Base Load Power Hub (BLPH)

PAINTING PROCEDURE

Document Number: 1724000049-MAT-PRO-00004

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
04	17/06/2024	Accepted for Construction (AFC)	AD	SK	CA
03	29/05/2024	Accepted for Construction (AFC)	AD	SK	CA
02	10/04/2024	Accepted for Construction (AFC)	AD	SK	CA
01	13/03/2024	Issue for Review (IFR)	AD	SK	CA
0	19/02/2024	Issue for Review (IFR)	AD	SK	CA

ALEXSISTEMI spa

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
0	Issue for Review (IFR)
01	Issue for Review (IFR)
02	Accepted for Construction (AFC)
03	Accepted for Construction (AFC)
04	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

Table of contents

1 INTRODUCTION 5

1.1 PROJECT OVERVIEW 5

1.1.1 Project Location 5

1.1.2 Project Concept 6

2 DOCUMENT SCOPE 8

2.1 REFERENCES 8

2.2 DEFINITIONS AND ABBREVIATIONS 9

2.3 PLANT AND EQUIPMENT 9

2.4 SURFACE PREPARATION 9

2.5 ABRASIVE 10

2.6 SOLVENT CLEANING 10

2.7 BLAST CLEANING OF SURFACE 10

2.8 COATING APPLICATION 11

3 PREPARATION FOR PAINTING 11

3.1 Spray Application 12

3.2 Brush Application 12

4 DAMAGES & REPAIR 13

4.1 Minor Damage 13

4.2 Major Damage 13

5 INSPECTION & TESTING 14

5.1 Visual Inspection Of Prepared Surfaces 16

5.2 Visual Inspection Of Coated Surfaces 16

6 COATING SYSTEM 16

6.1 Method of Testing 16

6.2 Annex 17

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

List of Figures

Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map 5
Figure 2 - Wind Park Details 6
Figure 3 – BLPH Concept 7

List of tables

Table 1 - Reference Documents 8
Table 2 - Definitions and Abbreviations 8

List of Attachments

None

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

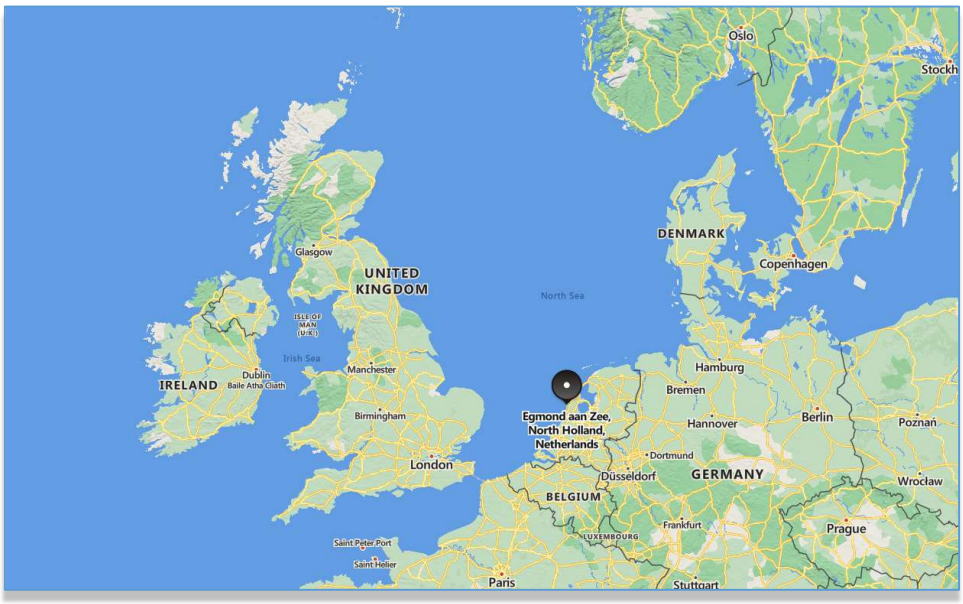


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

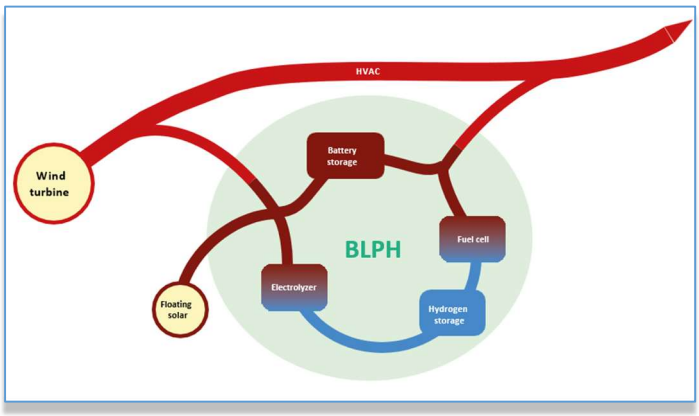


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

2 DOCUMENT SCOPE

This specification covers the painting requirements for:

- Structural surfaces of Prefabricated Buildings made in Carbon Steel
- Under Insulation Structure surfaces of Prefabricated Buildings made in Carbon Steel
- Internal and External surfaces of Prefabricated Buildings Doors

2.1 REFERENCES

Doc. No.	Description
123A90-DDL-MAT-SP-60006	Coating and Painting Specification
K559-2254-PM-PLN-003	Basic Design Engineering Package
K559-2254-MT-REP-0001	Material Selection Report
123A90-DDL-MAT-RE-60011	Material Selection Report
NORSOK M-501 Ed 6 -2022	Surface Preparation and protective coating
NORSOK Z-DP-002-1996	Coding System
ISO 9223-2022	Corrosion of metals and allows – corrosivity of atmospheres – Classification, Determination and Estimation
ISO 1461-2022	Metallic coatings – Hot Dip Galvanising coating on fabricated ferrous products - Requirements
ISO 8501-1-2017	Preparation of Steel Substrates before Application of Coatings and Related Products – Visual Assessment of Surface Cleanliness – Part 1: Rust Grades and Preparation Grades of Uncoated Steel Substrates and of Steel Substrates after Removal of Previous Coatings.
ISO 8501-3-2020	Preparation of Steel Substrates before Application of Coatings and Related Products – Visual Assessment of Surface Cleanliness – Part 3: Preparation Grades of Welds, Cut Edges and Other Areas with Surface Imperfections
ISO 11124-1-4-2018	Preparation of Steel Substrates before Application of Paints and Related Products – Parts 1-4, Specifications for Metallic Blast-Cleaning Abrasives
ISO 11126-1-10-2018	Preparation of Steel Substrates before Application of Paints and Related Products – Parts 1-10, Specifications for Non-Metallic Cleaning Abrasives
ISO 12944-4-2023	Paints and varnishes -- Corrosion protection of steel structures by protective paint systems -- Part 4: Types of surface and surface preparation
ASTM D4285-2018	Standard Test Method for Indicating Oil or Water in Compressed Air

Table 1 - Reference Documents

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
CA	Certification Agency
DS	Surveyor
EXP	Expediting dept.
LOG	Logistic Dept.
NDE	Non Destructive Examination
PQR	Procedure Qualification Record
QC	Quality Control Dept.
QCI	Quality Control Inspector
SC	Sub-contractor
WI	Welding Inspector
WLD	Welding Dept.
WQR	Welder Qualification Record
WPS	Welding Procedure Specification

Table 2 - Definitions and Abbreviations

2.3 PLANT AND EQUIPMENT

- HV-MV (66KV 6.6KV) SWITCH ROOM B-100
- LV (400V) SWITCH ROOM B-200
- AC UPS EQUIPMENT ROOM B-300
- I&T EQUIPMENT ROOM B-400

2.4 SURFACE PREPARATION

Very thorough preparation: surface is free of significant visible imperfections.

Any surface to be coated shall be dry and rendered dust free prior to the application of the first coat.

The grade of preparation for creating steel surfaces with visible imperfections suitable for the application of paints and related products is as follows:

P3 - Very careful preparation: the surface is free from significant visible imperfections.

as described in ISO 8501-3 preparation level P3 tab.1

2.5 ABRASIVES

The abrasives used shall be free of oil, grease, moisture, salt, dust etc. They shall not be contaminated with heavy metals or other matter that would complicate disposal. Abrasive Including re-used) shall be clean and reasonably sharp. For Stainless steel non-iron containing abrasive shall be used.

Type of abrasives to be used on CS parts: Corundum to obtain Gritblasting SA 2½ (ISO 8501-1 Std).

As per coating spec. 123A90-DDL-MAT-SP-60006 :

must to do use metallic grit 123A90-DDL-MAT-SP-60006

2.6 SOLVENT CLEANING

Prior to the actual cleaning, any oil, grease, or other fatty matter shall be removed by means of the appropriate solvents or the solvents used in the primer, in accordance with SSPC SP1 "Solvent Cleaning".

Petroleum, kerosene, diesel oil, turpentine or other fatty solvents shall not be used.

2.7 BLAST CLEANING OF SURFACES

Blasted surface shall be free of dusty, oil, grease and other foreign matters. If contaminated, surface shall be cleaned with solvents. The cleaned surface shall subsequently be blasted once more.

Abrasive media shall be chloride-free (e.g. alumina) and contain no free metals (copper slag shall not be used). Surface profile shall be checked.

Stainless steels and nickel alloys shall be blasted with equipment that has not been used on carbon steel and shall be protected from contamination by debris produced during grit blasting of adjacent carbon steel.

Blast cleaning standard:	*ISO-8501-1:2001 Sa 2½*
Surface profile:	*Medium G - 50 to 85 µm (ISO 8503-2)*
Soluble salt:	*max allowed chloride 20 mg/m^2 (ISO 8502-6 / 9)*
Dust Test:	*Class 2 / Grade 2 (ISO 8502-3)*

Interval time between blast cleaning and coating application: max 4 hours

Is flash blasting performed if this 4 hours is exceeded

2.8 – COATING APPLICATION

Coatings shall not be applied when:

- The ambient temperature is less than 5°C (10°C for some coating types) or greater than 40°C.
- The relative humidity is more than 85%.
- The surface temperature is less than 3°C above the dew point.
- The metal surface temperature is higher than that recommended by manufacturer for application, however the maximum in any case shall be 40°C.
- Surface preparation has not been completed or oil, grease, and dust are present on the substrate to be painted.
- Poor weather conditions for painting exist or are expected within the same working day of application such as blowing sand, fog, or rain.

Where there is a deposition of water in the form of rain, condensation, frost, etc. on the surface.

3 PREPARATION FOR PAINTING

Storing, thinning, mixing, and handling of paint materials, provided by paint manufacturer, shall be in accordance with application data. All containers shall remain closed in factory sealed containers until required for use. Paint which has deteriorated shall be removed from the work area. Each container shall have full identification information including manufacturer name, product identification, batch number, date of manufacture, shelf life, basic instructions, and contact telephone number for technical service. All aspects of safety relating to the use of coatings and associated thinners shall be in accordance with manufacturer stated.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

3.1 SPRAY APPLICATION

Hose and containers shall be thoroughly cleaned before addition of new materials. The spray gun shall be held no closer than 200 mm or more than 600 mm from the surface to be coated. During application the spray gun shall always be held at a right angle to the substrate. Each pass shall overlap the previous one by 50 percent. In order to achieve a uniform application, when large surface areas are being coated, spray application shall be made in two directions so that the passes are at right angles to each other. Pressures and spray fan shall be adjusted so that the optimum spray pattern is utilized for the surface being coated.

The compressed air supply shall have sufficient capacity to meet the work requirement and be free from oil and water contamination.

3.2 BRUSH APPLICATION

Application with brush is acceptable when the materials to be applied are suitable for brush application and under the following conditions:

- When areas cannot be properly coated by spray method
- When spray application is difficult due to location of work and wind conditions
- For touch-up or repair of localized damaged paint or to areas of incorrectly applied paint
- For painting of stripe coat
- When applying the initial coat of paint to corners, edges, crevices, holes, welds or other irregular surfaces prior to spray application. An additional stripe coating of primer or intermediate coat shall be applied to all sharp edges, corners, and welds before application of the final coat regardless of the method of coating application. This is in addition to the number of coats stated in the painting schedules.
- The number of coats shall be adjusted to the dry film thickness to match Paintbrushes used shall be of a type and quality that will permit appropriate application of the material being applied.

Material applied by brush shall be smooth, uniform in thickness, without any apparent surface defects such as brush marks, runs, sags, or curtains.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

4. DAMAGES & REPAIR

Manual cleaning shall be performed using hand wire brushes, or mechanically operated tools (grinders, chippers, or wire brush) in accordance with ISO 8504-3. The surface shall be left roughly abraded, but a burnished surface is not acceptable.

Areas that have been damaged without exposing the primer shall be washed with a proprietary detergent solution and rinsed with fresh water. This shall be followed by abrading and ensuring that edges of sound paint are chamfered. The area shall then be sprayed or brushed with appropriate mid coats and finishing coat.

More significant coating damage involving the removal of large areas of coating down to bare metal shall be re-prepared by blast cleaning to the original standard and recoated with the specified system.

4.1 MINOR DAMAGE

Surfaces to be overcoated which become contaminated or damaged shall be cleaned by solvent cleaning and/or lightly brush blasted ensuring that the surface is free of all contamination prior to applying the following coats. After cleaning, any residual contaminants shall be removed by dry compressed air and wiped by hand with clean, dry rags. The coating around the damaged area shall be chamfered, using an approved method, to ensure continuity of the patch coating. The full coating system shall then be touched-up with roller or spray application.

4.2 MAJOR DAMAGE

The damaged area shall be re-cleaned as originally specified for that item and the full coating system reapplied in accordance with application data. The re-cleaning shall carry over onto tightly adhering surrounding coating for not less than 25 mm all around and the edges shall be chamfered using an approved method, to ensure continuity of the patch coating.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

5 INSPECTION & TESTING

For each coat/activities the following check has been done:

a) Surface salt contamination

b) Recording the ambient condition such as air temperature, humidity, and substrate temperature

c) Verify storage/stage mixing of paint against the datasheets

d) Surface profile

e) DFT Test to be carried out on each coat

f) Wet film thickness

g) Adhesion Test (Pull-off test)

h) Inspection records are to be reviewed on completion of work

Previews listed tests are in accordance with 123A90-DDL-MAT-SP-60006 Painting Specification, where applicable.

In compliance with ISO 8502-3, the quantity and size of dust particles on surfaces is checked before applying a coating

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Test Type	Method	Frequency	Acceptance criteria	Consequence
Environmental conditions	Ambient and steel temperature. Relative humidity. Dew point.	Before start of each shift + minimum twice per shift.	In accordance with specified requirements	No blasting or coating
Visual examination	Visual for sharp edges weld spatter slivers, rust grade, etc. ISO 8501-3	100 % of all surfaces	No defects, see specified requirements. Where defects are noted on pressure retaining equipment such as pipework, these items shall be quarantined and the CONTRACTOR advised prior to repair.	Defects to be repaired
Cleanliness	a) ISO 8501-1 b) ISO 8502-3	a) 100 % visual of all surfaces b) Spot checks	a) The required blast standard shall be minimum SA 2.5 for all coating systems. b) Maximum quantity and size rating 2	a) Reblasting b) Recleaning and retesting until acceptable
Salt test	The ISO 8502-9 method shall be used.	Tests shall be carried out on each fabricated item.	Maximum conductivity corresponding to 20 mg/m2 NaCl	Repeated washing with potable water and retesting until acceptable
Roughness	Comparator, stylus instrument (preferred) or testex tape (see ISO 8503). Surface profile comparators in accordance with ISO 8501-2 may be used but only as an inspection tool to supplement DFT measurements.	Each component or once per 10 m2	As specified	Reblasting
Curing test (for Zn silicate).	ASTM D4752. This test is not required for system 7 coatings.	Each component or once per 100 m2	Rating 4 to 5	Allow to cure
Visual examination of coating	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects	100% of all coating shall be holiday tested and pinholes repaired.	According to specified requirements	Repair of defects
Holiday detection	ISO 29601. Voltage, see table 1	As per coating system specification	No holidays	Repair and retesting.
Film thickness	ISO 19840. Calibration on a smooth surface. Measurement of DFT readings on non magnetic (e.g. DSS) surfaces shall be subject to agreement with COMPANY. Supplier shall select suitable instrument and demonstrate accuracy of readings (against precision foils and against test plate and micrometer).	ISO 19840	ISO 19840, and coating system data sheet	Repair, additional coats or recoating as appropriate
Adhesion	ISO 4624. For adhesion testing, only hydraulic type 'pull-off' testing devices shall be used.	An adhesion test shall be performed as part of qualification and on each item during production with separate tests panels sprayed at the same time as the primary item.	See notes below	Coating to be rejected

NOTE 1 For coating system no. 2 A, adhesion during CPT shall be minimum 9,0 MPa. Adhesion measured during production shall be minimum 7,0 MPa for any single measurement.
NOTE 2 For coating system no. 3A, system no. 3C, system no. 3D, system no. 3E, system no. 3F and system no. 3G, maximum 30 % reduction from the CPT is acceptable. Absolute minimum value is 5 MPa.
NOTE 3 For sprayed on passive fire protection, maximum 50 % reduction from CPT value read as cohesion is acceptable. Absolute minimum values are 2.0 MPa for cement based products and 5.0 MPa for epoxy based products. Epoxy based passive fire protection may be used to glue the test dollies to the primer in order to measure the adhesive strength.
NOTE 4 For the remaining coating systems, 50 % reduction of average adhesion value from the CPT is acceptable as minimum adhesion during production coating. Absolute minimum value is 5 MPa.
NOTE 5 For adhesion test during CPT, glue failure with values below 15 MPa is not accepted. X-cut test can be used as a supplementary test for adhesion, when relevant.
NOTE 6 Spot checks shall be defined and agreed on before start of each project and included in the inspection and test plan (ITP).
NOTE 7 Holiday detection shall only apply for the splash zone, subsea and internally lined vessels.

Table 9-1 - Inspection and testing

5.1 VISUAL INSPECTION OF PREPARED SURFACES

All blast cleaned or otherwise prepared surfaces shall be visually inspected for conformance to the specified standard of cleanliness and surface profile immediately prior to application of the first coat in accordance with ISO 8503-2 Medium G.

5.2 VISUAL INSPECTION OF COATED SURFACES

All coated surfaces shall be visually examined after application of each coat for deleterious film defects, e.g. blisters, pinholes, dry spray, runs, sagging, wrinkling etc.

After each coat drying, the entire package will be visually inspected, to verify the absence of areas with mismatched color or paint drops, blisters, pinholes, bubbles, craters, wrinkles, sags, runs, unnecessary over-spray or brush marks, damages, scoring.

The same visual inspection will be carried out on the whole air compressor package before shipment as well.

6. COATING SYSTEM

Coating system and painting map specified in the following tables shall be applied:

123A90-DDL-MAT-SP-60006 _ANNEX1 Painting Specification

The Coating System considered has been approved in doc No. "593-23 Rev.2 Technical Offer" and is in compliance with 123A90-DDL-MAT-SP-60006 Painting Specification requirements, where.applicable.

6.1 METHOD OF TESTING

- For the execution of destructive tests, one Test Panel for each Painting System will be prepared.
- Inspection and check of painting shall be done as per Chapter 7 of this Procedure in accordance with 123A90-DDL-MAT-SP-60006 Painting Specification and recorded on Test report "Mod. P11.1 PR rev.A Painting Report"

- Adhesion Test shall be done in accordance with 123A90-DDL-MAT-SP-60006 Painting Specification and recorded on Test report "Mod. P11.1 PR rev. A Painting Report"
- Acceptance standard for Adhesion Test:

Pull-off Test ISO 4624 5 MPa only for complete Cycle (External CS Surface) after 14 days from Finishing.

Test Panel size: 250 x 300 x 5 mm

Test Panel composition: 30 mm gritblasting, 30 mm primer, 30 mm intermediate, 210 mm finishing

- Cleanliness, Roughness and Salt contamination Tests shall be tested for carbon steel in accordance with 123A90-DDL-MAT-SP-60006 Painting Specification and recorded on Test report "Mod. P11.1 PR rev. A Painting Report"

6.2 ANNEXES

Document title	Document
Painting Specification	123A90-DDL-MAT-SP-60006
Painting Report	Mod P11.1 rev.A
Painting Datasheets	ANNEX

ANNEX -1

1. PAINTING DETAILS

PART	COLOR (RAL)	CYCLE	MATERIAL
Structural External CS Surface	Grey Ral 7035	AS-535-C5M	Carbon steel
Under Insulation Internal CS Surface	Dark grey	Epoxy phenolic DFT 1x125 micron	Carbon steel
External & Internal) Doors	Grey Ral 7035	AS-535-C5M	Carbon steel
Internal lining on walls and roof (visible side)	White Ral 9002	STD Manufacturer	Galvanized Carbon Steel
Internal Equipment Baseframe	Grey Ral 7035	Epoxy phenolic DFT 1x125 micron Polyurethane acrilic RAL 7035 1x60 micron	Carbon steel

2. AS-535-C5M PAINTING CYCLE

Enviroment:	**High durability coating system for environmental conditions classified as C5M-very high corrosivity (marine) See coating system 1**
Metallic support:	Uninsulated carbon steel, low alloy, cast iron, galvanized carbon steel
Maximum temperature:	100°C (Dry)
Surface preparation:	Deagrease if necessary as per SSPC SP1 Gritblasting Sa 2½ According to ISO 8501– SSPC SP 10 Incision profile ISO 8503 Medium G 55-85 µm Salt Test ISO 8502 part 6 2µg/cm2 As per coating spec. Dust Test Lev.2 ISO 8502-3 As per coating spec
Final nominal dry film thickness:	**320 µm**
Adhesion Test:	Pull-off Test ISO 4624 5 MPa only for complete Cycle (External CS Surface) after 14 days from Finishing Test Panel size: 250 x 300 x 5 mm Test Panel composition: 30 mm gritblasting, 30 mm primer, 30 mm intermediate, 210 mm finishing

AS-535-C5M						
	Type	Chemical nature	Thickness µm	Yeild (m2/l)	Max T	Color
Primer	Interzinc 52	Organic zinc	60	7.9	150°C	Blue Grey, Green
Int Coat	Intergard 475 HS	Epoxy ferromycaceous	200	4.6	100°C	Light Grey
Finishing	Interthane 990	Polyurethane acrilic	60	8.0	100°C	RAL 7035

Touch UP for limited areas (200 cm^2 ~)						
	Type	Chemical nature	Thickness µm	Yeild (m2/l)	Max T	Color
Primer	Interzinc 52	Organic zinc	60	7.9	150°C	Blue Grey, Green
Int Coat	Intergard 475 HS	Epoxy ferromycaceous	200	4.6	100°C	Light Grey
Finishing	Interthane 990	Polyurethane acrilic	60	8.0	100°C	RAL 7035

For product information refer to the attached technical datasheet of Painting Products used.

Mod. P11.1 rev.A

DONELLI ALEXO S.R.L.

TRATTAMENTI E RIVESTIMENTI ANTICORROSIVI
VIA SOMMA, 64 – 20012 CUGGIONO (MI)
TEL. 02/97240792 – FAX 02/9746141
Web site: www.donelli.it - email: alexo@donelli.it

LICENZIATARIA PRODOTTI E TECNOLOGIE SAKAPHEN

COMPANY WITH QUALITY SYSTEM CERTIFIED BY SGS =ISO 9001=

CUSTOMER	
ORDER	
DELIVERY NOTE #	YOUR REF.
OUR DELIVERY NOTE	OUR REF.
INSPECTION SPEC.	

SURFACE PREPARATION	SPECIFIED	RECORDED
STEEL PREPARATION		
DUST LEVEL		
BLASTING		
ABRASIVE TYPE		

BLAST PROFILE

VALUE :	SPEC. VALUE	REC. VALUE	REC. VALUE
KEANE TATOR			
TESTEX REPLICA TAPE			
HOMMEL TESTER P5Z			

HOLIDAY DETECTION
NACE RP 0188

RESULT:	RESULT: //

VISUAL INSPECTION: SATISFACTORY

COATING INSPECTION REPORT N°	INSPECTION DATE:
ACCORDING TO UNI EN 10204 TYPE 3	INSPECTIONED BY:

DONELLI ALEXO SRL	INSPECTOR	CUSTOMER

TYPE OF TREATED SURFACES: INTERNAL EXTERNAL

PAINT'S SUPPLIER:

PROTECTIVE SYSTEM	1° COAT	2° COAT	3° COAT	4° COAT
PAINT'S TYPE				
COLOR				
SPECIFIED D.F.T. FOR COAT MICRON				
TOTAL SPECIFIED D.F.T.	*MICRON*			
TOTAL D.F.T.				

TOTAL D.F.T. AS SSPC-PA 2 AVERAGE – MICRON (MINIMUN > – MAXIMUM <) GAUGE:

OPERATION CONDITIONS

SPEC. VALUE	SURF. PREP.	REC. VALUE	REC. VALUE	REC. VALUE	REC. VALUE
ROOM TEMP.					
R.H.					
DEW POINT					
SUBSTRATE TEMP. +3°C D.P.					
RECORDING DATE					

ADHESION TEST	SPECIFIED VALUE	RECORDED VALUE	
ACCORDING TO ASTM D 3359			
ACCORDING TO DIN 53151			
ACCORDING TO ISO 4624			

Interzinc® 52

Epoxy Zinc-Rich

PRODUCT DESCRIPTION

A two component, metallic zinc rich epoxy primer which complies with the composition and performance requirements of SSPC Paint 20.

INTENDED USES

As a high performance primer to give maximum protection as part of any anti-corrosive coating system for aggressive environments including those found on offshore structures, petrochemical facilities, pulp and paper plants, bridges and power plants.

Interzinc 52 has been designed to provide excellent corrosion resistance in both maintenance and new construction situations.

PRACTICAL INFORMATION FOR INTERZINC 52

Colour	Blue, Grey, Green
Gloss Level	Matt
Volume Solids	59% ± 2%
Typical Thickness	50-75 microns (2-3 mils) dry equivalent to 85-127 microns (3.4-5.1 mils) wet
Theoretical Coverage	7.87 m²/litre at 75 microns d.f.t and stated volume solids 315 sq.ft/US gallon at 3 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush

Drying Time

			Overcoating Interval with recommended topcoats	
Temperature	**Touch Dry**	**Hard Dry**	*Minimum*	*Maximum*
5°C (41°F)	2 hours	10 hours	8 hours	Extended[1]
15°C (59°F)	90 minutes	6 hours	4 hours	Extended[1]
25°C (77°F)	75 minutes	4 hours	3 hours	Extended[1]
40°C (104°F)	45 minutes	2 hours	2 hours	Extended[1]

[1] See International Protective Coatings Definitions and Abbreviations

For curing at low temperatures an alternative curing agent is available. See Product Characteristics for details.

Maximum overcoating intervals are shorter when using polysiloxane topcoats. Consult International Protective Coatings for further details.

REGULATORY DATA

Flash Point (Typical)	Part A 29°C (84°F); Part B 30°C (86°F); Mixed 29°C (84°F)	
Product Weight	2.52 kg/l (21.0 lb/gal)	
VOC	2.80 lb/gal (336 g/lt)	EPA Method 24
	152 g/kg	EU Solvent Emissions Directive (Council Directive 1999/13/EC)
	360 g/lt	Chinese National Standard GB23985

See Product Characteristics section for further details

Interzinc® 52

Epoxy Zinc-Rich

SURFACE PREPARATION

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Oil or grease should be removed in accordance with SSPC-SP1 solvent cleaning.

Abrasive Blast Cleaning

Abrasive blast clean to Sa2½ (ISO 8501-1:2007) or SSPC-SP6. If oxidation has occurred between blasting and application of Interzinc 52, the surface should be reblasted to the specified visual standard.

Surface defects revealed by the blast cleaning process should be ground, filled, or treated in the appropriate manner.

A surface profile of 40-75 microns (1.6-3.0 mils) is recommended.

Shop Primed Steelwork

Interzinc 52 is suitable for application to unweathered steelwork freshly coated with zinc silicate shop primers.

If the zinc shop primer shows extensive or widely scattered breakdown, or excessive zinc corrosion products, overall sweep blasting will be necessary. Other types of shop primer are not suitable for overcoating and will require complete removal by abrasive blast cleaning.

Weld seams and damaged areas should be cleaned to a minimum St3 (ISO 8501-1:2007) or SSPC-SP3. Optimum performance will be achieved with blasting to Sa2½ (ISO 8501-1:2007) or SSPC-SP6; where this is not practical, power tool preparation to SSPC-SP11 is recommended.

APPLICATION

Mixing

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified.

(1) Agitate Base (Part A) with a power agitator.
(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

Mix Ratio

4 part(s) : 1 part(s) by volume

Working Pot Life

5°C (41°F)	15°C (59°F)	25°C (77°F)	40°C (104°F)
24 hours	12 hours	5 hours	2 hours

Airless Spray

Recommended

Tip Range 0.43-0.53 mm (17-21 thou)
Total output fluid pressure at spray tip not less than 176 kg/cm² (2503 p.s.i.)

Air Spray (Pressure Pot)

Recommended

Gun DeVilbiss MBC or JGA
Air Cap 704 or 765
Fluid Tip E

Brush

Suitable - small areas only

Typically 50-75 microns (2.0-3.0 mils) can be achieved

Roller

Not recommended

Thinner

International GTA220 (or International GTA415)

Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.

Cleaner

International GTA822 (or International GTA415)

Work Stoppages

Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.

Clean Up

Clean all equipment immediately after use with International GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with approrpriate regional regulations/legislation.

PRODUCT CHARACTERISTICS

In order to ensure good anti-corrosive performance, it is important to achieve a minimum dry film thickness of Interzinc 52 of 40 microns (1.5 mils). To achieve a uniform, coalesced, closed film at this dry film thickness, it will be necessary to thin Interzinc 52 10% with International thinners. The film thickness of Interzinc 52 applied must be compatible with the blast profile achieved during surface preparation. Low film thickness should not be applied over coarse blast profiles.

Care should be excercised to avoid the application of dry film thicknesses in excess of 150 microns (6 mils). Care should be exercised to avoid over-application, which may result in cohesive film failure with subsequent high builds, and to avoid dry spray which can lead to pinholing of subsequent coats. Over-application will also result in slower curing and extended handling and overcoating times. Over-application of Interzinc 52 will extend both the minimum overcoating periods and handling times, and may be detrimental to long term overcoating properties.

When Interzinc 52 is allowed to weather before topcoating ensure all zinc salts are removed prior to paint application and only topcoat with recommended materials.

Surface temperature must always be a minimum of 3°C (5°F) above dew point.

Interzinc 52 is not normally recommended for underwater use. Please consult International Protective Coatings for details in this situation.

Interzinc 52 is suitable for the localised repair of damaged inorganic zinc primer - consult International Protective Coatings for specific advice.

Low Temperature Curing

An alternative curing agent is available for applications at temperatures less than 5°C (41°F). When using this alternative curing agent it should be noted that the VOC will increase to 384 g/l (EPA Method 24) and the Part B flash point is 24ºC (79ºF).

Interzinc 52 is capable of curing at temperatures below 0°C (32°F). However, this product should not be applied at temperatures below 0°C (32°F) where there is a possibility of ice formation on the substrate.

			Minimum overcoating interval with recommended topcoats		
Temperature	Touch Dry	Hard Dry	*Minimum*	*Maximum*	Pot Life
-5°C (23°F)	3 hours	31 hours	31 hours	Extended*	18 hours
0°C (32°F)	2.5 hours	16 hours	16 hours	Extended*	18 hours
5°C (41°F)	30 minutes	4 hours	4 hours	Extended*	18 hours
15°C (59°F)	20 minutes	3.5 hours	3.5 hours	Extended*	8 hours
25°C (77°F)	15 minutes	3 hours	3 hours	Extended*	2.5 hours

Touch dry times shown above are actual drying times due to chemical cure, rather than physical set due to solidification of the coating film at temperatures below 0°C (32°F)

* See International Protective Coatings Definitions & Abbreviations

For further details regarding cure times and overcoatability, please contact International Protective Coatings.

This product has the following specification approvals:
- Steel Structures Painting Council - SSPC Paint 20

On consultation with International Protective Coatings this product is compatible with alternative application methods such as flow coating.

Note: VOC values are typical and are provided for guidance purpose only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

SYSTEMS COMPATIBILITY

Interzinc 52 is designed for application to correctly prepared steel. However, it is also possible to apply over approved prefabrication primers. Further details of these can be obtained from International Protective Coatings. Recommended topcoats are:

Intercure 200	InterH2O 401
Intercure 420	Interseal 670HS
Interfine 629HS	Interthane 990
Intergard 251	Interzone 1000
Intergard 269	Interzone 505
Intergard 475HS	Interzone 954
Intergard 740	

For other suitable topcoats, consult International Protective Coatings.

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage

Individual copies of these information sections are available upon request.

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Material Safety Data Sheet and the container(s), and should not be used without reference to the Material Safety Data Sheet (MSDS) which International Protective Coatings has provided to its customers.

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

PACK SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	10 litre	8 litre	10 litre	2 litre	2.5 litre
	3 US gal	2.4 US gal	3.5 US gal	0.6 US gal	1 US gal
	For availability of other pack sizes, contact International Protective Coatings.				
SHIPPING WEIGHT (TYPICAL)	Unit Size	Part A		Part B	
	10 litre	24.5 kg		2.1 kg	
	3 US gal	63.3 lb		5.3 lb	
STORAGE	Shelf Life	12 months minimum at 25°C (77°F). Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.			

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

Issue date: 16/05/2017

Copyright © AkzoNobel, 16/05/2017.

All trademarks mentioned in this publication are owned by, or licensed to, the AkzoNobel group of companies.

www.international-pc.com

Intergard® 475HS

International

Epoxy

PRODUCT DESCRIPTION

A low VOC, high solids, high build, two component epoxy coating. Available with conventional pigmentation, or alternatively can be pigmented with micaceous iron oxide to provide enhanced overcoating properties.

INTENDED USES

For use as a high build epoxy coating to improve barrier protection for a range of anti-corrosive coating systems in a wide range of environments including offshore structures, petrochemical plants, pulp and paper mills and bridges.

Suitable for use in both maintenance and new construction situations as part of an anti-corrosive coating system.

The micaceous iron oxide variant improves long term overcoating properties, better facilitating application in the fabrication shop, prior to shipping, with final overcoating on site.

PRACTICAL INFORMATION FOR INTERGARD 475HS

Colour	Light Grey MIO and a selected range of colours
Gloss Level	Matt
Volume Solids	80%
Typical Thickness	100-200 microns (4-8 mils) dry equivalent to 125-250 microns (5-10 mils) wet
Theoretical Coverage	6.40 m²/litre at 125 microns d.f.t and stated volume solids 257 sq.ft/US gallon at 5 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush, Roller

Drying Time

			Overcoating Interval with recommended topcoats	
Temperature	**Touch Dry**	**Hard Dry**	*Minimum*	*Maximum*
-5°C (23°F)	150 minutes	48 hours	48 hours	Extended[1]
5°C (41°F)	90 minutes	16 hours	16 hours	Extended[1]
10°C (50°F)	80 minutes	14 hours	13 hours	Extended[1]
15°C (59°F)	75 minutes	10 hours	10 hours	Extended[1]
25°C (77°F)	60 minutes	5 hours	5 hours	Extended[1]

[1] See International Protective Coatings Definitions and Abbreviations

Maximum overcoating intervals are shorter when using polysiloxane topcoats. Consult International Protective Coatings for further details.

For curing at elevated temperatures an alternative curing agent is available. See Product Characteristics for details.

REGULATORY DATA

Flash Point (Typical)	Part A 34°C (93°F); Part B 31°C (88°F); Mixed 33°C (91°F)	
Product Weight	2.1 kg/l (17.5 lb/gal)	
VOC	1.72 lb/gal (207 g/lt) 92 g/kg	EPA Method 24 EU Solvent Emissions Directive (Council Directive 2010/75/EU)
	159 g/lt	Chinese National Standard GB23985

See Product Characteristics section for further details

SURFACE PREPARATION

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Primed Surfaces

Intergard 475HS should always be applied over a recommended anti-corrosive coating scheme. The primer surface should be dry and free from all contamination and Intergard 475HS must be applied within the overcoating intervals specified (consult the relevant product data sheet).

Areas of breakdown, damage etc., should be prepared to the specified standard (e.g. Sa2½ (ISO 8501-1:2007) or SSPC-SP6, Abrasive Blasting, or SSPC-SP11, Power Tool Cleaning) and patch primed prior to the application of Intergard 475HS.

Metallic Zinc Primed Surfaces

Ensure that the surface of the primer is clean, dry and free from contamination and zinc salts before application of Intergard 475HS. Ensure zinc primers are fully cured before overcoating.

APPLICATION

Mixing

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified.

(1) Agitate Base (Part A) with a power agitator.

(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

Mix Ratio

3 part(s) : 1 part(s) by volume

Working Pot Life

-5°C (23°F)	5°C (41°F)	15°C (59°F)	25°C (77°F)
3 hours	3 hours	2.5 hours	2 hours

Airless Spray

Recommended

Tip Range 0.53-0.63 mm (21-25 thou)
Total output fluid pressure at spray tip not less than 190 kg/cm² (2702 p.s.i.)

Air Spray (Pressure Pot)

Recommended

Gun	DeVilbiss MBC or JGA
Air Cap	704 or 765
Fluid Tip	E

Brush

Suitable

Typically 75 microns (3.0 mils) can be achieved

Roller

Suitable

Typically 75 microns (3.0 mils) can be achieved

Thinner

International GTA007

Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.

Cleaner

International GTA822 (or International GTA415)

Work Stoppages

Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.

Clean Up

Clean all equipment immediately after use with International GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.

Intergard® 475HS

Epoxy

PRODUCT CHARACTERISTICS

Intergard 475HS is primarily designed for use as a high build barrier coat to impart barrier protection to a coating system. It is recommended that it should be overcoated with a durable finish from the Interfine or Interthane range when appearance is important.

Maximum film build in one coat is best attained by airless spray. When applying by methods other than airless spray, the required film build is unlikely to be achieved. Application by air spray may require a multiple cross spray pattern to attain maximum film build. Low or high temperatures may require specific application techniques to achieve maximum film build.

When applying Intergard 475HS by brush or roller, it may be necessary to apply multiple coats to achieve the total specified system dry film thickness.

Surface temperature must always be a minimum of 3°C above dew point. When applying Intergard 475HS in confined spaces ensure adequate ventilation. Exposure to unacceptably low temperatures and/or high humidities during or immediately after application may result in incomplete cure and surface contamination that could jeopardise subsequent intercoat adhesion.

Elevated Temperature Curing

An alternative curing agent is available for applications at temperatures greater than 25°C (77°F).

			Overcoating Interval with recommended topcoats	
Temperature	Touch Dry	Hard Dry	*Minimum*	*Maximum*
25°C (77°F)	90 minutes	6 hours	6 hours	Extended *
40°C (104°F)	60 minutes	2 hours	2 hours	Extended *

* See International Protective Coatings Definitions and Abbreviations

Interchanging standard and elevated temperature curing agents during application to a specific structure will give rise to an observable colour change due to the difference in the yellowing/discolouration process common to all epoxies on exposure to UV light. In common with all epoxies Intergard 475HS will chalk and discolour on exterior exposure. However, these phenomena are not detrimental to anti-corrosive performance.

Intergard 475HS is not designed for continuous water immersion.

The micaceous iron oxide variant of this product is frequently used as a 'travel coat' prior to final overcoating on site. To ensure best extended overcoating properties ensure over-application does not occur and that the surface is fully cleaned of any contamination which may be present in the surface texture due to the coarse nature of the micaceous iron oxide pigmentation.

When applying Intergard 475HS at temperatures less than 15°C (59°F) or wet film thicknesses of 150 microns (6 mils) or less, addition of around 5% International GTA007 thinners will improve film appearance, sprayability and aid film thickness control.

Note: VOC values are typical and are provided for guidance purpose only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

SYSTEMS COMPATIBILITY

Intergard 475HS is designed for use over correctly primed steel. Suitable primers are:

Intercure 200
Intergard 251
Intergard 269
Interzinc 22 * (mist coat or tie coat may be required)
Interzinc 315
Interzinc 52
Interzinc 2280* (mist coat or tie coat may be required)

Suitable topcoats are:

Intergard 740
Interthane 990
Interfine 629HS
Intergard 475HS

For alternative primers and finishes, consult International Protective Coatings.

See relevant product data sheet for details.

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage

Individual copies of these information sections are available upon request.

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Safety Data Sheet and the container(s), and should not be used without reference to the Safety Data Sheet (SDS).

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

PACK SIZE

Unit Size	Part A		Part B	
	Vol	Pack	Vol	Pack
20 litre	15 litre	20 litre	5 litre	5 litre
5 US gal	3 US gal	5 US gal	1 US gal	1 US gal

For availability of other pack sizes, contact International Protective Coatings.

SHIPPING WEIGHT (TYPICAL)

Unit Size	Part A	Part B
20 litre	29.3 kg	9.3 kg
5 US gal	57.1 lb	8.4 lb

STORAGE

Shelf Life	12 months minimum at 25°C (77°F). Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition. Elevated storage temperatures reduce shelf life.

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

Copyright © AkzoNobel, 09/05/2019.

All trademarks mentioned in this publication are owned by, or licensed to, the AkzoNobel group of companies.

www.international-pc.com

Interthane 990

Polyurethane Finish

PRODUCT DESCRIPTION

A two pack, acrylic polyurethane finish giving excellent durability and long term recoatability.

INTENDED USES

As a cosmetic finish on above water areas. Suitable for use on topsides, external superstructure, external decks and boottops.
For use at Newbuilding, Maintenance & Repair or On Board Maintenance.

PRODUCT INFORMATION

Colour	PHB000-White, PHY999-Black ; and a wide range of colours.
Finish/Sheen	High Gloss
Part B (Curing Agent)	PHA046
Volume Solids	57% ±3% (ISO 3233:1998)
Mix Ratio	6.00 volume(s) Part A to 1 volume(s) Part B
Typical Film Thickness	50 microns dry (88 microns wet)
Theoretical Coverage	11.4 m²/litre at 50 microns dft, allow appropriate loss factors
Method of Application	Airless Spray, Brush, Conventional Spray, Roller
Flash Point (Typical)	Part A 34°C; Part B 49°C; Mixed 35°C
Induction Period	Not required

Drying Information	-5°C	5°C	25°C	35°C
Touch Dry [ISO 9117/3:2010]	8 hrs	5 hrs	1.5 hrs	60 mins
Hard Dry [ISO 9117-1:2009]	60 hrs	24 hrs	6 hrs	4 hrs
Pot Life	26 hrs	12 hrs	2 hrs	60 mins

Overcoating Data - see limitations

	Substrate Temperature							
	-5°C		5°C		25°C		35°C	
Overcoated By	Min	Max	Min	Max	Min	Max	Min	Max
Interthane 990	60 hrs	ext	24 hrs	ext	6 hrs	ext	4 hrs	ext

Note Drying and overcoating times quoted are measured at 50 microns dry, at higher film thickness times will be increased.

REGULATORY DATA

VOC

420 g/lt as supplied (EPA Method 24)
341 g/kg of liquid paint as supplied. EU Solvent Emissions Directive (Council Directive 1999/13/EC)
379 g/lt Chinese National Standard GB23985

Note: VOC values are typical and are provided for guidance purposes only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Fire Resistance - Surface Spread of Flame (Exova Warringtonfire)
- Fire Resistance - Smoke & Toxicity (Exova Warringtonfire)
- NORSOK M-501, Rev 4, system no.1 (NITN)
- Fire Resistance - Marine Equipment Directive compliant

Consult your International Paint representative for details.

SYSTEMS AND COMPATIBILITY

Interthane 990 must be applied over a recommended primer system, which will vary depending upon the vessel area. Direct application is acceptable over the following marine anticorrosives:

Intergard 264 (USA)
Intergard 400
Intergard 5600
Intergard 5620
Intergard 7600
Intershield 300
Intershield 803

A tiecoat of Intergard 263, Intergard 267 or Intergard 269 may be required if Interthane 990 is to be applied over other epoxy primers and may also be used to extend the maximum overcoating interval when Interthane 990 is to be applied over those primers listed above.

Interprime 198 may also be used as a primer for Interthane 990.

Consult your International Paint representative for the system best suited for the surfaces to be protected.

SURFACE PREPARATIONS

Use in accordance with the standard Worldwide Marine Specifications.
All surfaces to be coated should be clean, dry and free from contamination.
High pressure fresh water wash or fresh water wash, as appropriate, and remove all oil or grease, soluble contaminants and other foreign matter in accordance with SSPC-SP1 solvent cleaning.

NEWBUILDING/MAJOR REFURBISHMENT
Interthane 990 should always be applied over a recommended primer coating scheme. The primer surface should be dry and free from all contamination, and Interthane 990 must be applied within the overcoating intervals specified (consult the relevant product data sheet). For boottop areas the overcoating intervals for primers are reduced. Consult International Paint.
Areas of breakdown, damage etc. should be prepared to the specified standard (eg. Sa2½ (ISO 8501-1:2007)) and primed prior to the application of Interthane 990.

REPAIR/OBM
Interthane 990 should always be applied over a recommended primer coating scheme. The primer surface should be dry and free from all contamination, and Interthane 990 must be applied within the overcoating intervals specified (consult the relevant product data sheet). For boottop areas the overcoating intervals for primers are reduced. Consult International Paint.
Areas of breakdown, damage etc. should be prepared to the specified standard (eg. Sa2½ (ISO 8501-1:2007)) and primed prior to the application of Interthane 990.
Interthane 990 may be applied directly over aged Interthane 990 following thorough fresh water washing and degreasing provided the coating to be overcoated is in an intact and tightly adherent condition. Loose or flaking coatings should be removed back to a firm edge and Interthane 990 or an appropriate primer should be used to repair the area before application of the full coat.
This product may be applied directly over most generic types of paint that have been aged for at least 3 months. It is advisable that a small trial be carried out before applying a full coat.

Consult your International Paint representative for specific recommendations.

NOTE
For use in Marine situations in North America, the following surface preparation standards can be used: SSPC-SP10 in place of Sa2½ (ISO 8501-1:2007)

Interthane 990

Polyurethane Finish

APPLICATION

Mixing	Material is supplied in 2 containers as a unit. Always mix a complete unit in the proportions supplied. (1) Agitate Base (Part A) with a power agitator. (2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.
Thinner	Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.
Airless Spray	Recommended Tip Range 0.33-0.45 mm (13-18 thou) Total output fluid pressure at spray tip not less than 155 kg/cm² (2200 p.s.i.)
Conventional Spray	Use suitable proprietary equipment. Thinning may be required.
Brush	Suitable.
Roller	Suitable.
Cleaner	International GTA056/GTA713/GTA733
Work Stoppages and Cleanup	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA056/GTA713/GTA733. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units. Clean all equipment immediately after use with International GTA056/GTA713/GTA733. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. Do not exceed pot life limitations. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.
Welding	In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation. In North America do so in accordance with instruction in ANSI/ASC Z49.1 "Safety in Welding and Cutting."

SAFETY

All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety & Environmental standards and regulations.

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read and follow all precautionary notices on the Material Safety Data Sheet and container labels. If you do not fully understand these warnings and instructions or if you can not strictly comply with them, do not use this product. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapour concentrations within safe limits and to protect against toxic or oxygen deficient hazards. Take precautions to avoid skin and eye contact (ie. gloves, goggles, face masks, barrier creams etc.) Actual safety measures are dependant on application methods and work environment.
EMERGENCY CONTACT NUMBERS:
USA/Canada - Medical Advisory Number 1-800-854-6813
Europe - Contact (44) 191 4696111. For advice to Doctors & Hospitals only contact (44) 207 6359191
China – Contact (86) 532 83889090
R.O.W. - Contact Regional Office

Warning: Contains isocyanate. Wear air-fed hood for spray application.

Interthane 990

Polyurethane Finish

LIMITATIONS

This product is not recommended for use in permanantly immersed conditions.
Interthane 990 may be used on boottop areas at reduced overcoating intervals over appropriate primers. Consult International Paint.
For brush and roller application, and in some colours, two coats of Interthane 990 may be required to give uniform coverage, especially when applying Interthane 990 over dark undercoats and when using certain lead-free bright finish colours such as yellows and oranges. Best practice is to use a colour compatible intermediate or anticorrosive coating under Interthane 990.
Interthane 990 may be applied at substrate temperatures down to -15°C. Before applications are made below -5°C consult your local IP representative for further detail of application procedure.
Low temperature, high relative humidity and condensation occurring during or immediately after application may result in a matt finish and an inferior film. Premature exposure to ponding water will cause colour change, especially in dark colours and at low temperatures.
Overcoating information is given for guidance only and is subject to regional variation depending upon local climate and environmental conditions. Consult your local International Paint representative for specific recommendations.
Apply in good weather. Temperature of the surface to be coated must be at least 3°C above the dew point. For optimum application properties bring the material to 21-27°C, unless specifically instructed otherwise, prior to mixing and application. Unmixed material (in closed containers) should be maintained in protected storage in accordance with information given in the STORAGE Section of this data sheet. Technical and application data herein is for the purpose of establishing a general guideline of the coating application procedures. Test performance results were obtained in a controlled laboratory environment and International Paint makes no claim that the exhibited published test results, or any other tests, accurately represent results found in all field environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection, verification of performance and use of the coating.
In the overcoating data section 'ext' = extended overcoating period. Please refer to our Marine Painting Guide - Definitions and Abbreviations available on our website.

UNIT SIZE

Unit Size	Part A		Part B	
	Vol	Pack	Vol	Pack
20 lt	17.14 lt	20 lt	2.86 lt	5 lt
5 US gal	5 US gal	5 US gal	1 US gal	1 US gal
1 US gal	1 US gal	1 US gal	1 US quart	1 US quart

Note : US containers are short filled
For availability of other unit sizes consult International Paint

UNIT SHIPPING WEIGHT (TYPICAL)

Unit Size	Unit Weight
1 US gal	13.7 lb
20 lt	26.59 Kg
5 US gal	54.7 lb

STORAGE

Shelf Life: Part A - 24 months minimum at 25°C.
Part B - 12 months minimum at 25°C
Subject to reinspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

WORLDWIDE AVAILABILITY Consult International Paint.

IMPORTANT NOTE

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

All trademarks mentioned in this publication are owned by, or licensed to, the AkzoNobel group of companies.

© AkzoNobel, 2016

www.international-marine.com