior Engineer**

Date: 2023-05-22

**Functional Responsibility**



**R Cassim  
Materials Reliability Group Manager**

Date: 2023-05-22

**Authorized by**



**A Kamroodien  
Programmes Engineering Manager**

Date: 2023-05-23

## **Nuclear Additional Classification Information**

Business Level: **3**

Working Document: **3**

Importance Classification: **NSA**

NNR Approval: **No**

Safety Committee Approval: **No**

ALARA Review: **No**

Functional Control Area: **Engineering**

**CONTROLLED DISCLOSURE**

## Content

### Page

1. Introduction.....	5
2. Supporting Clauses .....	5
2.1 Scope.....	5
2.1.1 Purpose.....	6
2.1.2 Applicability .....	6
2.1.3 Effective date.....	6
2.2 Normative/Informative References .....	6
2.2.1 Normative.....	6
2.2.2 Informative.....	7
2.3 Definitions .....	9
2.4 Abbreviations .....	9
2.5 Roles and Responsibilities .....	10
2.6 Process for Monitoring.....	10
2.7 Related/Supporting Documents.....	10
3. Requirements.....	10
3.1 Classification of paint coating systems .....	10
3.1.1 General .....	10
3.1.2 Coating Systems for Interior Surfaces in Contact with the Atmosphere .....	11
3.1.3 Coating Systems for Exterior Surfaces in Contact with the Atmosphere .....	14
3.1.3.1 Exterior Systems.....	14
3.1.3.2 Coating Classification for External Applications .....	15
3.1.3.3 Coating Systems for Insulation of high temperature surfaces.....	15
3.1.4 Coating System for Surfaces in Contact with Liquids.....	15
3.1.4.1 Liquid Contact Application .....	16
3.1.4.2 Coating Classification for Liquid Contact Applications.....	16
3.2 Materials.....	17
3.2.1 Repair Specifications.....	17
3.2.2 Design Specifications .....	17
3.2.3 Coating Quality Control Categories .....	18
3.2.4 Composition of Coating Systems.....	18
3.2.5 Controls and Tests .....	19
3.2.5.1 Factory Testing.....	19
3.2.6 Packaging .....	20
3.2.7 Storage .....	20
3.3 General Conditions of Workmanship .....	20
3.4 Surface Preparation .....	26
3.5 Application of Coatings.....	30
3.6 Acceptance Criteria .....	32
3.6.1 Adhesion .....	32
3.6.2 Film Thickness .....	33

### CONTROLLED DISCLOSURE

3.6.3 Holiday Detection Tests.....	34
3.7 Repair Procedures .....	34
3.8 Inspection Requirements.....	42
3.9 Inspection Frequencies .....	46
3.10 Specialised Applications and Installations .....	46
4. Acceptance.....	60
5. Revisions.....	61
6. Development Team .....	61
7. Acknowledgements .....	61
8. Attachments .....	61
APPENDIX 1: APPROVED MANUFACTURERS AND COATING SYSTEMS.....	62

**CONTROLLED DISCLOSURE**

## **1. Introduction**

Due to Koeberg Nuclear Power Station (KNPS) being in a very corrosive marine environment, most structural and process steel components require a protective surface coating or lining to ensure structural integrity for the life of the station. The selection of the appropriate coating system, the application and maintenance procedures, and the associated quality control processes, will need to be suitably managed to ensure that the integrity of the component remains intact.

This standard therefore documents the requirements for selection, application and maintaining of corrosion protection coatings and linings at KNPS.

## **2. Supporting Clauses**

### **2.1 Scope**

Applicable to all structures and items of plant where protection has been provided for either process or environmental conditions and replaces the following documents which shall however be retained for reference purposes:

KMM/CP.1.0: Maintenance Manual

KMM/CP.1.1: Corrosion Protection of Nuclear Plant

KMM/CP.1.2: Corrosion Protection of Conventional Plant

KMM/CP.1.3: Corrosion Protection of Electrical Equipment

KMM/CP.1.4: Corrosion Protection of Civil Finishes

KMM/CP.1.5: Corrosion Protection of 400 kV and 132 kV Substation (HV Yard)

KMM/CP.1.6: Corrosion Protection of Phase II Buildings

Any specific queries or requirements related to corrosion protection coatings and linings, and not covered by this standard shall be referred to the responsible programme engineer at Materials Reliability Group (MRG).

The specifications detailed herein shall not be modified in any way without the written approval of the responsible engineer at MRG.

**CONTROLLED DISCLOSURE**

### **2.1.1 Purpose**

To provide:

- Requirements for repairs, replacement and upgrading of protective surface coatings and linings.
- Requirements for the repair and or replacement of specialist applications and installations.
- Recommendations regarding inspection procedures and frequencies.
- Generic specification for each classification of paint coating systems.

### **2.1.2 Applicability**

This procedure is applicable to all Eskom personnel, groups and sections who conduct, support, or verify corrosion protection and coating activities at Koeberg Nuclear Power Station.

### **2.1.3 Effective date**

This document is effective from the date of authorisation.

## **2.2 Normative/Informative References**

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

### **2.2.1 Normative**

- [1] ISO 9001 Quality Management Systems
- [2] 331-2: Nuclear Engineering Management Manual
- [3] 331-3: Nuclear Engineering Document and Records Management Work Instruction
- [4] British Standard CP 3003, Part 1
- [5] Cor 001 R2a Corroglass Protection Coating Repairs
- [6] Det Norske Veritas – RP b401 Cathodic Protection Design
- [7] DIN 18166: 1974 Ceramic Split Tiles
- [8] DSG-317-094: The CRACK Specification
- [9] ISO DIS 8503-5 Revision: Preparation of Steel Substrates before Application of Paints and Related Products – Surface Roughness Characteristics of Blast cleaned Substrates – Part 5: Replica Table Method for the Determination of the Surface Profile
- [10] SANS ISO 9002 Quality Systems – Model for quality assurance in production, installation and servicing

**CONTROLLED DISCLOSURE**

## **2.2.2 Informative**

- [11] National SANS 1091: National Colour Standard
- [12] National SANS 10140: Identification Colour Marking
- [13] SANS 1198: The Manufacture of Rubber Sheeting for Rubber Lining
- [14] SANS 121: Hot dip Galvanised Coatings on Fabricated Iron and Steel Articles Specifications and test Methods
- [15] SANS 1201: The application of Rubber Linings to pipes, pipe fittings and vessels
- [16] SANS 1274: Coatings Applied by the Powder-Coating Process
- [17] SANS 2063: Metallic and other Inorganic Coatings – Thermal spraying – Zinc, Aluminium and their Alloys
- [18] SANS 2808: Paints and Varnishes – Determination of Film Thickness
- [19] SANS 5769: Cleanliness of Blast-Cleaned Steel Surfaces for Painting (Assessed by Freedom from Dust and Debris)
- [20] SANS 5770: Preparation of Steel Substrates before the Application of Paints and Related Products – Test for the Assessment of Cleanliness of Blast – Cleaned Steel Surfaces – Freedom from Certain Soluble Salts
- [21] BS 6374 – 5: Lining of equipment with polymeric materials for the Process Industries – Part 5: Lining with Rubbers
- [22] ISO 813: Rubber, vulcanised or thermoplastic. Determination of adhesion to a rigid substrate. One plate method.
- [23] SANS 5870: Hardness of vulcanised rubbers of hardness 30 – 95 degrees
- [24] SANS 32: Internal and/or External Protective Coatings for Steel Tubes
- [25] SANS 14713: Zinc Coatings – Guidelines and Recommendations for the Protection Against Corrosion of Iron and Steel in Structures
- [26] SANS 4998: Continuous Hot-Dip Zinc-Coated Carbon Steel Sheet of Structural Quality
- [27] SANS 3575: Continuous Hot-Dip Zinc-Coated Carbon Steel Sheet of Commercial and Drawing Qualities
- [28] BS EN ISO 10684: Fasteners – Hot-Dip Galvanized Coatings
- [29] HDGASA01: Code of Practice for Surface Preparation and Application of Organic Coatings
- [30] HDGASA02: Specification for Performance Requirement of Coating Systems
- [31] Steel Protection by Hot-Dip Galvanizing and Duplex Coatings - Chapter 9 - Design for Hot-Dip Galvanizing
- [32] SANS 53811: Sherardizing – Zinc diffusion coatings on ferrous products – specification
- [33] ISO 14713: Protection of Iron and Steel Structures – Zinc and Aluminium Coatings – Guidelines
- [34] SANS 1391 (1-3): Thermally sprayed metal coatings Part 1: Zinc and Aluminium Coatings for Protection of Iron and Steel against Atmospheric Corrosion
- [35] SANS 1217: The production of painted and powder-coated steel pipes

**CONTROLLED DISCLOSURE**

- [36] SANS 141: Glass-reinforced polyester (GRP) laminates
- [37] ASTM C811: Standard method for surface preparation of concrete for application of chemical resistant monolithic surfacing
- [38] ASTM D4258: Standard practice for surface cleaning concrete for coating
- [39] ASTM D4263: Standard test method for indicating moisture in concrete by the plastic sheet method
- [40] SANS 1217: Guidelines for internal and external organic coating protection for buried steel pipelines
- [41] SANS 5769: Cleanliness of blast cleaned surfaces for painting (assessed by freedom from dust and debris)
- [42] SANS 5772: Profile of blast cleaned surfaces for painting (determined by a micrometer profile gauge)
- [43] ISO 4624: Paints and varnishes – Pull-off test for adhesion
- [44] ISO 4628-1: Paints and varnishes – Evaluation of degradation of coatings – Designation of quantity and size of defects, and of intensity of uniform changes in appearance – Part 1 – General introduction and designation system
- [45] ISO 4628-3: Paints and varnishes – Evaluation of degradation of coatings – Designation of quantity and size of defects, and of intensity of uniform changes in appearance – Part 3 – Assessment of degree of rusting
- [46] ISO 8501-1: Preparation of steel substrates before application of paint and related products – Visual assessment of surface cleanliness – Part 1 – Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings
- [47] ISO 8501-4: Preparation of steel substrates before application of paint and related products – Visual assessment of surface cleanliness – Part 4 – Initial surface conditions, preparation grades and flash rust grades in connection with high-pressure water jetting
- [48] ISO 8502-3: Preparation of steel substrates before application of paint and related products – Tests for the assessment of surface cleanliness – Part 3 – Assessment of dust on steel surfaces prepared for painting (pressure sensitive tape method)
- [49] ISO 8503-4: Preparation of steel substrates before application of paint and related products – Surface roughness characteristics of blast cleaned steel substrates – Part 4 – Method for the calibration of ISO surface profile comparators and for the determination of surface profile – stylus instrument procedure
- [50] ISO 8504: Preparation of steel substrates before application of paint and related products – Surface preparation methods
- [51] ISO 12944: Paints and varnishes – Corrosion protection of steel structures by protective paint systems. Parts 1 to 8
- [52] Swedish Code of Practice SIS 055900
- [53] DSG-310-319: Thermal spray coating for GSS vessels.
- [54] ASTM D5144-08: “Standard guide for the use of protective coating standards in Nuclear Power Plants”
- [55] ANSI N101.2: “Protective coatings (paints for Light Water Nuclear Reactor containment facilities”

**CONTROLLED DISCLOSURE**

[56]ASTM D3911-16: “Standard test method for evaluating coatings used in Light Water Nuclear Reactors”

[57]ASTM D7491-08: “Management of non-conforming coatings”.

[58]AFNOR NF T30-900: “Paints and varnishes. Paints for nuclear industry”

[59]AFNOR NF T30-903: “Paints and varnishes. Paints for nuclear industry. Test of behaviour in ionising radiation (PWR)”

[60]AFNOR EN ISO 4624-6: “Paints and varnishes. Pull-Off test for adhesion”

[61]EPRI TR-106160: “Coatings handbook for Nuclear Power Plants”

## 2.3 Definitions

**2.3.1 Coat / Film:** Refers to a single layer of the product.

**2.3.2 Coating System:** Coating system is an all-embracing term including generic type, the number of coats, the thickness of each coat, and the overall thickness of the system.

**2.3.3 Contractor:** The contractor having the main contract responsibility for coating application at Koeberg Nuclear Power Station.

**2.3.4 Engineering:** Refers to Materials Reliability Engineering.

**2.3.5 Generic Coating:** Refers to a type of product e.g. epoxy, polyurethane etc.

**2.3.6 Supervisor:** Refers to a person having a minimum of two years’ experience in the field of surface preparation and application of surface coatings. This person is responsible for representing Koeberg by supervising the contractor.

## 2.4 Abbreviations

Abbreviation	Explanation
DFT	Dry Film Thickness
GRP	Glass-reinforced Plastic
HDPE	High Density Polyethylene
ISIPRM	In Service Inspection Programme Requirements Manual
LOCA	Loss of Coolant Accident
MRG	Materials Reliability Group
PVC	Polyvinyl Chloride
SANS	South African National Standards

**CONTROLLED DISCLOSURE**

## 2.5 Roles and Responsibilities

The Materials Reliability Group (MRG) Manager is responsible for the development, update and implementation of this document.

## 2.6 Process for Monitoring

The MRG, and specifically the Corrosion Management Programme Engineer through the requirements of 331-148, "Programme Engineer's Guide" manages all the consequences related to the use and maintenance of protective coatings at Koeberg Power Station.

## 2.7 Related/Supporting Documents

331-176 "Process and responsibilities for Koeberg Corrosion Management Programme."

## 3. Requirements

### 3.1 Classification of paint coating systems

#### 3.1.1 General

3.1.1.1 Coating systems for repairs, replacement and for upgrading levels of protection shall be classified as follows:

- 1) By their location and the environment to which the coatings shall be exposed (three letters):
  - (a) Coating systems for Interior surfaces in contact with the respective atmosphere (3.1.2).
  - (b) Coating systems for Exterior surfaces in contact with the marine atmosphere (3.1.3).
  - (c) Coating systems for surfaces subject to contact with liquids (3.1.4).
- 2) By the nature of the substrate and the operating conditions to which the coatings will be subjected (three numbers):
  - (a) Ferrous, non-ferrous, non-metallic.
  - (b) Operating temperatures.
  - (c) The nature of the contact liquid.
- 3) By the designated coating "categories" which characterises the severity of the relative regulation especially for testing (numbers 1 to 4). Depending on the location and environment as described above in section (1), category 1 is the most severe, while category 4 is the least severe.

3.1.1.2 All paint coating systems are therefore classified within the tables given between sections 3.1.2 and 3.1.4.

#### Example 1 PIC 100 1

- PIC: The system is applicable within the containment building and must be decontaminable.
- 100: The system is applied to a ferrous substrate with an operating temperature equal to or less than 70°C.
- 1: The coating is category 1

**CONTROLLED DISCLOSURE**

**Example 2** PEC 208 2

- PEC: The system will be applied to surfaces situated externally and will be exposed to the marine environment.
- 208: The system will be applied to a (non-ferrous) galvanised substrate with an operating temperature equal to or less than 70°C.
- 2: The coating is category 2

**Example 3** PLC 500 2

- PLC: the system will be applied to surfaces in contact with inhibited demineralised water.
- 500: The system will be applied to a ferrous substrate.
- 2: The coating category is 2.

**3.1.2 Coating Systems for Interior Surfaces in Contact with the Atmosphere**

	<b>Range of Use</b>	<b>Designation</b>
Non-nuclear Areas	Normal atmosphere	PIA
	Aggressive atmosphere	PIB
Nuclear Areas	Containment (Reactor Building)	PIC
	Other than Containment	PID

**3.1.2.1 Normal Applications**

(1) Interior Paint – Type A = Series PIA

Systems in this series are used for areas (and plant contained therein) other than nuclear where the atmosphere is termed “normal”, i.e. it contains in normal operating conditions neither acidic nor basic vapours.

(2) Interior Paint - Type B - Series PIB

Systems in this series are used for installations (and plant contained therein) other than nuclear, where the atmosphere is termed “aggressive” i.e. it contains acidic, basic or marine vapours.

**3.1.2.2 Decontaminable Applications**

(1) Interior Paint – Type C – Series PIC

Systems in this series are used for containment buildings in Nuclear Power Stations, and plant or other structures within the containment. All coatings in this series shall be tested for resistance to irradiation and ease of decontamination by an approved institution (approved by ASTM and/or AFNOR) and certification to this effect shall be provided by the coating Manufacturer.

These systems shall be:

(a) Smooth and easily washed.

(b) Easily decontaminable when treated with alkali-based detergents and a blend of aliphatic / aromatic solvents.

**CONTROLLED DISCLOSURE**

(c) Able to withstand normal service conditions, the characteristics of which are given in the following table:

Temperature	Working +15°C to +50°C
	Shutdown +10°C to +25°C
Absolute Pressure	0,8 to 1,2 bar
Relative Humidity	Working 15% to 50%
	Shutdown 15% to 95%
Radiation dose integrated over 40 years	10 <sup>8</sup> rad or 250kGy

Test on resistance to irradiation shall be carried out at an approved institution on selected products.

(d) Repairable after staining or damage so as to meet the specified requirements.

(e) Able to withstand, without damage, a LOCA (Loss of Coolant Accident). Tests for resistance to LOCA conditions shall be carried out by an approved institution and certification shall be provided for all coatings in this category.

(f) Paint coatings in this classification are subject to maximum allowed concentrations of Halogens and Sulphur shall be:

Halogens, C1 + F + Maximum 200 ppm

Sulphur, Maximum 200 ppm

(2) Interior Paint – Type D – Series PID

The systems in this series are used in all nuclear areas other than containment and for plant or other structures in these areas. These systems are governed by the conditions defined in sub-paragraphs (1) (a) (b) (d) and (f) of the PIC and hence shall be easily decontaminable. However, the maximum allowable concentration of Halogens and Sulphur shall be:

Halogens, Cl + F + Maximum 200 ppm

Sulphur, Maximum 200 ppm

In situations where coating products in the PIC and PID categories are not locally available Engineering Programmes shall decide whether to import or to use an alternative material that is deemed fit for purpose. In addition, it should be noted that products which are being manufactured locally to original formulations, whether under license or not, shall be continued to be used for maintenance repairs and touch-up.

**CONTROLLED DISCLOSURE**

The following are the documented design bases for absorbed radiation during normal operation and post design-basis loss of coolant accident (LOCA) at Koeberg (SAR Part II Chap 1, Rev 5b, para 1.11.1.):

- Integrated dose value: 250kGy for normal operation during the forty years operating life of the unit. Note that due to this dose value being conservative (coatings generally located away from the reactor core/neutron source), and the fact that coatings undergo continuous maintenance and refurbishment/replacement through-out the life of the plant, the integrated dose of 600kGy can be used as a basis for LTO as well (i.e., 60 years of operation).
- Air equivalent dose rate: between 150 and 750 kGy/h and an integral dose of 600 kGy for conditions up to one year after a design basis accident.

Initial pressure and temperature exposure after a design basis accident at Koeberg is predicted as a dewpoint of 156°C and pressure of 0.55MPa.

EdF specified coatings are qualified in accordance with AFNOR standards NF T30-900 and NF T30-903. The coatings initially undergo a gamma radiation dose of 250kGy at a temperature of 70°C. Subsequently, to simulate a LOCA accident, coatings are exposed to a gamma radiation dose of 600kGy at a temperature of 70°C. Following the irradiation tests, a 96-hour accident test using NF T30-900 is carried out on the EdF test loop. Finally, the coatings tested in the LOCA test loop are exposed for 10-days to a temperature of approximately 100°C and a relative humidity of  $\geq 80\%$ . These EdF LOCA tests are encompassing of the LOCA conditions predicted for KNPS. After the above exposure, the coatings are assessed for degradation, the quantity of the debris released in the post-accident phase and an adhesion test according to the standard NF EN ISO 4624-6.

The US-NRC endorses (RG 1.54 Rev 0) both ANSI N101.2 and ASTM D3911 as the standards defining Design Basis Accident qualification criteria for containment coatings. Since there are no local South African coating manufacturers with the capability of LOCA testing, KNPS has decided to adopt both the EdF and US-NRC approved coatings qualification processes.

For surface protection of non-immersed steel surfaces inside the containment buildings, KNPS utilises mainly a US-approved Carboline coating viz. Phenoline 305. This coating was tested in accordance with and met the requirements of ANSI N101.2.

To support long-term operation, any new protective coating specifications should be strictly selected from those LOCA tested and approved by EPRI (TR-106160) or EdF (<https://dipnn-fnp.edf.fr/en/codification/list>).

**CONTROLLED DISCLOSURE**

### 3.1.2.3 Coating Classification for Interior Applications

(1) There are no specified limits of Halogen and Sulphur concentrations for paint coatings designated as PIA and PIB.

APPLICATION	DESIGNATION			
	PIA	PIB	PIC	PID
<b>METALLIC SUBSTRATE</b>				
Ferrous				
Cold surface: $t < 70^{\circ}\text{C}$	100	100	100	100
Hot surface: $70^{\circ}\text{C} < t < 200^{\circ}\text{C}$	103	103	103	103
Hot surface: $t > 200^{\circ}\text{C}$	104	104	104	104
<b>NON FERROUS</b>				
Metallised surface	107	107		107
Galvanised surface	108	108		108
<b>NON-METALLIC SUBSTRATES</b>				
Decorative systems:				
Gypsum plaster ceilings and walls	150	150	–	–
Cement plaster ceilings and walls	151	151	–	–
Wood	152	152	–	–
Washable/decontaminable systems:				
Concrete ceilings and walls	153	153	153	153
Concrete floors - ultra thick	156	156	156	156
Concrete floors - thin film	157	157	157	157
Concrete floors - thick film	159	159	159	159

### 3.1.3 Coating Systems for Exterior Surfaces in Contact with the Atmosphere

#### 3.1.3.1 Exterior Systems

	RANGE	DESIGNATION
OPEN AIR	Marine atmosphere	PEC

#### (1) Exterior Paint – Type C – PEC

The systems in this series are used in structures or plant exposed to the corrosive effects of a “marine” atmosphere, i.e. in the vicinity of, or at the sea. It is characterised by the presence of sea spray, salty fog, and a high relative humidity.

**CONTROLLED DISCLOSURE**

There are no specified limits of Halogen and Sulphur concentrations for paint coatings designated as PEC.

### 3.1.3.2 Coating Classification for External Applications

APPLICATION	DESIGNATION
	PEC
<b>METALLIC SUBSTRATE</b>	
Ferrous	
Cold surface: $t < 70^{\circ}\text{C}$	200
Hot surface: $70^{\circ}\text{C} < t < 200^{\circ}\text{C}$	203
<b>NON-FERROUS</b>	
Cold surface: $t < 70^{\circ}\text{C}$	
Metallised surface	207
Galvanised surface	208
Aluminium	209
<b>NON-METALLIC SUBSTRATE</b>	
Decorative system for concrete and cement rendering	250
System for concrete structures	251
Protective system for wood	252
Colour coding requirements on HDPE, PVC, GRP etc.	258

### 3.1.3.3 Coating Systems for Insulation of high temperature surfaces

APPLICATION	DESIGNATION		
	PIA	PIB	PEC
<b>METALLIC SUBSTRATE</b>			
Hot surface: $70^{\circ}\text{C} < t < 200^{\circ}\text{C}$	105	105	205
Hot surface: $t > 200^{\circ}\text{C}$	106	106	206

(1) These systems are used to provide thermal insulation and corrosion protection.

### 3.1.4 Coating System for Surfaces in Contact with Liquids

These systems are used for structures or plant in contact with the elements given below:

**CONTROLLED DISCLOSURE**

### 3.1.4.1 Liquid Contact Application

	RANGE OF USE	DESIGNATION
LIQUIDS AND CHEMICALS	Buried	PLA
	Potable and Demineralised water	PLB
	Inhibited Demineralised water	PLC
	Sea Water	PLD
	Hydrocarbons	PLE
	Chemical Products	PLF

### 3.1.4.2 Coating Classification for Liquid Contact Applications

- (1) There are no specified limits of Halogen and Sulphur concentrations for paint coatings designated below:

APPLICATION	DESIGNATION					
	PLA	PLB	PLC	PLD	PLE	PLF
<b>Metallic Substrates</b>						
Buried	300					
Galvanised surface in contact with potable/rain water		400				
Surfaced in contact with:						
– potable water		401				
– demineralised water		402				
– water containing suspended matter		403				
– inhibited demineralised water			500			
– sea water				600		
– galvanised surface in sea water				601		
– in contact with mineral oils					700	
Surfaces in contact with:						
– basic solution						800
– acid solution						801
<b>Non-Metallic Substrate</b>						
Concrete in contact with:						
– sea water				650		
– mineral oil – non immersion					750	
– acid solutions – immersion						850
– acid solutions – non immersion						851

**CONTROLLED DISCLOSURE**

## 3.2 Materials

### 3.2.1 Repair Specifications

3.2.1.1 Details of generic coating systems from approved manufacturers are provided in Appendix 1. The technical specifications for localised repairs and maintenance overcoating of existing protective surface coatings shall be applied in accordance with the manufacturer's data sheet.

### 3.2.2 Design Specifications

3.2.2.1 Details of generic coating systems from approved manufacturers to be used for the design of specifications for procurement of plant and equipment and when applicable, for upgrading the level of protection on existing plant are provided in Appendix 1. The technical specifications shall be applied in accordance with the manufacturer's data sheet. Should a manufacturer or contractor wish to propose an alternative coating he shall submit a technical justification to Engineering for approval.

Technical justification should typically include:

- Benefit to Eskom
- Product licensor and technical back-up available
- Location, experience and ISO quality rating of the production facility
- Detailed case histories
- Performance guarantee offered
- Manufacturer's data sheets for each product

Should the offered case histories be deemed insufficient or inconclusive, additional testing may be required to confirm the adequacy of the alternative coating materials. The cost of such testing will be borne by the contractor, paint supplier or paint manufacturer.

**CONTROLLED DISCLOSURE**

### 3.2.3 Coating Quality Control Categories

3.2.3.1 Paint systems for use in different parts of the power station are divided into quality control categories, which define the frequency with which specified tests are carried out in the manufacture of paint and during subsequent use.

REGULATIONS CHARACTERISING THE CATEGORIES	REF.	CAT. 1 I	CAT. 2 II	CAT. 3 III	CAT. 4 IV
Distribution according to paint systems	5.1	PIC PID	PEC PLA PLB PLC PLD PLE PLF	PIA PIB PEC (concrete)	PIA (architectural buildings) all systems for small standard equipment
Single Source of products	5.2.4	Mandatory	Mandatory	Mandatory	Mandatory
Factory testing	5.2.5	Mandatory every batch	Mandatory every batch	Free	Free

### 3.2.4 Composition of Coating Systems

3.2.4.1 All coats in a given system shall come from the same manufacturer except in the case of SANS marked materials (material manufactured under strict control and specifically authorised by SANS for compatibility). In the case of items of plant or equipment being primed overseas and final coated on site this requirement may be waived provided that the site applied finishing coats are compatible with the applied primer. Where the substrate had received a primer coat in the factory e.g. galvanised or metallised substrate, the Contractor shall check the compatibility of the coatings that he proposes with the primer coat, and is responsible for this choice.

It should also be noted that during painting activities, it is advised that the selection of materials such as paint thinners, solvents and cleaning agents be controlled, and these materials should also be products from the same manufacturer.

3.2.4.2 During application, solvents and thinners may only be used under the following conditions:

- When they are compatible with base material.
- When the percentage added does not exceed the limits specified in the Technical Note.
- When recommended by the applicable paint manufacturer.

**CONTROLLED DISCLOSURE**

Note that where the recommended solvent differs from the “clean-up thinners/solution”, the “clean-up solution” cannot be used as a thinning agent e.g. when the material is too viscous to apply with a spray gun.

- 3.2.4.3** The colours of the paints to be used shall be specified by the Engineer, and shall comply with SANS 1091 and SANS 10140.
- 3.2.4.4** The contractor shall ensure that the colour selection of the coat immediately prior to the top or finishing coat shall be suitable for complete obliteration by the top or finishing coat.
- 3.2.4.5** In the Reactor Building, paint systems must not contain any metallic aluminium or zinc that may lead to the development of hydrogen during a LOCA.

### **3.2.5 Controls and Tests**

The following requirements apply only to the categories 1 and 2 main coating manufacturers.

#### **3.2.5.1 Factory Testing**

##### (1) Testing

Paint complexes shall be tested according to approved procedures to verify conformity with the following parameters:

- (a) Quality of raw material
- (b) Analytical formulation of finished product
- (c) Percentage of solids by volume
- (d) Specific gravity
- (e) Colour and gloss
- (f) Drying time
- (g) Viscosity

These tests shall be carried out by the paint manufacturer, and test certificates will confirm that tests have been carried out and have shown conformity with the relevant Technical Data Sheet.

Only paints drawn from batches that satisfy these tests shall be delivered on site.

#### **3.2.5.2 Certification and Records**

The contractor shall obtain a copy of the coating Batch Certificate, the Product Data Sheet and the Material Safety Data Sheet from the coating manufacturer prior to application of the material.

**CONTROLLED DISCLOSURE**

### 3.2.6 Packaging

Coating materials shall be supplied in sealed robust containers. The maximum capacity of containers shall be 25 litres and should be of a size large enough to allow mixing in the containers. All containers should be suitably labelled with all the information (such as manufacturer's batch numbers) necessary to ensure correct storage, application and traceability.

### 3.2.7 Storage

The containers shall be kept in approved stores which are dry, enclosed, covered and kept at a temperature compatible with good conservation of their contents. All containers shall be labelled in accordance with CRACK requirements. Particular care must be taken to adhere to the paint manufacturer's recommended shelf life, and specified storage requirements.

## 3.3 General Conditions of Workmanship

**3.3.1** All work shall be carried out by qualified, experienced and skilled staff in terms of the South African Qualification and Certification Committee for Corrosion (SAQCC – Corrosion) as follows:

- Applicators: General Heavy Duty Coatings Applicator (PA1)
- Supervisors: General Paint Supervisors (PS1)
- Inspectors: Coating Inspectors (Level 1 or Level 2) or alternatively NACE CIP Level 1, 2 or 3

**3.3.2** The method of surface preparation and coatings application shall be in accordance with that recommended in the product Technical Data sheet and approved by Engineering.

**3.3.3** No cleaning or coating applications shall take place when environmental conditions are likely to adversely affect these operations. The Contractor shall be responsible for providing all protective equipment necessary to prevent contamination of the coatings and to minimise delays due to such conditions.

**3.3.4** Scaffolding, as and when required, shall be erected in such a manner as to provide adequate access to the work face.

**3.3.5** All equipment shall be in good working order and applicators shall be experienced with its operation.

**CONTROLLED DISCLOSURE**

### 3.3.6 Equipment

#### 3.3.6.1 Measuring and Testing Equipment:

The contractor shall have a blast profile gauge, wet film comb, and a dry film thickness gauge at the workshop/site at all times. The contractor shall also have at the workshop/site instrumentation to measure the psychrometric conditions and the substrate temperature.

The electronic dry film thickness gauge shall conform to the requirements of SANS ISO 2808:1997 and shall be calibrated using the smooth calibration disc supplied by the instrument manufacturer.

Where immersed surfaces are being coated or lined, the contractor shall have the necessary pin-hole detection equipment at the work site. The equipment shall be of either the wet sponge low voltage or the high voltage spark type as dictated by the type of coating or lining being applied. The pinhole detection test procedure is defined in SANS 1217.

All test equipment and shims should have current calibration certificates.

#### 3.3.6.2 Spray Equipment:

The spray equipment used shall be capable of properly atomising the material and shall be equipped with suitable pressure regulators and gauges. Air caps, needled and nozzles shall be of the type recommended by the coating manufacturer.

All spray painting equipment shall be fitted with oil and moisture traps.

#### 3.3.6.3 Blast Cleaning Equipment:

Industrial type surface preparation apparatus shall be used to ensure effective and time-efficient cleaning of surfaces. Effective oil and water separators shall be utilised on all air lines used for abrasive blast cleaning. The separators shall be of the "cartridge" type.

#### 3.3.6.4 Power Mixers:

All coatings shall be mixed with power mixers. Low speed mixers, which do not induce air into the coating, shall be utilised.

**CONTROLLED DISCLOSURE**

### **3.3.7 Safety Precautions**

#### **3.3.7.1 General**

Special care needs to be taken when working with various coating and lining materials, including adhesives and curing agents. Prior to the use of the coating material, the Material Safety Data Sheets shall be obtained from the relevant coating or lining manufacturer. The contractor shall familiarise himself with the contents of these safety data sheets and ensure that the necessary safety precautions are taken in order to comply with the local and national safety and health requirements, such as NOSA and the OHS Act.

During the application of all coatings, care shall be taken to ensure adequate ventilation. This would allow proper curing of the coating and would avoid/minimise health and safety risks.

Any solid or liquid waste materials generated during the coating operations shall be discarded in accordance with the requirements of the appropriate national and/or local authorities or the requirements of the Engineer.

The contractor shall ensure that he complies with all statutory regulations, municipal by-laws, etc. concerning pollution and the health and safety of his personnel and members of the public who may be affected by his work.

The contractor shall provide for all necessary safety precautions and risk assessments.

The contractor shall advise the Engineer of all hazardous materials to be brought onto site.

All painting materials on site shall be stored in designated areas in storage facilities that meet the storage requirements of the paint manufacturer and the safety requirements of the specific site.

#### **3.3.7.2 Contractor's Safety File**

The Contractor's safety officer shall prepare a Safety File for the area to be worked in.

This Safety File shall address the hazardous activities of abrasive blast cleaning and spray painting. The contractor shall verify that the personnel carrying out these activities are suitably qualified and are conversant with the potential hazards The contractor's.

#### **3.3.7.3 Fire Hazards**

The contractor shall ensure that adequate precautions are taken to identify and mitigate any risk of fire.

#### **3.3.7.4 Storage of Hazardous Materials**

Oily and/or solvent rags shall be kept to a minimum quantity and should be collected in closed containers. Any spillages shall be appropriately contained and cleaned-up immediately. Solvents and volatile materials shall be stored in designated areas.

**CONTROLLED DISCLOSURE**

### **3.3.7.5 Environmental**

The contractor shall ensure that any solid or liquid waste materials generated during the surface preparation and coating/lining processes are discarded in accordance with all statutory and regulatory requirements, or as governed by Eskom Power Station's Environmental Management Procedures.

### **3.3.7.6 Scaffolding and Rigging**

The contractor shall provide and erect such scaffolds and rigging as may be required. All scaffolds and rigging shall comply with the requirements of the OHS Act.

Temporary welded support elements are not permitted except where written approval has been granted by the Engineer.

## **3.3.8 Quality Assurance**

### **3.3.8.1 Contractor Qualification**

The Engineer may at his discretion, may request a Quality Audit of the painting contractor to ensure that he has the management, facilities and skilled staff to carry out the work in accordance with the specification.

The contractor shall retain full responsibility for the quality of his work and of materials used, irrespective of any quality surveillance that may be carried out by the Engineer.

### **3.3.8.2 Quality Control**

The contractor shall have the necessary equipment and qualified staff to carry out the quality control required to ensure compliance with the specification.

Quality control shall be carried out by a qualified inspector who is independent of the application activities. Quality control cannot be carried out by the site supervisor or any member of staff involved in production and programming.

The contractor shall keep, as a minimum, the following records:

- Material batch records
- Signed product data sheets
- Psychrometric records (including steel temperatures)
- Records of surface preparation
- Records of dates and times of the application of each coat
- Dry film thickness measurements per coat
- Records of specific tests requested by the Engineer

### **CONTROLLED DISCLOSURE**

These records shall be kept in a format that meets the approval of the Engineer.

The cost of quality control shall be included in the contractor's tender price.

Before the commencement of the contract, the contractor shall prepare the following:

- A Quality Plan detailing each activity to be carried out during the execution of the works. Each activity shall be supported by a detailed Works Procedure for that activity. The Quality Plan will also detail the inspection requirements of each specific activity, listing whether it be a review, witness or hold point, and the responsibilities of the various parties at each stage of the works.
- The Safety File

The contractor shall provide the necessary documentation to be used during all quality control inspections. Such documentation shall be reviewed and approved by the Engineer beforehand.

The contractor shall produce evidence that he has copies of, and understands, all reference documents listed under Section 3 'Normative/Informative References'

### **3.3.8.3 Quality Surveillance**

The Engineer may either carry out Quality Surveillance of the work or employ an independent technically qualified organisation to carry out Quality Surveillance of the work on his behalf. In the event of dispute, the decision of the Engineer shall be final.

For the purpose of carrying out quality assurance, the Engineer or his authorized representative shall be granted access to any part of the contractor's premises relevant to the work being carried out, at any reasonable time.

The contractor shall provide, at his own cost, any equipment or labour necessary to gain safe access to surfaces which are coated, to be coated or are in the process of being coated.

The Engineer or his authorised representative may remove any reasonable samples of the materials to be used in the coating application. Rejection of the samples will place a hold on the use of material of the same batch number and may lead to rejection of the entire batch of material, and the re-working of any components that have already been coated with rejected material.

**CONTROLLED DISCLOSURE**

The Engineer or his authorised representative may carry out reasonable destructive tests to ascertain compliance with specification. Areas thus damaged shall be repaired by the contractor to the satisfaction of the Engineer at no additional cost.

The cost of quality surveillance will be borne by the Engineer, except where surveillance results in rejection of the work or when notice by the contractor results in a fruitless trip, in which cases the cost of surveillance shall be carried by the contractor.

A report shall be compiled by the surveyor for each visit. A copy of the report will be given to the contractor on completion of each surveillance visit.

#### **3.3.8.4 Release Certificate**

The coatings applied in the shops will be inspected by the Engineer or his authorised representative at the contractor's premises before releasing the coated items for delivery. A clearance certificate will be issued authorizing the release.

The contractor shall notify the Engineer or his authorised representative at least 48 hours in advance of the date on which the coating activities will be complete and ready for inspection.

The coatings applied on site will be inspected by the Engineer or his authorised representative. A final acceptance certificate will be issued after the completion and final inspection and acceptance of each area of the structure.

On completion of the total structure, plant, equipment or contract a final inspection shall be carried out by the Engineer or his authorised representative and a Contract Completion Certificate issued. Final payments will not be made until this Contract Completion Certificate has been issued. This final inspection should be carried out just prior to the commissioning of the plant.

#### **3.3.9 Records**

##### **3.3.9.1** On completion of the works, the contractor shall provide the Engineer with a Data Book containing all the relevant Quality Control documents and records pertaining to the works.

This data book shall contain, as a minimum, the following:

- The Quality Plan
- Copies of all Batch Release Certificates from the paint manufacturer
- Copies of the signed paint manufacturer's data sheets
- All relevant QC Records

**CONTROLLED DISCLOSURE**

**3.3.9.2** The contractor shall submit to Eskom the number of copies of the Data Book as required by the contract. In addition, the contractor shall keep a copy of the Data Book for his own records.

### **3.3.10 Quality Plan**

**3.3.10.1** The Quality Plan will detail each activity to be carried out during the execution of the works. Each activity shall be supported by a detailed Works Procedure for that activity.

**3.3.10.3** The Quality Plan will also detail the inspection requirements of each specific activity, listing whether it be a review, witness or hold point, and defining the responsibilities of the various parties (contractor, client, third party inspectorate, etc.) at each stage of the works.

### **3.3.11 Handling and Storage of coated components**

**3.3.11.1** All coated components shall be handled using soft slings. Large components shall have sufficient lifting/support points to avoid flexing or bending that could damage the applied coating system.

**3.3.11.2** All coated components to be transported shall be loaded with support blocks, packing between pieces and tight lashing to avoid chafing.

**3.3.11.3** Off-loading at site shall be conducted using the same care and precautions as for on-loading. Components shall not be tipped off the transportation.

**3.3.11.4** Where possible, coated items shall be stored under cover.

**3.3.11.5** Items not stored under cover shall be stored in such a manner as to avoid retention of water and to allow good air circulation.

**3.3.11.6** Items shall be stored so that they are raised above the ground, with the lowest level positioned above the rain splash zone.

**3.3.11.7** Items shall be stacked in such a way so as to avoid coating-to-coating contact. Sufficient bearing area of packing shall be used to avoid damage to coatings. The steelwork shall be placed in such a manner as to ensure adequate drainage of rainwater and condensation.

## **3.4 Surface Preparation**

It is extremely important that the contractor endeavours to achieve the best surface preparation possible by using the latest technology when it comes to surface preparation apparatus and materials. The minimum degree of surface preparation shall be as stipulated in the detailed coating specification.

**CONTROLLED DISCLOSURE**

### 3.4.1 General

3.4.1.1 Before applying the coating system, the substrate shall be prepared by cleaning, which if relevant shall be followed by special complementary preparation, as specified in paragraphs 3.4.2 and 3.4.3.

Sharp edges shall be dressed to a radius of not less than 2 mm, but no more than half of the section thickness. All burrs and weld spatter shall be removed as per the requirements of ISO 12944-3:1998.

3.4.1.2 All harmful deposits, oil or grease spots and all other matter detrimental to the adhesion of coatings to the surface, shall be removed, including rust and mill scale, for metal surfaces; harmful deposits and laitance on concrete surfaces; resins for wood surfaces etc.

### 3.4.2 Metal Surfaces

#### 3.4.2.1 Degreasing

- (1) According to the degree and nature of contamination, degreasing shall be carried out using an alkaline cleaning solution, alkaline detergent or cold solvents. Oil and grease shall be removed by high pressure water washing with detergent solution.
- (2) The degreasing operation shall be followed by rinsing with clean water to remove all traces of residues. Items shall be allowed to dry completely prior to abrasive blast cleaning and coating.

**NOTE:** For nuclear related equipment and components located within the Nuclear Island the use of chlorinated organic solvents is forbidden. The use of acetone is permitted on a case by case basis subject to approval by MRG.

#### 3.4.2.2 Cleaning with Acids

Cleaning with acids must be followed by neutralisation, passivation and rinsing with clean potable water.

#### 3.4.2.3 Abrasive Blast Cleaning

- (1) Before blast cleaning, all welds shall be free of imperfections such as slag inclusions, undercutting and blowholes, which are difficult to cover effectively with a paint system. The onus is on the contractor to ensure that the surfaces are acceptable for coating.
- (2) Adjacent areas shall be free of weld spatter and such spatter shall be removed by grinding or scraping.
- (3) All oil and grease deposits shall be removed prior to blast cleaning as detailed in paragraph 3.4.2.1. Where applicable, all surfaces that have been subjected to salt spray or seawater immersion shall first be high-pressure water washed.
- (4) Abrasive blast cleaning shall be carried out using equipment suitably designed for this purpose.

**CONTROLLED DISCLOSURE**

- (5) Blast cleaning shall be carried out on dry surfaces using dry air, free from impurities (in particular, grease or oils), in an atmosphere where relative humidity is less than 85%, and the ambient temperature above +5°C.
- (6) Should the use of ultra-high pressure water or wet abrasive blasting be proposed by the Contractor, details of inhibition and cleaning methods shall be submitted to Engineering for approval.
- (7) Blast cleaning on site shall be carried out only in areas approved by Engineering.
- (8) All surfaces that are blast cleaned with the exception of lap joints and areas to be left uncoated for site welding, shall be coated with the primer coat within a period of 4 hours after blasting. Under no circumstances shall blast cleaned surfaces be left uncoated overnight.
- (9) Care shall be taken to ensure adequate protection of machined parts or any other parts not requiring blast cleaning and coating. Every precaution should be taken to avoid deformation of the substrate and damage to welds.
- (10) Blast cleaning may be carried out using grit, steel shot, cut wire or copper slag. Irrespective of the material used for blast cleaning, in all cases, it shall be free of foreign matter such as clay, humus, chlorides and bitumen. The particle size of the abrasive shall be such that the desired surface profile may be achieved. The use of re-cycled blasting media is not allowed for the final blast.
- (11) Abrasive blast cleaning shall be carried out in accordance with Clause 4.3 of SANS 10064 (ISO 8504) and the degree of cleanliness achieved shall be in accordance with ISO 8501/1, and as specified in the relevant coating specification.
- (12) The profile peak to valley when measured by SANS Method No. 772 shall be at least 30 µm, but not in excess of 100µm or 30% of the minimum total dry film thickness, whichever is the lowest.
- (13) In all cases, after blast cleaning, all traces of blasting media and dust shall be removed from the surface by compressed air or vacuum cleaning. Cleaned surfaces shall not be contaminated with oil, grease, rust or other deposits before coating.
- (14) The surface to be coated shall be free of soluble salts. Soluble salt levels shall be measured using Weber Reilly Soluble Salt test kits or equivalent approved methods. The acceptance level for soluble salts shall be as specified by the applicable coating manufacturer.

If the blast cleaned surface shows signs of rust bloom, the surface shall be re-blasted.

#### **3.4.2.4 Mechanical Wire brushing or Grinding**

- (1) Mechanical wire brushing or grinding may only be used where the condition of the substrate metal is such that efficient brushing or grinding can be achieved and where the coating system is designed for application to brushed or ground surfaces.
- (2) Before wire brushing, all welds shall be free of slag, slag inclusions and pinholes.
- (3) Before wire brushing adjacent areas shall be free of weld spatter, and such spatter shall be removed by grinding or scraping.

**CONTROLLED DISCLOSURE**

- (4) All oil and grease deposits shall be removed prior to wire brushing as detailed in paragraph 3.4.2.1. In this regard, special attention shall be paid to drillings, bolt holes, etc.
- (5) Following the degreasing as described above, all surfaces of steelwork and plant under this category shall be scraped and wire brushed to remove all loose scale, rust and deleterious matter.
- (6) The Contractor may utilise hand wire brushing provided the required standard finish is achieved. Mechanical and hand cleaning shall be in accordance with Clause 5.4 of SANS 10064 (ISO 8540), with the standard of finish being in accordance with ISO 8501/1 or the Swedish Code of Practice SIS 055900 (1988), and as specified in the relevant coating specification.
- (7) The surfaces shall be finally cleaned using dry, oil free compressed air or vacuum cleaning to remove dust and loose matter.

**3.4.2.5** The following table indicates the surface quality to be achieved for the given ferritic surfaces.

<b>SURFACES</b>	<b>CODE</b>	<b>SURFACE QUALITY</b>
Interior in normal atmosphere	PIA	Sa 2,5
Interior in an aggressive atmosphere	PIB	Sa 2,5
Exterior in a marine atmosphere	PEC	Sa 2,5
<b>Buried</b>		
Buried	PLA	Sa 2,5 – 3
In contact with potable and demineralised water	PLB	Sa 2,5 – 3
In contact with inhibited demineralised water	PLC	Sa 2,5 – 3
In contact with sea water	PLD	Sa 2,5 – 3
In contact with hydrocarbons	PLE	Sa 2,5 – 3
In contact with chemical products	PLF	Sa 2,5 – 3
<b>Decontaminable</b>		
	PIC	Sa 2,5 – 3
	PID	Sa 2,5 – 3

**3.4.2.6** In all cases regardless of method of preparation, surfaces shall be free of soluble salts. Unless otherwise specified by the coating manufacturer, the maximum allowable level of soluble salts shall be 120 mg per square metre when tested in accordance with Weber-Reilly soluble salts test method.

**3.4.2.7 Non-Ferrous Substrates**

- (1) All zinc metal sprayed or galvanised substrates shall be scrubbed using a suitable solvent detergent degreaser and thoroughly rinsed with potable water to achieve a water break free surface prior to primer application.

**CONTROLLED DISCLOSURE**

Sweep Blasting (Micro-blasting) of Galvanised Surfaces:

Sweep blasting shall be carried out only where stipulated in the generic coating system, and shall be in accordance with clause 4.3.3 of HDGASA 01-1990 – Code of Practice for Surface Preparation and Application of Organic Coatings.

Every effort must be made to not damage the galvanised surface or remove any of the zinc layer during sweep blasting.

- (2) Aluminium substrates shall be scoured using a degreasing agent to remove all oil, grease and any other surface contaminants followed by rinsing with portable water prior to primer application.

### 3.4.3 Concrete Surfaces

#### 3.4.3.1 Preparation shall at least include:

- (1) Removal of ridges.
- (2) Rounding of steps.
- (3) Removal of laitance and crystalline Calcium and Chloride salt deposits.
- (4) Plugging of holes and honey combing where hole diameter > 15 mm, and depth > 5 mm. (The plugging compound shall be specified by the Civil Systems Engineer.)
- (5) Removal of curing compound and shutter oils where these are apparent or could be harmful to the coating system.
- (6) Removal of grease and oil.
- (7) Fill all surface defects and cracks in gypsum and cement plaster with an approved plaster filler.
- (8) Careful dust removal.
- (9) Recommendations given in the Technical Note for each coating system.

### 3.5 Application of Coatings

**3.5.1** Coatings shall be mixed and applied in accordance with the method described on the manufacturer's data sheet. In the case of two-pack materials, the splitting of kits as supplied from the factory is not permitted.

**3.5.2** Immediately before coating, blast cleaned steel shall exhibit a "dust quality rating" less than 1, when tested in accordance with ISO 8502-3 (SANS 5769). The final cleaning of concrete surfaces immediately before coating shall be by thorough brushing or vacuum cleaning.

**3.5.3** Unless otherwise specified, coating systems shall only be applied to dry surfaces. During application, the relative humidity shall not exceed 85% and ambient temperatures shall be between +5°C and 40°C. The substrate temperature shall be at least 3°C above

**CONTROLLED DISCLOSURE**

the dew point. For concrete the moisture content as specified by the manufacturer must be reached before coating.

The primer coat shall be applied as soon as possible after the surface preparation operation and at least during the same shift as the blast cleaning operation. Under no circumstances may the primer be applied over rust bloom or over surfaces that have changed colour due to humidity or other contamination.

Coating application and cleaning shall not take place when site conditions are likely to negatively affect these operations. The Contractor shall ensure that the necessary protective equipment is used to prevent contamination of the coatings and to minimise delays due to adverse site conditions.

**3.5.4** The method of paint application shall be as specified in the Technical Data Sheet.

**3.5.5** Drying time between coats shall be as specified by the coating manufacturer.

**3.5.6** All edges, corners, bolt holes, mouse holes, cut ends and weld beads shall be stripe coated by brush, prior to the application of the intermediate coat. The stripe coat shall be an additional coat of the specified intermediate coat, and in order to assist in its identification, the stripe coat shall be of a different colour to both the specified intermediate and finishing coats.

Under no circumstances shall the stripe coating be carried out by roller or spray application.

The stripe coat is not intended to increase the overall specified dry film thickness of the system, but to ensure that the minimum thicknesses required are actually achieved at edges.

**3.5.7** The colour of each coat shall be different from the colour of the previous coat. However, two finishing coats of the same colour may be applied to achieve complete colour uniformity. All finishing coat colours shall be to Eskom's approval.

**3.5.8** All decontaminable finishes shall be smooth and uniform. Pinholes in localised areas shall be accepted provided that within 15 cm radius of any pinhole, there exists no more than two other pinholes.

**3.5.9** Interfaces of spot welded lap joints in fabricated sheet steel shall be protected by an electrically conductive spot welding primer (e.g. zinc based primer).

**3.5.10** Steel surfaces that are to rest on concrete or other floors and any other surfaces inaccessible after erection shall receive the full specified coating system prior to erection.

**CONTROLLED DISCLOSURE**

- 3.5.11** Where paint is allowed to age before finishing, the surface shall be prepared by light sanding, scrubbing with potable water using a bristle brush and drying before overcoating.
- 3.5.12** On pre-coated surfaces all traces of soluble salts and other airborne contamination shall be removed by washing with fresh potable water and allowed to dry prior to overcoating. (In some cases coating prescription may dictate wetting before coating application).
- 3.5.13** All coatings shall be evenly applied to form a smooth, continuous, unbroken film free of sags, runs and other defects. The film thickness shall be as specified and each coat shall provide complete coverage.
- 3.5.14** Equipment name plates and identification plates shall be protected from coatings and no coating shall be applied over any surfaces that will adversely affect the performance of the item or component.

### **3.6 Acceptance Criteria**

A coating system shall be deemed to be satisfactory if it meets the following criteria:

#### **3.6.1 Adhesion**

##### **3.6.1.1 All Paints on Concrete Substrates**

- (1) Substrate and inter-coat adhesion of the paint complex will be tested with an "Elcometer Adhesion Tester".
- (2) The paint complex will be considered satisfactory if either or both of the following criteria are satisfied:
  - Rupture takes place in the substrate beneath the scraper coat.
  - Rupture takes place at 15 kg/cm<sup>2</sup> or more for applications within the reactor building for PIC paints and at 10 kg/cm<sup>2</sup> or more for all other applications.

##### **3.6.1.2 All Paints on Steel Structures**

Random pull-off adhesion tests shall be carried out on the applied coatings using the ASTM D4541 test method. The acceptance criteria will be that no lift-off takes place.

The number and location of tests shall be agreed upon with the Contractor at the start of the works.

Repairs to the coating damaged by adhesion tests shall be carried out in accordance with clauses 3.6.1.5, 3.6.1.6 and 3.6.1.7.

- 3.6.1.3** As above test methods are destructive, the test frequency shall be agreed upon between MRG and the respective applicator.

**CONTROLLED DISCLOSURE**

#### 3.6.1.4 Other Paints

No adhesion criteria are imposed other than those resulting from good standard practice.

#### 3.6.1.5 Definition of Defective Area

- (1) If the adhesion test value is lower than the above criteria, two more tests will be taken adjacent to the first test.
- (2) If both of these tests meet the criteria, no further tests will be taken and the paintwork will be considered acceptable.
- (3) If either of these tests does not meet the criteria, the tests will be repeated at ever increasing distances from the first test to establish the extent of the defective area and until satisfactory test results are obtained.

#### 3.6.1.6 Remedial Action

Defective paintwork will be removed, and the surface repaired and repainted according to the original specification.

#### 3.6.1.7 Retouching/Patch Repairs

- (1) Repair may be limited to the damaged coats on condition that the primer coat has not been damaged. If the primer coat has been damaged, the affected area must be stripped back to metal by brushing, grinding or abrasive blasting as required to achieve an acceptable level of surface state.
- (2) Retouching must be carried out under the same conditions as for the normal application of the paint system and shall include the same number of coats.

### 3.6.2 Film Thickness

#### 3.6.2.1 Metallic Substrates

All coating thickness on metallic substrates shall be measured on surfaces free of all contaminants and in accordance with SANS ISO 2808 (2007). Only approved electronic instruments shall be utilised for determination of film thickness, with instruments being calibrated frequently using the smooth calibration disc supplied by the instrument manufacturer.

The frequency of dry film thickness readings shall be a minimum of one reading per square metre of coated surface, or as agreed between the Contractor and the Engineer at the start of the coating application.

The DFT is given in a range for each coat in the relevant coating system, and are the acceptable minimum and maximum thicknesses. No individual thickness shall be less than 80% of the specified minimum thickness, and not more than 20% of the thickness measurements taken shall be less than the specified minimum thickness.

**CONTROLLED DISCLOSURE**

Where excessive film thickness can be detrimental to the integrity of the coating, the manufacturer's recommended maximum thickness shall apply.

The increase in thickness created by the application of the stripe coat shall not be used to justify recorded thicknesses that are in excess of the maximum specified thickness of the system.

All deficient film thicknesses shall be rectified to the approval of the Engineer at the Contractor's expense.

Actual readings and not averages shall be recorded.

### **3.6.2.2 Non-Metallic Substrates**

Thickness on non-metallic substrates shall be verified by:

- (1) Calculations based on information provided in the product Technical Data Sheet as to the theoretical coverage, against the quantity of material consumed and making allowance for normal wastage depending upon the method of application.
- (2) Calculation of the dry film thickness from wet film thickness measurements taken during application utilising the % volume solids as detailed in the product Technical Data Sheet. Where applicable, allowance shall be made for the addition of solvents.

### **3.6.2.3 The thickness of each coat shall be as detailed in the product Technical Data Sheet.**

## **3.6.3 Holiday Detection Tests**

**3.6.3.1** Holiday detection tests shall be carried out in accordance with SANS 1217, on all coatings intended for immersion service or where required in the detailed specification to determine and locate any pinholes in the coating system. These tests shall be done by the Wet Sponge or High Spark Method. Instrumentation and Methods for these tests shall be approved by Engineering. Any pinholes located shall be marked and repaired by an approved method.

**3.6.3.2** It is the Contractor's responsibility to conduct the holiday detection tests and to certify that the coating system conforms to the specification. Certification must include the minimum specified thickness of the coating system and the voltage used for the holiday test. All test methods shall be approved by Engineering.

## **3.7 Repair Procedures**

- (1) Patch Painting – Steelwork
- (2) Patch Painting – Concrete and Plaster
- (3) Maintenance Over-coating
- (4) Acid Proof Tiling

**CONTROLLED DISCLOSURE**

- (5) Rubber Linings
- (6) Pipe Wrappings
- (7) Expansion Joint Sealants
- (8) Glass Reinforced Plastic
- (9) Wood Surfaces
- (10) Cementitious and epoxy linings

### **3.7.1 Patch Painting – Steelwork**

The following procedure applies to the patch painting and repair of localised corrosion damage on all the coating systems on steelwork throughout the plant. Even though the specific coating material may vary from structure to structure, the basic procedure remains the same.

- 3.7.1.1** The damaged area shall be thoroughly cleaned by mechanical and/or hand wire-brushed to remove flaking paint, corrosion product or any other deleterious matter. If necessary, abrasive blast cleaning may be required to achieve an acceptable level of surface state.
- 3.7.1.2** Following mechanical cleaning the affected area shall be cleaned down to a smooth surface and peripheral coating shall be feathered back to a hard edge, using abrasive paper. This cleaning should be extended to a minimum distance of 25 mm beyond the periphery of the affected area.
- 3.7.1.3** After mechanical cleaning, the affected areas shall be washed with clean water to remove all dust, abrasive products, etc., and finally dried with clean cloths.
- 3.7.1.4** Before application of any coating system, a thorough inspection of the damaged area shall be carried out to determine the number of coats that have been damaged. Provided that the primer coat has not been damaged, the repair shall be limited to those coats that are. In cases where damage to the primer coat has occurred, these areas shall be treated in paragraph 3.7.1.1, followed by patch priming.
- 3.7.1.5** The full coating shall then be reinstated in accordance with the relevant repair specification. Care shall be taken to ensure that each coat overlaps the periphery of the patch, by a minimum of 25 mm.

### **3.7.2 Patch Painting – Concrete and Plaster**

The following procedure applies to the patch painting and repairs of localised damage on all the coating systems on concrete and plaster surfaces throughout the plant. Even though the specific coating material shall vary from structure to structure, the basic procedure remains the same.

**CONTROLLED DISCLOSURE**

- 3.7.2.1** The damaged area shall be thoroughly sanded down and the periphery of the affected area shall be feathered back to a hard edge, using abrasive paper.
- 3.7.2.2** After sanding, the affected areas shall be washed with clean water to remove dust, contaminants and abrasive products, and allowed to dry.
- 3.7.2.3** Before application of any coating system, a thorough inspection of the damaged area shall be carried out to determine the extent of the damage. Provided that the substrate has not been damaged, the repair shall be limited to those coats that are damaged. In cases where damage to the substrate has occurred, these areas shall be filled with solvent-free epoxy filler, followed by the reinstatement of the full coating system in accordance with the relevant repair specification. Care shall be taken to ensure that each overlaps the periphery of the patch area, by a minimum of 25 mm.

### **3.7.3 Maintenance Over-coating**

When it becomes necessary to re-apply a complete finishing coat, the following general procedure shall apply. Although the specific coating material shall vary from item to item, the basic procedure remains the same.

- 3.7.3.1** The entire surface requiring over-coating shall be lightly sanded and then thoroughly washed using bristle brushes, cloths and liberal amounts of clean water to remove all deposits such as sand, dust, soluble salts, contaminants etc.
- 3.7.3.2** In the case of grease or oil spillage, these areas shall be washed with a detergent/water solution. If the spillage has physically or chemically damaged the coating, the affected area should be stripped back to the substrate. The surfaces shall then be dried with clean cloths.
- 3.7.3.3** It is imperative that all surface dirt and contaminants are completely removed before over-coating or the adhesion between the existing and new coats will be impaired. There shall be a minimal delay between cleaning and application of the finishing coat to avoid recontamination of the surface.
- 3.7.3.4** Before application of the over-coat, a thorough inspection of the existing system shall be carried out to identify any areas of localised damage or corrosive attack. If any such areas are detected these shall be treated in accordance with the Patch Painting repair procedures in 3.7.1 or 3.7.2. The final coat of the repair shall be the complete finishing coat.
- 3.7.3.5** After the surfaces have been prepared and all necessary repairs completed, the specified final coat shall be applied. The method of application shall be in accordance with the manufacturer's Technical Data Sheet and shall be suitable to the particular item to be coated.

**CONTROLLED DISCLOSURE**

### 3.7.4 Acid Proof Tiling

The following procedure applies to the repair and reinstatement of damaged acid proof tiling.

- 3.7.4.1 All damaged tiles and grout shall be removed.
- 3.7.4.2 The exposed substrate and edges of surrounding tiles shall be thoroughly washed. If the contamination is acidic in nature, a paste of sodium carbonate in water shall be applied to the area and left for one hour, before being thoroughly washed with clean potable water. If the contamination is alkaline the area need only be washed with clean potable water.
- 3.7.4.3 A pH determination shall be carried out on all the washed surfaces to ensure that the pH is neutral. The surfaces shall then be allowed to dry.
- 3.7.4.4 All voids, air pockets, etc. in the concrete shall be filled with the specified filler or mortar.
- 3.7.4.5 The full tiling system shall then be reinstated according to the relevant specification.

### 3.7.5 Rubber Linings

#### 3.7.5.1 Rubber Linings (Tank and Vessels)

Repairs to linings that have been in service are contaminated, and can therefore be very difficult to carry out. The main problem encountered is the contamination of the metal surface by corrosive liquids and the absorption of liquid into the surface of the rubber. Contamination of either the substrate or the rubber can lead to failures of repairs due to lack of adhesion of the repair material.

Application and repairs to rubber linings should be in accordance with SANS 1201 and BS 6374-5.

- (1) Localised Areas of Mechanical Damage
  - (a) The following procedure applies to the repair and reinstatement of rubber linings where localised mechanical damage has occurred. Repairs shall be carried out as follows:
  - (b) The area to be repaired shall be determined and the defective lining cut away with a sharp knife. The surrounding lining shall be bevelled to an angle of 20° giving a joint width of at least three times the thickness of the existing lining.
  - (c) The exposed metal and the surrounding area of the rubber lining shall be ground so as to clean the metal surface and to render the surrounding rubber down to a firm dry surface.

**CONTROLLED DISCLOSURE**

- (d) If the contamination is acidic in nature, a paste of sodium carbonate in water shall be applied to the area to be repaired and left for one hour (if the contamination is alkaline, thoroughly wash with clean water).
- (e) The sodium carbonate shall be washed from the surface with clean potable water until it has all been removed.
- (f) A pH determination shall be carried out on the surface to be repaired to ensure a neutral pH.
- (g) The surfaces to be repaired shall then be thoroughly dried.
- (h) The metal surface and surrounding rubber shall be washed with a clean cloth soaked in an approved solvent, and allowed to dry.
- (i) The exposed metal surface shall be coated with the specified priming system and allowed to dry.
- (j) The void shall be filled with the specified epoxy filler using a palette knife/spatula. The filler material shall be flush with the surface of the surrounding rubber.
- (k) The repair shall then be spark tested using the specified voltage.

(2) Defects

The following procedure applies to the repair and reinstatement of rubber linings with respect to blistering, loss of adhesion and porosity.

- (a) The area to be repaired shall be determined and the defective lining cut away with a sharp knife, the surrounding lining bevelled to an angle of 20° to give a joint width of at least three times the thickness of the existing lining.
- (b) The exposed metal and the surrounding area of the rubber lining shall be ground so as to clean the metal surface and to render the surrounding rubber down to a firm dry surface.
- (c) If the contamination is acidic in nature, a paste of sodium carbonate in the water shall be applied to the area to be repaired and left for one hour. If the contamination is alkaline, thoroughly wash with clean potable water.
- (d) The sodium carbonate shall be washed from the surface using clean potable water, until it has all been removed.
- (e) A pH determination shall be carried out on the surfaces to be repaired, to ensure a neutral pH.
- (f) The surfaces shall then be thoroughly dried.

**CONTROLLED DISCLOSURE**

- (g) Using a clean cloth soaked in an approved solvent, the metal surface and surrounding rubber shall be washed and allowed to dry.
- (h) The exposed metal surface shall be coated with the specified priming system and allowed to dry.
- (i) A patch of the specified new rubber shall be cut to the dimensions of the repair.
- (j) One coat of the specified tack solution shall be applied to the prepared metal surface and surrounding rubber lining, and allowed to dry until tacky.
- (k) One coat of the specified tack solution shall be applied to the prepared rubber patch and allowed to dry until tacky.
- (l) The repair patch shall be carefully positioned and stitch-wheeled down to the metal and surrounding rubber surfaces.
- (m) Any raised sections of rubber shall be trimmed off so that the repair is flush with the original lining.
- (n) A spark test, using the specified voltage as well as a visual inspection shall be carried out on the repaired patch.
- (o) A second patch, of the specified rubber, 50 mm larger than the repair patch, shall be cut.
- (p) One coat of the specified tack solution shall be applied to the in-situ patch surface and the surrounding rubber, and allowed to dry until tacky.
- (q) One coat of the specified tack solution shall be applied to the second patch and allowed to dry until tacky.
- (r) The second patch shall be positioned and firmly stitch-wheeled down onto the repaired section and surrounding rubber.
- (s) Should the specified material require vulcanising, the method to be used shall be approved by Engineering.
- (t) The repair shall then be inspected to ensure that it is free from blistering, or lifting of the edges of the repair. After vulcanising the hardness shall be determined by means of the relevant hardness meter.

**CONTROLLED DISCLOSURE**

[Refer to DSG-310-075 (Repairs to Rubber Lining on SEC Pipes) and DSG-313-015 (Repairs to Rubber Lining on CRF Water Box)]. Note that due to the high carbon black content of the rubbers installed on SEC and CRF, there is no spark testing recommended after repairs.

### **3.7.5.2 Rubber Linings – Pipework**

Small areas of mechanical damage to flange faces only, shall be carried out in accordance with Clause 3.7.5.1 (1). Repairs to the internal linings of pipes shall only be performed in accordance with procedures approved by Engineering.

### **3.7.6 Pipe Wrappings**

The following repair procedure applies to the repair and reinstatement of pipe wrappings where localised mechanical damage has occurred.

**3.7.6.1** Before reinstatement of any pipe wrapping system, thorough inspection of the damaged area shall be carried out to determine the extent of the damage. Provided that the substrate has not been damaged, the repair shall be limited to those layers that are. In cases where damage to the substrate has occurred, the surface shall be wire brushed in accordance with reference 2.3.2 [20] to produce a St 3 finish.

**3.7.6.2** After adequate cleaning the surface shall be primed by a single brush applied coat of the specified primer.

**3.7.6.3** The primed surface shall be wrapped with a layer of the specified Petrolatum impregnated tape of 150 mm width. The tape shall be applied in a helical manner with a tape overlap of 50% to produce a double layer in one wrapping operation. The application shall be free of wrinkles, creases and air voids. Special care shall be taken to ensure that the correct tension is used while applying the tape and all overlaps shall be suitably smoothed by hand to produce a smooth and continuous wrapping.

**3.7.6.4** Following the application of the petrolatum impregnated tape, the pipework shall receive an outer wrap of white PVC non-adhesive wrapping of 150 mm width. The PVC tape shall be applied in a helical manner with a tape overlap of 50% to produce a double layer in one wrapping operation, overlapping the existing tape by a distance of 300 mm. The application shall be free of wrinkles, creases and air voids. Special care shall be taken to ensure that correct tension is used while applying this tape. This PVC tape is non-adhesive. The start and end of each repair length shall be firmly secured to the existing tape by means of strips of adhesive PVC tape of 150 mm width. This is imperative to ensure that the non-adhesive PVC tape will not uncoil at the new roll joints.

**CONTROLLED DISCLOSURE**

### 3.7.7 Expansion Joint Sealants

The following procedure applies to the repair of localised damage of all expansion joint sealants throughout the plant. Even though the specific sealant material shall vary from area to area, the basic procedure remains the same.

- 3.7.7.1 All damaged sealant shall be removed and the area cleaned of any deleterious matter.
- 3.7.7.2 Before any application of sealant, thorough inspection of the damaged area shall be carried out to determine the extent of the damage. Provided that the concrete joint edges are undamaged, the repair shall be limited to reinstating only the materials that have been damaged. Where damage to the concrete had occurred this shall be treated in accordance with the relevant Civil Maintenance Repair Manual.
- 3.7.7.3 In cases where the bond-breaker has been broken this shall be replaced using the specified polyethylene cord.
- 3.7.7.4 One coat of the specified primer shall be applied to the inner concrete faces. The sealant shall then be applied in accordance with the relevant repair specification.

### 3.7.8 Glass Reinforced Plastic

- 3.7.8.1 The damaged GRP lining shall be removed and the periphery of the affected area shall be feathered back to a hard edge, using abrasive paper.
- 3.7.8.2 The exposed substrate and surrounding GRP surfaces shall be thoroughly washed. If the contamination is acidic in nature, a paste of sodium carbonate in water shall be applied to the area and left for one hour, before being thoroughly washed with clean potable water. If the contamination is alkaline the area need only be washed with clean potable water.
- 3.7.8.3 A pH determination shall be carried out on all the washed surfaces to ensure that the pH is neutral. The surfaces shall then be allowed to dry.
- 3.7.8.4 Any damage to the substrate shall be repaired using the specified filler or mortar.
- 3.7.8.5 Immediately prior to the full lining system the entire repair area shall be swabbed down with acetone.
- 3.7.8.6 The full lining system shall then be reinstated in accordance with the relevant specification.

[Refer to DSG-310-176 (GRP Repair Specification)]

**CONTROLLED DISCLOSURE**

### 3.7.9 Wood Surfaces

The following procedure applies to the patch painting and repair of localised damage on all the coating systems of wooden surfaces throughout the plant.

- 3.7.9.1** The damaged area shall be thoroughly sanded down and the periphery of the affected area shall be feathered back to a hard edge using abrasive paper.
- 3.7.9.2** After sanding, the affected area shall be rendered free of dust contaminants and abrasive product.
- 3.7.9.3** Before application of any coating system, thorough inspection of the damaged area shall be carried out to determine the extent of the damage. Provided that the substrate has not been damaged, the repair shall be limited to those coats that are. In cases where damage to the substrate has occurred, these areas shall be filled with an approved wood filler, followed by the reinstatement of the full coating system in accordance with the relevant repair specification. Care shall be taken to ensure that each coat overlaps the periphery of the patch area by a minimum of 25 mm.

### 3.7.10 Cementitious and Epoxy Linings

Repairs of this nature shall be conducted in accordance with the relevant Civil Maintenance Manual.

## 3.8 Inspection Requirements

The following requirements include a checklist for the detection of localised areas of corrosion attack and mechanical damage and shall be used as a guideline during routine maintenance inspection of plant and equipment. The specific areas that shall be inspected are categorised as follows:

- (1) Civil Finishes
- (2) Structural Steelwork
- (3) Mechanical Equipment
- (4) Internal Linings of Pipework, Tanks and Vessels
- (5) Stainless Steel Tanks and Pipework (including CW pipe compensators)
- (6) Electrical Equipment
- (7) Cathodic Protection Installations (Sacrificial Anodes)

### 3.8.1 Civil Finishes

- (1) The general condition of the coating system with respect to:
  - (a) Gloss retention
  - (b) Mechanical damage
  - (c) Traffic – wear on floor coatings

**CONTROLLED DISCLOSURE**

- (d) Blistering or chemical attack in banded areas, channels etc.
  - (e) Cracking of the film
  - (f) Any adverse ageing effects
  - (g) Rust staining
  - (h) Leaching
  - (i) Rutting
  - (j) Delamination
  - (k) Damp patches
- (2) Cracking or spalling and corrosion of reinforcing steel.
  - (3) Cable and pipe trenches where drift-sand has been allowed to build up.

### 3.8.2 Structural Steelwork

The general condition of the coating system and structural members such as beams, girders, angles, purlins, etc.

- (1) Areas where additional or new equipment has been installed and welding has been place on existing coated steelwork.
- (2) All nuts and bolts.
- (3) Gusset plates.
- (4) The internal surfaces of lattice plated columns.
- (5) Exposed base plates.
- (6) The internal surfaces of boxed-in column bases that generally act as moisture traps if no drain holes have been provided.
- (7) Column bases where drift-sand has been allowed to build up.
- (8) The hidden corners created at the junction of columns and stanchions, girths, rafters, purlins, braces etc.
- (9) The contact surfaces between cladding sheets and side girths or purlins.
- (10) The contact points between cladding hook-bolts and side girths or purlins.
- (11) Guttering supports.
- (12) The door hangers and track rails of both sliding and roll-up shutter doors where constant abrasion damages the coating system.
- (13) All walkway surfaces e.g. expanded metal sheets, eggcrate grating or vastrap flooring, where corrosive failure is likely to cause accidents.
- (14) Handrails and stanchions subject to damage resulting from heavy traffic.

**CONTROLLED DISCLOSURE**

- (15) Stair treads.
- (16) Stairway stringers.
- (17) Inverted channels that can act as moisture traps.
- (18) The internal surfaces of the inverted channels that comprise the frame of sliding hanger-type door.
- (19) Friction grip areas where the mating surfaces have not been treated.
- (20) Areas between back-to-back angles, purlins, beams, etc.

### **3.8.3 Mechanical Equipment**

- (1) The general condition of the coating system on all mechanical components.
- (2) The internals of any box sections.
- (3) Areas where additional or new equipment has been installed or the repair of existing components where welding may have damaged the coating system.
- (4) All nuts and bolts.
- (5) Splice plates.
- (6) Box plate mountings of motors and gearboxes.
- (7) Abrasion by moving parts

### **3.8.4 Internal Linings of Pipework, Tanks and Vessels**

#### **3.8.4.1 Rubber Linings**

- (1) The general condition of rubber linings with respect to:
  - (a) Mechanical damage
  - (b) Blistering or general loss of adhesion
  - (c) Lack of adhesion at overlaps and edges
  - (d) Any areas of porosity or evidence of permeability
  - (e) Shore hardness
- (2) All suspect areas of the lining shall be checked for continuity using a high frequency Spark Tester in accordance with British Standard CP3003: Part 1.

#### **3.8.4.2 Organic Coatings including Fibreglass**

- (1) The general conditions of organic coatings with respect to:
  - (a) Blistering

**CONTROLLED DISCLOSURE**

- (b) Mechanical damage
  - (c) General loss of adhesion
  - (d) Any signs of the coating in any way having been adversely affected
  - (e) Staining or colour change
- (2) All suspect areas of the coating shall be checked for continuity by means of the Wet Sponge on hi-spark tester (for metal tanks).

#### **3.8.4.3 Metallic Coatings (Metal Spraying, Galvanising)**

- (1) The general conditions of metal sprayed and galvanised surfaces with respect to:
- (a) Blistering
  - (b) Loss of adhesion
  - (c) Zinc depletion
  - (d) Corrosion of substrate i.e. indications of red dust
  - (e) Mechanical damage

#### **3.8.4.4 Concrete Linings**

- (1) The general condition of the concrete linings with respect to:
- (a) Cracking
  - (b) Spalling
  - (c) Re-bar or substrate corrosion
  - (d) Evidence of degradation – aggregate exposure and/or softening
  - (e) Mechanical damage

#### **3.8.5 Stainless Steel Tanks and Pipework (including CW pipe compensators)**

- (1) The general condition of stainless steel tanks and pipework with respect to:
- (a) Pitting
  - (b) Evidence of localised corrosion particularly in those areas adjacent to the welds.
  - (c) Accumulation of moisture and wind-borne contaminants particularly at the junctions of support and braces.
- (2) All suspect areas shall be checked ultra-sonically for loss of wall thickness.

**CONTROLLED DISCLOSURE**

### 3.8.6 Electrical Equipment

- (1) The general condition of the coating system on all electrical control boxes and components.
- (2) Between the cooling fins of electrical motor casings.
- (3) Electrical motor base plates.
- (4) Internal and external surface areas of switchgear cabinets.
- (5) The interior bottom channels of the doors of electrical instrument panels which tend to act as moisture traps. Electrical switches and junction boxes.
- (6) Assess the projected life of vapour phase inhibitors and/or temporary moisture repellent products.
- (7) Air conditioning units and associated equipment.

### 3.8.7 Cathodic Protection Installations (Sacrificial Anodes)

The rate of depletion of the metal anodes shall be assessed both by visual examination and by mass determinations in accordance with section 3.10.6.

## 3.9 Inspection Frequencies

**3.9.1** Inspection frequencies for structures, plant and vessels etc. shall be as detailed in the In-Service Inspection Programme (ISIP), and the Civil/Corrosion Inspection Programme.

**3.9.2** In those cases where a reference item has been selected, in the event of that specific item not being available, a representative substitute shall be selected. However, in order to comply with the required inspection frequencies, the identification number of the item must be recorded and all subsequent inspections shall be carried out on that specific item.

**3.9.3** When internal linings are to be inspected, in order to accurately evaluate the condition of the lining material, it is imperative that such inspections be carried out as soon as possible after draining.

## 3.10 Specialised Applications and Installations

- (1) Metal Sprayed Coatings
- (2) Hot Dip Galvanising
- (3) Rubber Linings
- (4) Acid Proof Tiling

**CONTROLLED DISCLOSURE**

- (5) GRP Linings
- (6) Cathodic Protection Installation
- (7) Pipe Wrappings
- (8) Structural Wrappings
- (9) Powder Coating Application

### 3.10.1 Metal Sprayed Coatings

#### 3.10.1.1 Surface Preparation

Abrasive blast clean to Grade Sa 3.

#### 3.10.1.2 Metal Spraying

All metal spraying shall be carried out by Electric Arc spraying process. Maximum atomisation of wire shall be attained at all times to obtain a fine grained, dense sprayed film.

#### 3.10.1.3 Metal Spray Types

- (1) Generally zinc and aluminium sprayed coatings shall be carried out in accordance with SANS 2063 (2008).
- (2) The wire analysis shall be:
  - Zinc 99,995% minimum
  - Aluminium 98,0% minimum
- (3) Copper and bronze decorative finishing systems shall at all times be applied over flash coats of either zinc or other suitable flash wire materials. Colour development of bronze and copper finishes shall be approved prior to actual work commencement. Samples of the final colour shall be submitted for approval by Engineering.
- (4) Arc spraying of the two-coat Flow Accelerated Corrosion (FAC) resistant coatings shall be applied in accordance with specification DSG-310-319. The process consists of applying an electric arc to two types of metallic wires. The first wire (Ni/Al) is used as the bond coat, and the second wire (SS 316L) is the top coat.

#### 3.10.1.4 Coating Thickness

Unless otherwise agreed to by Engineering, the minimum coating thicknesses shall be as follows:

Zinc	125 micrometres
Aluminium	125 micrometres
Copper	150 micrometres
Bronze	150 micrometres

### CONTROLLED DISCLOSURE

Ni/Al            150 micrometres

SS 316L        350 micrometres

### **3.10.1.5    General**

- (1) Where zinc and aluminium coatings are being applied, followed by a further paint system, the Contractor shall obtain Engineering approval of the metal sprayed coatings prior to painting being commenced.
- (2) The final metal sprayed surface shall be free of lumps, non-atomised wire and other surface irregularities.

## **3.10.2 Hot Dip Galvanising**

### **3.10.2.1    Surface Preparation**

All weld areas shall be abrasive blast cleaned to Grade Sa 2,5. Following blast cleaning of the welds, all items shall be suitable pickled, rinsed, dried and fluxed.

### **3.10.2.2    Galvanising**

- (1) Hot Dip Galvanising shall be in accordance with the requirements of SANS 121 (ISO 1461:1999), to a minimum coating thickness as laid down in the appropriate tables.

Steel to be hot dip galvanised should not contain more than 0.02% phosphorous or more than 0.25% silicon.

- (2) All nuts, bolts, clips and other items required for the fixing of galvanised articles shall be hot dip galvanised to this Standard.
- (3) Electro galvanised items will not be acceptable.
- (4) Galvanised surfaces that are to receive duplex organic coatings shall not be passivated. The galvaniser shall be informed in all cases when a duplex coating system is to be subsequently applied and all zinc protuberances, lumps etc. which may be detrimental to the coating system shall be removed.
- (5) Repairs to damaged galvanising shall be carried out in accordance with clause 6.3 of SANS 121 (ISO 1461), with the zinc-rich paint being as approved by the Hot Dip Galvanising Association of Southern Africa.

### **3.10.2.3    Tolerances**

Tolerances on all threaded articles shall be according to SANS 32: 1997. Threaded items shall be spun in a centrifuge during the galvanising process.

### **3.10.2.4    White Rust**

## **CONTROLLED DISCLOSURE**

- (1) All material shall be free from excessive white rust and black staining when it is handed over to Eskom.
- (2) To assist in meeting this requirement, close attention shall be paid to the manner in which the material is stacked and stored at the galvaniser works and also during its subsequent handling until such time as it is handed over to Eskom.
- (3) Material which has been inspected at the galvaniser or manufacturer's works and passed by Eskom's appointed inspectors will still be liable to rejection if it has been found that excessive white rust has developed between the date of inspection and the date when the material is handed over to Eskom.
- (4) If the material is affected by excessive white rust the Contractor may clean it (using non-metallic brushes) before handing over and if the weight of zinc coating still meets the requirements specified in the appropriate tables of the SANS 32: 1997, the material will be accepted.

#### **3.10.2.5** Passivation

- (1) Unless galvanised items are to be painted within four hours, all items shall be passivated.
- (2) The passivating coating shall be applied to the material immediately after galvanising to afford temporary protection to the galvanising surfaces. This coating shall be even, and shall be sufficiently transparent to enable Eskom's appointed inspectors to examine the underlying surfaces for any defects.

#### **3.10.3 Rubber Linings**

- (1) Lining materials are to be manufactured according to approved standards. Before commencement of work, the Contractor shall submit details of the lining material he intends using to Engineering for approval. These details shall include the following:
  - Compound
  - Description
  - Type
  - Cure
  - Basic physical properties
  - Shelf life
  - Bonding system
  - Solvent
  - Approximate wt/m<sup>2</sup>
  - Applications

**CONTROLLED DISCLOSURE**

- (3) The Contractor shall satisfy himself that the material chosen is totally suitable for the expected operating environment.

### **3.10.3.1 Design and Fabrication of Vessels and Piping**

- (1) In designing and fabricating vessels for rubber lining, due consideration shall be given to access and ventilation, branches and outlet, surface contours and welded joints. The Contractor shall satisfy himself that the design of the vessel is suitable for rubber lining.
- (2) Mild Steel Piping
- Piping arrangements should wherever possible be designed using standard pipes and fittings and shall comply with the dimensional requirements as specified in SANS 1198 (2013), with respect to straight pipes, bends and elbows, reducing pipes, tee-pieces, crosses and branch pipes.
  - Allowance should always be made for the thickness of the lining when calculating flow rates and clearances in the piping.

### **3.10.3.2 General Conditions of Workmanship**

- (1) All work shall be carried out under the supervision of an experienced supervisor and shall comply with the requirements of SANS 1198: 2013.
- (2) No cleaning or lining applications shall take place when site conditions are likely to affect these operations. The Contractor shall be responsible for providing all protective equipment necessary to prevent contamination of the linings and to minimise delays due to such site conditions.

### **3.10.3.3 Application of Lining**

- (1) Surface Preparation
- All surfaces shall be thoroughly dry and free from traces of oil, grease, etc., before surface preparation is carried out.
  - Surface preparation shall be by means of abrasive blast cleaning to produce at least a finish equivalent to Grade Sa 2,5 of the Swedish Code of Practice SIS 055900 - 1988.
- (2) Lining Procedure
- The procedure to be adopted by the lining Contractor in respect of application and types of bonding agents and tie-coats or adhesives, and the actual application procedure for the rubber shall be submitted for Engineering approval before commencement of work.

**CONTROLLED DISCLOSURE**

- Vulcanisation or curing by chemical means shall not be permitted. The material manufacturer's recommendations in respect of steam temperatures and pressures for curing and the duration of the curing cycle shall be strictly adhered to.

#### **3.10.3.4 Repair Procedures**

The lining Contractor shall submit to Engineering for approval, his intended procedures for the repair of:

- (1) non-vulcanised rubber
- (2) vulcanised rubber
- (3) rubber that has been in service

It should be noted that no part of the rubber lining may be subjected to the vulcanisation process more than twice.

#### **3.10.3.5 Handling, Transportation, Storage and Erection of Vessels and Piping**

- (1) Every precaution must be taken to correctly support and protect the vessels or pipework during handling, transportation, storage and erection.
- (2) It should be remembered that hard rubber or ebonite is essentially an inflexible material and is therefore susceptible to damage by impact or the imposition of torsional, flexural or thermal stresses. Every precaution must therefore be taken to correctly support and protect the vessels or pipework during handling, transportation, storage and erection.
- (3) Flanges shall be protected with wooden shields bolted in such a manner so as to apply uniform pressure to the lining.
- (4) The lining Contractor shall submit for engineering approval his handling, transportation, storage and erection procedure for all rubber lined components.

#### **3.10.3.6 Quality Control**

- (1) Eskom reserves the right to audit the works of the proposed lining Contractor before commencement of the work.
- (2) It is the responsibility of the Contractor to establish and implement a quality control programme that will be subject to approval.
- (3) This programme shall detail inspection during both material manufacture and lining application. Inspections during lining application shall at least cover rubber hardness, adhesion and continuity. Tests for continuity shall be carried out using

**CONTROLLED DISCLOSURE**

the high frequency spark test method in accordance with British Standard CP 3003 Part 1:

- a) before vulcanisation
  - b) after vulcanisation
  - c) immediately prior to commission
- (4) A series of witness and hold points shall be agreed such that Eskom may witness any of the above tests. Eskom may elect to carry out its own tests at these times.
- (5) The number and nature of repairable defects for each type of equipment being lined shall be agreed to between Engineering and the Main Contractor before the commencement of any lining work.

### **3.10.4 Acid Proof Tiling**

**3.10.4.1** The Contractor shall satisfy himself that the systems he proposes shall be suitable for use in the expected environments.

- (1) At the time of tender the Contractor shall submit full technical details of his proposed systems to the Engineering for approval.
- (2) Prior to commencement of work the Contractor shall inspect the concrete surfaces to ensure that they are suitable for receiving his proposed system. Any area found to be unacceptable shall immediately be indicated to Engineering.

**3.10.4.2** All concrete surfaces shall be thoroughly cleaned of all dust, laitance, loose particles, oils, greases, curing compounds and any other deleterious matter. Cleaning may be carried out by acid etching, wire brushing, mechanical scrubbing, water blasting or sand blasting. The method of cleaning used shall be as per the tiling manufacturer's recommendations. Voids, air pockets, omegas, etc., shall be filled with a suitable filler or mortar.

**3.10.4.3** The tiling system shall comprise at least the following:

- (1) Acid-proof membrane comprising a butyl rubber membrane, rhepanol membrane, trowelled bitumen membrane or equivalent approved.
- (2) Acid-proof tiles of the ceramic split-plate type as supplied by National Ceramic Industries or equivalent approved.
- (3) The thickness of the tiles shall be either 15 mm or 20 mm dependent upon the service requirements.
- (4) Tiles shall conform to DIN 18166: 1974, "Ceramic Split Tiles".
- (5) Pointing material shall comprise either furane or phenolic resin or equivalent approved.

**CONTROLLED DISCLOSURE**

**3.10.4.4** The manufacturer's recommended procedures in respect of membrane laying, tile bedding, joint formation and pointing application shall be submitted to Engineering at the time of tender. These recommendations shall be strictly adhered to during the application of all systems.

### **3.10.5 Glass Reinforced Plastic**

#### **3.10.5.1 Materials**

The Contractor shall satisfy himself that the materials he proposes shall be suitable for use in the expected environments.

#### **3.10.5.2 Surface Preparation**

- (1) The various surfaces shall be degreased followed by abrasive blast cleaning to remove all laitance etc. and have a uniformly roughened surface.
- (2) The abrasive blasting shall be followed by thorough cleaning and dusting, preferably by vacuum.
- (3) It is essential that the surface be completely dry before the primer is applied, i.e. substrate moisture to be less than 5% (use of moisture meter).

#### **3.10.5.3 Priming**

- (1) Diluted resin shall be used to prime the entire substrate. The spreading rate shall be 200 to 300 grams per square metre.
- (2) Significant hollows in floors shall be filled with an approved mortar to get a smooth surface.

#### **3.10.5.4 Application of Laminate**

- (1) The laminate is applied by hand lay-up.
- (2) The following system shall be used to form three layers:
  - resin approximately 400 g/m<sup>2</sup> for impregnation of the mat.
  - fibreglass mat approximately 300 g/m<sup>2</sup>.
  - resin approximately 700 g/m<sup>2</sup>.
- (3) The final layer shall be as follows:
  - resin approximately 400 g/m<sup>2</sup> for impregnation of surface mat.
  - fibreglass surfacing mat approximately 50 g/m<sup>2</sup>.

**CONTROLLED DISCLOSURE**

- resin finishing coat approximately 500 g/m<sup>2</sup>.
- (4) The total thickness of the above system will be 4 to 4.5 mm. The laminating procedure shall conform to a standard equal to Level 2 Table 1 of SANS 141: 2006.
- (5) Care shall be taken to eliminate air bubbles trapped after application of each fibreglass layer.
- (6) Each strand mat layer shall be overlapped and staggered so that joint line does not coincide.
- (7) Marks shall be placed on each layer to identify the number of layers applied.
- (8) To the final top coat, paraffin will be added in order to prevent direct contact between the polyester surface and air.
- (9) In the case of a floor required to carry traffic, the system described above shall be used with the addition of graded silica sand on top of the final coat of resin to get a non-skid surface.

#### **3.10.5.5 Acceptance Criteria**

- (1) The full areas shall be visually inspected.
- (2) The surface shall then be free of pinholes or discontinuities.
- (3) The samples or resin bonded fibreglass laminate (applied on 500 X 500 concrete slabs) shall set the minimum acceptable standard for lining on site.
- (4) Tack free acetone test and Barcon hardness of 31 shall be achieved after application of the finish coat.
- (5) Soundness and adhesion shall be checked according to SANS 141 (2006). A pull-off test with an Elcometer shall be used to test adhesion of suspect laminates. A minimum strength of 1 MPa shall be achieved.

#### **3.10.6 Cathodic Protection Installations**

The following procedure applies to the sacrificial anodes installed on the CRF/SEC drum screens, stop gates and in various water boxes on the sea water side of Conventional plant. The following practical method shall be used to determine the effective anode life.

**3.10.6.1** A visual examination shall be carried out to assess the degree of degradation of the anodes. From those exhibiting indications of severe alloy depletion, a representative sample from each component shall be selected.

**3.10.6.2** All loose oxide (white powder) shall be removed by means of a nylon bristle brush.

**CONTROLLED DISCLOSURE**

**3.10.6.3** The anode shall then be weighed and the design weight of the insert deducted from the total.

**3.10.6.4** From the design mass of the anode the actual consumption can be determined over the known operation period. The remaining effective life can then be assessed taking into account the efficiency or \*utilisation factor as specified by the manufacturer.

\* The utilisation factor is determined by the fraction of anode material consumed when the remaining anode material cannot deliver the current required. A guide to the values of utilisation factors together with the method of calculating the design life of anodes is given in Det Norske Veritas – RP b401 “Cathodic Protection Design”.

### **3.10.7 Pipe Wrappings**

#### **3.10.7.1 Surface Preparation**

Wire brush to Grade St 2.

#### **3.10.7.2 Primer Coat**

Apply one coat of Inhibited Petrolatum Solution Primer.

#### **3.10.7.3 Pipe Wrapping System**

- (1) All surfaces shall be wrapped with a layer of Petrolatum Impregnated Synthetic Fabric Tape. Tape width utilised for specific structures shall be as per the supplier’s recommendation.
- (2) The Petrolatum Impregnated Synthetic Fabric Tape shall be applied in a helical manner with a tape overlap of 50% to produce a double layer in one wrapping operation. The application shall be free of wrinkles, creases and air voids.
- (3) Special care shall be taken to ensure that correct tension is used while applying the tape and all overlaps shall be suitably smoothed by hand to produce a smooth and continuous wrapping.
- (4) Following the complete inspection and acceptance of the Petrolatum Impregnated Synthetic Fabric Tape wrapping, the pipework to be buried shall receive an outer wrap of PVC non-adhesive wrapping. The tape width used shall be as per the supplier’s recommendations.
- (5) The PVC tape shall be applied in a helical manner with a tape overlap of 50% to produce a double layer in one wrapping operation. The application shall be free of wrinkles, creases and air voids.
- (6) Special care shall be taken to ensure that correct tension is used while applying this tape.

**CONTROLLED DISCLOSURE**

- (7) As this PVC tape is non-adhesive, the start and end of each roll of tape shall be firmly secured to the pipe using lengths of adhesive PVC tape of 150 mm width. This is imperative to ensure that the non-adhesive PVC will not uncoil at the new roll joints.

#### 3.10.7.4 Flange Joints

- (1) Inhibited Petrolatum Solution Primer shall be applied over the joints, leaving a thin film on the flanges and a liberal amount around the bolt threads, narrow cavities, etc.
- (2) Petrolatum Fibre-filled Mastic shall then be applied to cover all bolt heads and nuts and build-up to form a triangular fillet against each side of the flange.
- (3) Petrolatum Impregnated Synthetic Fabric Tape of appropriate width shall be centralised on the top of the joint and one complete circumferential turn made around the joint. Air-pockets and folds shall be pressed out as application continues. An overlap of 150 mm shall be made where the ends of the tape meet.
- (4) After application of the tape, two complete circumferential turns of lay-flat polyethylene sheeting 100 micrometres thick shall be applied around the joint. The end of the lay-flat sheeting shall be secured with either self-adhesive PVC tape or non-rotting polyethylene twine.

#### 3.10.7.5 Viking-Johnson Couplings

- (1) Inhibited Petrolatum Solution Primer shall be applied to the coupling, leaving a thin film on the surface and a liberal amount on bolt heads and nuts.
- (2) Petrolatum Fibre-filled Mastic shall be applied to cover the bolt heads and nuts on the outside of the flanges and between the flanges to give 13 mm cover on the sleeve. The Mastic shall be moulded up to but not over the bolts.
- (3) Petrolatum Impregnated Synthetic Fabric tape shall then be circumferentially applied over the Mastic with care being taken to exclude air-pockets, and not to stretch the tape.
- (4) One complete turn of the tape is required making a 150 mm overlap at the end. The tape shall be smoothed over the Mastic to eliminate any air-pockets.
- (5) After application of the tape, two complete circumferential turns of lay-flat polyethylene sheeting 100 micrometres thick, shall be applied around the joint. The end of the lay-flat sheeting shall be secured with either self-adhesive PVC tape or non-degrading polyethylene twine.

**CONTROLLED DISCLOSURE**

### 3.10.8 Structural Wrappings

#### 3.10.8.1 Surface Preparation

- (1) All loose, flaking and delaminating old paint coating shall be removed by scraping with a standard paint scraper (100 mm wide blade), use of needle descaling equipment and emery paper flap wheels.
- (2) All edges of sound paint should be feathered back using a suitable grade emery paper.
- (3) Areas where localised corrosion has taken place or where rust patches are visible shall be prepared by thorough hand wire brushing followed by rubbing with emery paper to a surface finish in accordance with Swedish code of Practice SIS 055900 (1988) Grade St 2.
- (4) All corroded areas shall be patch primed with a single coat of Twin Pack Epoxy Zinc Rich Primer.
- (5) Application shall be by brush.
- (6) On completion of the above activities, all surfaces shall be washed down with copious amounts of fresh water using a suitable high pressure washing machine and left to dry.

#### 3.10.8.2 Primer Application

- (1) On completion of washing and once surfaces are dry all surfaces shall (unless designated otherwise) receive one liberal coat of SS High Tack Structural Steel Primer.
- (2) Application shall be by brush or roller at an average spread rate of 4 m<sup>2</sup>/litre.
- (3) The primer should be allowed to flash off for a period of at least 20 minutes before proceeding with tape application.
- (4) All areas that have been primed shall receive the tape application within the same working day.
- (5) Areas of primer not covered shall be deemed to be "dead" and shall be re-primed.

#### 3.10.8.3 Tape Application

- (1) Horizontal and Vertical Application (on conventional steel members)

#### **CONTROLLED DISCLOSURE**

- Choose widths of SS High Tack Structural Steel Tape that permit overlaps of at least 25 mm to be made in a downward direction "Weatherboarding Effect" on vertical surfaces and on the upper face of horizontal surfaces.
- **Do Not** overlap tape on the underside of horizontal surfaces.
- Apply tape by unrolling along member so that the thick compound side (inside roll) is in contact with the steelwork.
- **Do Not** attempt to apply tape in lengths greater than 2 m.
- Press and Smooth down as application proceeds with particular attention to the overlaps. (Minimum overlap of 25 mm unless specified otherwise.)
- The tape should **never** be placed on two faces and then stretched into the angle between them; the angle should be formed and then the tape smoothed on to the adjacent faces.
- Apply sufficient tension to give complete adherence but **Do Not Stretch** the tape at any time.
- Avoid folds and air pockets, pressing out any folds which may appear.
- To cover bolt heads nuts and exposed threads the tape must be X-cut and pressed firmly round the base of the bolt head and nut to ensure no air entrapment.
- Mastic should be applied to form a smooth profile over the bolt heads, nuts and exposed threads.
- Using a separate piece of tape, cut a circular disc of sufficient diameter to adequately cover the mastic profiled bolt and nut. Place this in position and press down firmly to ensure no air entrapment.
- Should crevices be encountered at mating surfaces of bolted connections or elsewhere these shall be sealed with a continuous application of Mastic.
- The mastic shall be pressed into the crevice using a putty knife or paint scraper and smoothed off along edges to provide a suitable profile for tape application.

#### 3.10.8.4 Covercoat Application

- (1) On completion of tape application and within a maximum period of 7 days, all surfaces shall receive a liberal coat of cementitious Basecoat 429. (The liquid component of the basecoat kit should be mixed with the powder component in the as-supplied kit ratio of 1:1.)

**CONTROLLED DISCLOSURE**

- (2) Apply the cementitious basecoat by brush at a spread rate of 0.5 m<sup>2</sup>/litre minimum.
- (3) Allow to dry for a minimum period of 12 hours.
- (4) Apply a second coat of Cementitious Basecoat 429 (at a spread rate of 0.75 m<sup>2</sup>/litre minimum incorporating a Scrim Tape that is placed into the wet basecoat in a similar fashion to the taping procedure. The scrim shall be fully saturated by the basecoat.
- (5) Overlaps on scrim should be positioned such that they do not coincide with tape overlaps.
- (6) Allow to dry for a minimum of 12 hours before proceeding.
- (7) Apply by brush or roller two full coats of Acrylic Topcoat at a spread rate of 4 m<sup>2</sup>/litre per coat.
- (8) An intercoat drying time of 4 hours shall elapse.
- (9) Each coat shall be of distinctly different colour with the final coat colour being to the approval of Engineering.

### **3.10.9 Powder Coating Application**

This section covers the requirements for coatings, based on thermosetting and thermoplastic resins that are applied by the powder-coating process.

When powder coating is specified, both the fabrication of items for powder coating as well as the powder coating application shall comply with SANS 1274.

Textured or “structured” powder coatings will not be acceptable due to variations in film thicknesses.

#### **3.10.9.1 Surface Preparation**

- (1) Surfaces to be coated shall be free from oil, grease, millscale, corrosion product and any form of contamination that may impair the quality of performance of the coating.
- (2) The normal method of surface preparation is by chemical cleaning using proprietary chemical solutions and would comprise of the following:
  - Alkaline degreasing
  - Fresh water rinsing
  - Acid cleaning
  - Fresh water rinsing
  - Phosphating

**CONTROLLED DISCLOSURE**

- Oven drying (optional)

- (3) Care must be taken to prevent "carry-over" from baths and routine analysis shall be performed to ensure chemical conformity.

#### 3.10.9.2 Primer Application

The application of a primer shall be at the discretion of the powder manufacturer.

#### 3.10.9.3 Coating Process

The principle involves the use of appropriate equipment to feed the powder into a nozzle at a higher electrical potential. On passing through this, the powder becomes charged with a certain amount of electricity. The charged particles are sprayed onto the metal surface to be coated, which is connected to earth to ensure a zero potential. The powder particle is held on the surface by electrostatic charge, the forces of which retaining the powder are sufficient to ensure that the powdered object can be transferred and heated in an oven at a temperature which causes the powder to melt and produce a continuous film. It should be noted that the temperature recommended by the powder manufacturer is substrate temperature, which may influence both oven temperature and heating duration.

#### 3.10.9.4 Powder

- (1) The powder shall be based on a thermosetting or thermoplastic resin of a suitable type and may contain an acceptable percentage of clean reclaimed powder from the coater's own production of powder coatings of the identical type.
- (2) The type, resin base and finish shall be as specified by Engineering and guidelines for powder requirements are given in tables 1 – 6 of SANS 1274: 2005, *Coatings Applied by the Powder-coating Process*.

#### 3.10.9.5 Acceptance Criteria

Details of permissible surface imperfections are provided in table 7 of SANS 1274: 2005.

## 4. Acceptance

This document has been seen and accepted by:

Name	Designation
K Smit	Chief Engineer - Nuclear Engineering
L Singh	Estates and Security (E&S) Manager
K Phiri	Maintenance Support Services (MSS) Manager
R Thanjekwayo	Senior Engineer – Materials Reliability Group (MRG)

**CONTROLLED DISCLOSURE**

## 5. Revisions

Date	Rev.	Compiler	Remarks
May 2023	2	I Naidoo	Inclusion of DBA requirements for coatings inside the Reactor Buildings
February 2019	1	I Naidoo	Review cycle
March 2014	0	I Naidoo	Aligning original document compilation (KSA-106) to new organisation.

## 6. Development Team

The following people were involved in the development of this document:

- Indrin Naidoo

## 7. Acknowledgements

None.

## 8. Attachments

Appendix 1: Approved Manufacturers and Coating Systems

**CONTROLLED DISCLOSURE**

## APPENDIX 1: APPROVED MANUFACTURERS AND COATING SYSTEMS

<b>COATING CLASSIFICATION</b> <b>PIA 100 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR – DECORATIVE</li> <li>- NORMAL ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE t &lt; 70°C</li> </ul>

<b>ACTIVITY</b>	<b>REQUIREMENTS</b>	<b>DFT</b>
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT ALKYD ZINC PHOSPHATE PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT ALKYD UNIVERSAL UNDERCOAT	25 – 40 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD ENAMEL	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 100 3</b>
– INTERIOR – INDUSTRIAL – NORMAL ENVIRONMENT – FERRITIC SUBSTRATE t < 70°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD POLYAMIDE CURED EPOXY	75 – 100 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	175 – 250 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 103 3</b>
– INTERIOR – NORMAL ENVIRONMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
<b>FINAL COAT:</b>	AS ABOVE	25 – 35 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PIA 104 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE t &gt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
<b>FINAL COAT:</b>	AS ABOVE	25 – 35 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 105 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- INSULATION</li> <li>- FERRITIC SUBSTRATE 70°C &lt; t &lt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
METALTEC, TC, SHARPSHELL, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 106 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- INSULATION</li> <li>- FERRITIC SUBSTRATE t &gt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
METALTEC, TC, SHARPSHELL, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 107 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- METAL-SPRAYED ZINC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	100 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 108 3</b>
– INTERIOR – NORMAL ENVIRONMENT – HOT DIP GALVANISED SUBSTRATES

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	100 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PIA 150 3</b></p>
<p>– INTERIOR – DECORATIVE – NORMAL ENVIRONMENT – GYPSUM PLASTER CEILINGS AND WALLS</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT ALKYD RESISTANT PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT EXTERIOR GRADE WASHABLE ACRYLIC	25 – 40 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT EXTERIOR GRADE WASHABLE ACRYLIC	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 150 3</b>
– INTERIOR – ALTERNATIVE – NORMAL ENVIRONMENT – GYPSUM PLASTER CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT ALKALI RESISTANT PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT POLYURETHANE VELVET ENAMEL	25 – 40 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYURETHANE VELVET ENAMEL	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PIA 151 3</b></p>
<p>– INTERIOR – DECORATIVE – NORMAL ENVIRONMENT – CEMENT PLASTER CEILINGS AND WALLS</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT ALKALI RESISTANT PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT EXTERIOR GRADE WASHABLE ACRYLIC	25 – 40 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT EXTERIOR GRADE WASHABLE ACRYLIC	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 151 3</b>
– INTERIOR – ALTERNATIVE – NORMAL ENVIRONMENT – CEMENT PLASTER CEILING AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT ALKALI RESISTANT PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT POLYURETHANE VELVET ENAMEL	25 – 40 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYURETHANE VELVET ENAMEL	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 152 3</b>
– INTERIOR – DECORATIVE – NORMAL ENVIRONMENT – WOOD SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	SAND DOWN AND REMOVE DUST	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT PINK WOOD PRIMER	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT ALKYD UNIVERSAL UNDERCOAT	25 – 40 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD ENAMEL	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 153 3</b>
– INTERIOR – WASHABLE – NORMAL ENVIRONMENT – CONCRETE CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT ALKALI RESISTANT PRIMER	40 – 50 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT ALKYD UNIVERSAL UNDERCOAT	40 – 50 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT MODIFIED ALKYD ENAMEL	40 – 50 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PIA 156 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- CONCRETE FLOORS – ULTRA THICK</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	3 mm
	TOTAL DRY FILM THICKNESS	3 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIA 157 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- CONCRETE FLOOR – THIN FILM</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY FLOOR COATING	100 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY FLOOR COATING FINISH	100 – 150 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PIA 159 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- NORMAL ENVIRONMENT</li> <li>- CONCRETE FLOOR – THICK FILM</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	1 mm
	TOTAL DRY FILM THICKNESS	1 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 100 3</b>
– INTERIOR – AGGRESSIVE ENVIRONMENT – FERRITIC SUBSTRATE t < 70°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 275 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 103 3</b>
– INTERIOR – AGGRESSIVE ENVIRONMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>		
	AS ABOVE	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	260 – 325 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIGMA COATINGS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 104 3</b>
– INTERIOR – AGGRESSIVE ENVIRONMENT – FERRITIC SUBSTRATE t > 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
	TOTAL DRY FILM THICKNESS	110 – 145 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 105 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- AGGRESSIVE ENVIRONMENT</li> <li>- INSULATION</li> <li>- FERRITIC SUBSTRATE 70°C &lt; t &lt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
METALTEC, TC, SHARPSHELL, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 106 3</b>
<ul style="list-style-type: none"> <li>- INTERIOR</li> <li>- AGGRESSIVE ENVIRONMENT</li> <li>- INSULATION</li> <li>- FERRITIC SUBSTRATE t &gt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers' recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
METALTEC, TC, SHARPSHELL, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 107 3</b>
– INTERIOR – AGGRESSIVE ENVIRONMENT – METALISED ZINC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD POLYAMIDE CURED EPOXY	70 – 100 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	170 – 250 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 108 3</b>
– INTERIOR – AGGRESSIVE ENVIRONMENT – GALVANISED SUBSTRATES

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD POLYAMIDE CURED EPOXY	70 – 100 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	170 – 250 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 150 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – GYPSUM PLASTER CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR WATER BORNE POLYAMIDE CURED EPOXY SEALER	N/A
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 80 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 80 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 151 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – CEMENT PLASTER CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR WATER BORNE POLYAMIDE CURED EPOXY SEALER	N/A
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 80 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 80 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 152 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – WOOD SUBSTRATES

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	SAND DOWN AND REMOVE DUST	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR WATER BORNE POLYAMIDE CURED EPOXY SEALER	N/A
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 80 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 80 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 153 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – CONCRETE CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR WATER BORNE POLYAMIDE CURED EPOXY PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 75 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	180 – 225 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 156 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – CONCRETE FLOORS – ULTRA THICK

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	3 mm
	TOTAL DRY FILM THICKNESS	3 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 157 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – CONCRETE FLOORS – THIN FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY FLOOR COATING	100 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY FLOOR COATING FINISH	100 – 150 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIB 159 3</b>
– INTERIOR – WASHABLE – AGGRESSIVE ENVIRONMENT – CONCRETE FLOORS – THICK FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	1 mm
	TOTAL DRY FILM THICKNESS	1 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 100 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – FERRITIC SUBSTRATE < 70°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY <u>OR</u> MODIFIED PHENOLIC PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT POLYAMIDE CURED EPOXY <u>OR</u> MODIFIED PHENOLIC FINISH COAT	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 250 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 103 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE COATING PRIMER	30 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE	30 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	60 – 80 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 104 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – FERRITIC SUBSTRATE t > 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE COATING PRIMER	30 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE	30 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	60 – 80 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 107 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – METALISED ZINC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HIGH PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY OR MODIFIED PHENOLIC FINISH COAT	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	150 – 200 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PIC 108 1</b></p>
<p>– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – HOT DIP GALVANISED SUBSTRATE</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HIGH PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMIDE CURED EPOXY OR MODIFIED PHENOLIC FINISH COAT	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	150 – 200 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PIC 153 1</b></p>
<p>– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – CONCRETE CEILINGS AND WALLS</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT WATER BASED EPOXY SURFACER / SCRAPER COAT	WILL VARY IN ACCORDANCE WITH SURFACE STATE
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 80 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 80 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIZWE PAINTS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 156 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – CONCRETE FLOORS – ULTRA THICK

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION .4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATINGS	3 mm
	TOTAL DRY FILM THICKNESS	3 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

NO SOUTH AFRICAN SUPPLIER  
ENGINEERING APPROVAL REQUIRED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 157 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – CONCRETE FLOORS – THIN FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY OR MODIFIED PHENOLIC FLOOR COATING	100 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK EPOXY OR MODIFIED PHENOLIC FLOOR COATING	100 – 150 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PIC 159 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – CONTAINMENT – CONCRETE FLOORS – THICK FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	1 mm
	TOTAL DRY FILM THICKNESS	1 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

NO SOUTH AFRICAN SUPPLIER  
ENGINEERING APPROVAL REQUIRED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 100 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – FERRITIC SUBSTRATE < 70°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY <u>OR</u> MODIFIED PHENOLIC PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT POLYAMIDE CURED EPOXY <u>OR</u> MODIFIED PHENOLIC FINISH COAT	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 250 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 103 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE COATING PRIMER	30 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE	30 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	60 – 80 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 104 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – FERRITIC SUBSTRATE t > 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE COATING PRIMER	30 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED SILICONE OR POLYSILOXTHANE	30 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	60 – 80 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 153 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – CONCRETE CEILINGS AND WALLS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT WATER BASED EPOXY SURFACER / SCRAPER COAT	WILL VARY IN ACCORDANCE WITH SURFACE STATE
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY	60 – 80 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BORNE POLYAMIDE CURED EPOXY FINISH	60 – 80 MICROMETRES
	TOTAL DRY FILM THICKNESS	120 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIZWE PAINTS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PID 156 1</b></p>
<p>– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – CONCRETE FLOORS – ULTRA THICK</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATINGS	3 mm
	TOTAL DRY FILM THICKNESS	3 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

NO APPROVED SOUTH AFRICAN SUPPLIER CURRENTLY AVAILIABLE. ENGINEERING PROGRAMMES APPROVAL REQUIRED PRIOR TO SELECTION AND APPLICATION OF ULTRA THICK-FILM FLOOR COATINGS IN A NUCLEAR ENVIRONMENT.

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 157 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – CONCRETE FLOORS – THIN FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT TWIN PACK EPOXY OR MODIFIED PHENOLIC FLOOR COATING	100 – 150 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT TWIN PACK EPOXY OR MODIFIED PHENOLIC FLOOR COATING	100 – 150 MICROMETRES
	TOTAL DRY FILM THICKNESS	200 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PID 159 1</b>
– INTERIOR – DECONTAMINABLE – NUCLEAR ENVIRONMENT – OTHER THAN CONTAINMENT – CONCRETE FLOORS – THICK FILM

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3.	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT SOLVENT OR SOLVENT FREE EPOXY CONCRETE PRIMER / SEALER	MANUFACTURER'S RECOMMENDATION
PATCH REPAIR	FILL WITH SOLVENT FREE EPOXY FILLER	
<b>INTERMEDIATE COAT:</b>		
	N/A	
<b>FINAL COAT:</b>		
	APPLY ONE COAT SOLVENT FREE SELF LEVELING EPOXY FLOOR COATING	1 mm
	TOTAL DRY FILM THICKNESS	1 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

NO APPROVED SOUTH AFRICAN SUPPLIER CURRENTLY AVAILIABLE. ENGINEERING PROGRAMMES APPROVAL REQUIRED PRIOR TO SELECTION AND APPLICATION OF THICK-FILM FLOOR COATINGS IN A NUCLEAR ENVIRONMENT.

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 200 2</b>
– EXTERIOR – MARINE ENVIRONMENT – FERRITIC SUBSTRATE t < 70°C

<b>ACTIVITY</b>	<b>REQUIREMENTS</b>	<b>DFT</b>
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	APPLY ONE COAT HIGH SOLIDS ZINC <u>OR</u> ALUMINIUM FILLED EPOXY	
<b>INTERMEDIATE COAT:</b>		
<b>NB. FOR SALT SPRAY EXPOSURE APPLY A FULL ADDITIONAL INTERMEDIATE COAT</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT TWIN PACK POLYURETHANE ACRYLIC FINISH	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	230 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 200 2</b>
– EXTERIOR – ALTERNATIVE – MARINE ENVIRONMENT – FERRITIC SUBSTRATE t < 70°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO St 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT WATER BASED MODIFIED VINYL ACRYLIC	180 – 220 MICROMETRES
PATCH REPAIR	WIRE BRUSH	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BASED MODIFIED VINYL ACRYLIC	180 – 220 MICROMETRES
	TOTAL DRY FILM THICKNESS	360 – 440 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

OPTIMA COATINGS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 200 2</b>
– EXTERNAL – MARINE OR AGGRESSIVE (INTERNAL) ENVIRONMENT – PIPE WRAPPING AND FLANGED JOINTS

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	WIRE BRUSH TO GRADE ST 2	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INHIBITED PETROLATUM SOLUTION PRIMER	N/A
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
FLANGED JOINT ONLY	APPLY PETROLATUM FIBRE-FILLED MASTIC TO BOLTS AND FLANGE FACES	N/A
<b>FINAL COAT:</b>		
	APPLY PETROLATUM IMPREGNATED SYNTHETIC FABRIC TAPE. ALL IN ACCORDANCE WITH SECTION 5.10.7.	N/A
<b>NB.</b>	IF REQUIRED, A BASECOAT, SCRIM TAPE AND ACRYLIC COATING MAY BE APPLIED IN ACCORDANCE WITH THE COATING APPLICATION IN SECTION 5.10.8.	

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

DENSO PRODUCTS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 200 2</b>
<ul style="list-style-type: none"> <li>- EXTERNAL</li> <li>- MARINE ENVIRONMENT</li> <li>- STRUCTURAL WRAPPINGS</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	WIRE BRUSH TO GRADE ST 2	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT SS HIGH TACK STEEL PRIMER	N/A
PATCH REPAIR FOLLOWED BY ABOVE PRIMER COAT	APPLY ONE COAT TWIN PACK ZINC RICH EPOXY PRIMER	50 – 75 MICROMETRES
<b>INTERMEDIATE COAT:</b> FLANGED JOINT ONLY	APPLY SS HIGH TACK STRUCTURAL STEEL TAPE FOLLOWED BY CEMENTITIOUS BASECOAT AND SCRIM TAPE	N/A
<b>FINAL COAT:</b>	APPLY TWO COATS ACRYLIC TOPCOAT <u>OR</u> OTHER APPROVED	4 m <sup>2</sup> / LITRE PER COAT
	ALL IN ACCORDANCE WITH SECTION 5.10.8	

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

DENSO PRODUCTS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 203 2</b>
– EXTERIOR – MARINE ENVIRONMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIGMA COATINGS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 203 2</b>
– EXTERIOR – ALTERNATIVE – MARINE ENVIRONMENT – FERRITIC SUBSTRATE 70°C < t < 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	60 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
<b>FINAL COAT:</b>		
	APPLY ONE COAT MODIFIED ALKYD RESIN OR SILICONE HEAT RESISTANT ALUMINIUM	25 – 35 MICROMETRES
	TOTAL DRY FILM THICKNESS	110 – 145 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 205 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR</li> <li>- MARINE ENVIRONMENT</li> <li>- INSULATION</li> <li>- FERRITIC SUBSTRATE 70°C &lt; t &lt; 200°C</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
METALTEC, TC, SHARPSHELL, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 206 2</b>
– EXTERIOR – MARINE ENVIRONMENT – INSULATION – FERRITIC SUBSTRATE t > 200°C

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2,5	
PATCH REPAIR	WIRE BRUSH TO ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT INORGANIC ZINC SILICATE PRIMER	70 – 80 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>		
	APPLY ONE OR MORE COATS (TEMPERATURE DEPENDENT) OF WATER BASED ACRYLIC POLYMER	
<b>FINAL COAT:</b>		
	AS ABOVE	
	TOTAL DRY FILM THICKNESS	TEMPERATURE DEPENDENT

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 METALTEC, TC, SHARPSHELL, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 207 2</b>
– EXTERIOR – MARINE ENVIRONMENT – METALISED ZINC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 5.4.2.7	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT AS PER SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK POLYURETHANE ACRYLIC FINISH	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	220 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 208 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR</li> <li>- MARINE ENVIRONMENT</li> <li>- HOT DIP GALVANISED SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE OR POLYAMINE CURED EPOXY HDG PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT AS PER SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK POLYURETHANE ACRYLIC FINISH	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	220 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 209 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR</li> <li>- MARINE ENVIRONMENT</li> <li>- ALUMINIUM SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED NON FERROUS METAL EPOXY PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MIO POLYAMIDE CURED EPOXY	120 – 150 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK POLYURETHANE ACRYLIC FINISH	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	220 – 300 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 250 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR – DECORATIVE</li> <li>- MARINE ENVIRONMENT</li> <li>- CONCRETE AND CEMENT RENDERING</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT WATER BASED PURE ACRYLIC RESIN	50 – 60 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BASED PURE ACRYLIC RESIN	50 – 60 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BASED PURE ACRYLIC RESIN	50 – 60 MICROMETRES
	TOTAL DRY FILM THICKNESS	150 – 180 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 250 2</b>
– EXTERIOR – PROTECTIVE – MARINE ENVIRONMENT – CONCRETE AND CEMENT RENDERING

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT WATER BASED PURE ACRYLIC SEALER	N/A
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT WATER BASED PURE ACRYLIC RESIN WATERPROOFING	140 – 160 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT WATER BASED PURE ACRYLIC RESIN WATERPROOFING	140 – 160 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

OPTIMA COATINGS  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PEC 251 2</b>
– EXTERIOR – MARINE ENVIRONMENT – SYSTEM FOR CONCRETE STRUCTURES

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT MODIFIED POLYMER CEMENTITIOUS SLURRY	AS PER MANUFACTURERS REQUIREMENTS
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT MODIFIED POLYMER CEMENTITIOUS SLURRY	AS PER MANUFACTURERS REQUIREMENTS

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIKA

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 252 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR – DECORATIVE</li> <li>- MARINE ENVIRONMENT</li> <li>- WOOD SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	SAND DOWN AND REMOVE DUST	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT PINK WOOD PRIMER OR MARINE VARNISH	25 – 40 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT ALKYD UNIVERSAL UNDERCOAT <u>OR</u> ONE COAT MARINE VARNISH	25 – 40 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT MODIFIED ALKYD ENAMEL <u>OR</u> ONE COAT MARINE VARNISH	25 – 40 MICROMETRES
	TOTAL DRY FILM THICKNESS	75 – 120 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

ANY APPROVED SANS SUPPLIER

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PEC 258 2</b>
<ul style="list-style-type: none"> <li>- EXTERIOR</li> <li>- MARINE ENVIRONMENT</li> <li>- COLOUR COATING REQUIREMENT ON HDPE, PVC, GRP, ETC.</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	SAND DOWN AND RINSE WITH POTABLE WATER	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	50 – 75 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT TWIN PACK POLYURETHANE ACRYLIC TO COLOUR	50 – 75 MICROMETRES
	TOTAL DRY FILM THICKNESS	100 – 150 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLA 300 2</b>
– LIQUID CONTACT (EXTERNAL PROTECTION) – BURIED ENVIRONMENT – FERRITIC <u>OR</u> GALVANISED SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3 <u>OR</u> IN ACCORDANCE WITH SECTION 3.4.2.7	
PATCH REPAIR	WIRE BRUSH TO ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH BUILD POLYAMINE ADDUCT CURED <b>COAL TAR</b> EPOXY (BROWN)	275 – 325 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD POLYAMINE ADDUCT CURED EPOXY TAR (BLACK)	275 – 325 MICROMETRES
	TOTAL DRY FILM THICKNESS	640 – 760 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLB 400 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- POTABLE / RAIN WATER ENVIRONMENT</li> <li>- GALVANISED SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY HDG PRIMER	90 – 110 MICROMETRES
PATCH REPAIR		
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLB 401 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- POTABLE WATER ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY HDG PRIMER	90 – 110 MICROMETRES
PATCH REPAIR		
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLB 401 2</b>
– LIQUID CONTACT -ALTERNATIVE – POTABLE WATER ENVIRONMENT – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b>		
NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2.5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b>		
NEW COMPONENT	APPLY ONE COAT CERAMIC AND/OR METALLIC FILLED SOLVENT FREE POLYAMINE CURED EPOXY	1 – 6 mm
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	AS ABOVE (IF REQUIRED)	
	TOTAL DRY FILM THICKNESS	1 – 6 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

BELZONA  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLB 402 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- DEMINERALISED WATER ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIGMA COATINGS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLB 403 2</b>
– LIQUID CONTACT –WATER CONTAINING SUSPENDED MATTER – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT FLAKE GLASS POLYESTER OR VINYL ESTER	500 – 600 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT FLAKE GLASS POLYESTER OR VINYL ESTER	500 – 600 MICROMETRES
	TOTAL DRY FILM THICKNESS	1000 – 1200 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PLB 403 2</b></p>
<p>– LIQUID CONTACT - ALTERNATIVE – WATER CONTAINING SUSPENDED MATTER – FERRITIC SUBSTRATE</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2.5	
PATCH REPAIR	WIRE BRUSH TO GRADE ST 3	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT CERAMIC AND/OR METALLIC FILLED SOLVENT FREE POLYAMINE CURED EPOXY	1 – 6 mm
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	AS ABOVE (IF REQUIRED)	
	TOTAL DRY FILM THICKNESS	1 – 6 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

BELZONA  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLC 500 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- INHIBITED DEMINERALISED WATER ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

SIGMA COATINGS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLD 600 2</b>
– LIQUID CONTACT - ALTERNATIVE – SEA WATER ENVIRONMENT – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	NOT RECOMMENDED FOR USE ON NEW COMPONENTS	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> PATCH REPAIR	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
<b>INTERMEDIATE COAT:</b> NB. 2 OFF INTERMEDIATE COATS	APPLY ONE COAT POLYAMINE ADDUCT CURED <b>COAL TAR</b> EPOXY (BLACK) APPLY SECOND COAT AS ABOVE (BROWN)	180 – 220 MICROMETRES 180 – 220 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT POLYAMINE ADDUCT CURED <b>COAL TAR</b> EPOXY (BLACK)	180 – 220 MICROMETRES
	TOTAL DRY FILM THICKNESS	630 – 770 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:  
 JOTUN, SIGMA COATINGS, SIZWE PAINT, STONCOR  
 OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLD 600 2</b>
– LIQUID CONTACT - ALTERNATIVE – SEA WATER ENVIRONMENT – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 2.5	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINT, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLD 600 2</b>
– LIQUID CONTACT - ALTERNATIVE – SEA WATER ENVIRONMENT – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT FLAKE GLASS POLYESTER OR VINYL ESTER	500 – 600 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	APPLY ONE COAT FLAKE GLASS POLYESTER OR VINYL ESTER	500 – 600 MICROMETRES
	TOTAL DRY FILM THICKNESS	1000 – 1200 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, CORROCOAT  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLD 600 2</b>
– LIQUID CONTACT - ALTERNATIVE – SEA WATER ENVIRONMENT – FERRITIC SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT CERAMIC AND/OR METALLIC FILLED SOLVENT FREE POLYAMINE CURED EPOXY	1 – 6 mm
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	AS ABOVE (IF REQUIRED)	
	TOTAL DRY FILM THICKNESS	1 – 6 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

BELZONA

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLD 601 2</b>
– LIQUID CONTACT – SEA WATER ENVIRONMENT – HOT DIP GALVANISED SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.2.7	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY HDG PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLD 650 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- SEA WATER ENVIRONMENT</li> <li>- CONCRETE SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH SOLIDS OR SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS OR SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, NORDBAK  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<p><b>COATING CLASSIFICATION</b> <b>PLD 650 2</b></p>
<p>– LIQUID CONTACT - ALTERNATIVE – SEA WATER ENVIRONMENT – CONCRETE SUBSTRATE</p>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT CERAMIC AND/OR METALLIC FILLED SOLVENT FREE POLYAMINE CURED EPOXY	1 – 6 mm
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	N/A	
<b>FINAL COAT:</b>	AS ABOVE (IF REQUIRED)	
	TOTAL DRY FILM THICKNESS	1 – 6 mm

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

BELZONA

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION PLE 700 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- MINERAL OIL ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS <u>OR</u> SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, STONCOR  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>COATING CLASSIFICATION</b> <b>PLE 750 2</b>
– LIQUID CONTACT – MINERAL OIL – NON IMMERSION – CONCRETE SUBSTRATE

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT POLYAMIDE CURED EPOXY PRIMER	90 – 110 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE COAT HIGH SOLIDS OR SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH SOLIDS OR SOLVENT FREE POLYAMINE CURED EPOXY	120 – 140 MICROMETRES
	TOTAL DRY FILM THICKNESS	330 – 390 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, NORDBAK  
OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>PLF 800 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- BASIC SOLUTION ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>PLF 801 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- ACIDIC SOLUTION ENVIRONMENT</li> <li>- FERRITIC SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	ABRASIVE BLAST CLEAN TO GRADE Sa 3	
PATCH REPAIR	POWER SAND TO WHITE METAL	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>PLF 850 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- ACIDIC SOLUTION ENVIRONMENT – IMMERSION</li> <li>- CONCRETE SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, NORDBAK

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**

**APPENDIX 1 (continued)**

**APPROVED MANUFACTURERS AND COATING SYSTEMS**

<b>PLF 851 2</b>
<ul style="list-style-type: none"> <li>- LIQUID CONTACT</li> <li>- ACIDIC SOLUTION ENVIRONMENT – NON-IMMERSION</li> <li>- CONCRETE SUBSTRATE</li> </ul>

ACTIVITY	REQUIREMENTS	DFT
<b>SURFACE PREPARATION:</b> NEW COMPONENT	IN ACCORDANCE WITH SECTION 3.4.3	
PATCH REPAIR	AS ABOVE	
<b>PRIMER COAT:</b> NEW COMPONENT	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY PRIMER	100 – 125 MICROMETRES
PATCH REPAIR	AS ABOVE	
<b>INTERMEDIATE COAT:</b>	APPLY ONE STRIPE COAT IN ACCORDANCE WITH SECTION 3.5.6 FOLLOWED BY ONE FULL COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY	100 – 125 MICROMETRES
<b>FINAL COAT:</b>	APPLY ONE COAT HIGH BUILD MODIFIED PHENOLIC <u>OR</u> PHENOLIC EPOXY FINISH	100 – 125 MICROMETRES
	TOTAL DRY FILM THICKNESS	300 – 375 MICROMETRES

All coatings shall be applied in strict accordance with the manufacturers recommendations and shall comply with the relative Product and Material Safety Data Sheets.

Recommended manufacturers and suppliers:

JOTUN, SIGMA COATINGS, SIZWE PAINTS, STONCOR, NORDBAK

OR OTHER APPROVED

**CONTROLLED DISCLOSURE**