

Recognised TBT-Free Anti-Fouling Paint

Manufacturer **Universal for Building Materials and Chemicals Co.**

Address 104 Thawrah Str., Heliopolis,, Cairo, Egypt

Place of Production **Universal for Building Materials and Chemicals Co.**

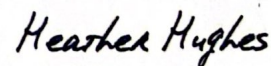
Address 10th Ramadan, A'l, Cairo, Egypt

Product **Transocean Optima 235**

Product Colours Redbrown
Pink
Black
Blue
Green
Grey

This certificate is issued to the manufacturer named above. The anti-fouling paint is recognised to be compliant with the IMO International Convention on the Control of Harmful Anti-fouling Systems on Ships adopted in October 2001. This recognition does not cover other properties, such as anti-fouling performance, service life, safety or toxicity etc.

The recognition is subject to Lloyd's Register being informed of any changes in and modifications to the product's formulation or specification. Lloyd's Register reserves right to withdraw or re-issue this certificate upon any future amendments of the IMO Convention.



Heather Hughes

Team Leader - Non-Metallics to Lloyd's
Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United
Kingdom

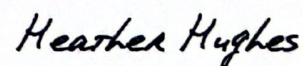
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Recognised TBT-Free Anti-Fouling Paint

Manufacturer	Universal for Building Materials and Chemicals Co.
Address	104 Thawrah Str., Heliopolis,, Cairo, Egypt
Place of Production	Universal for Building Materials and Chemicals Co.
Address	10th Ramadan, A'l, Cairo, Egypt
Product	Transocean Optima 236
Product Colours	Redbrown Pink Black Blue Green Grey

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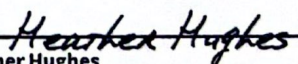
Recognised TBT-Free Anti-Fouling Paint

Manufacturer	Universal for Building Materials and Chemicals Co.
Address	104 Thawrah Str., Heliopolis,, Cairo, Egypt
Place of Production	Universal for Building Materials and Chemicals Co.
Address	10th Ramadan, A'l, Cairo, Egypt
Product	Transocean Cleanship 2.97
Product Colours	Redbrown Pink Black Blue Green Grey

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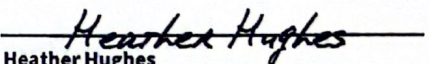
Recognised TBT-Free Anti-Fouling Paint

Manufacturer	Universal for Building Materials and Chemicals Co.
Address	104 Thawrah Str., Heliopolis,, Cairo, Egypt
Place of Production	Universal for Building Materials and Chemicals Co.
Address	10th Ramadan, A'l, Cairo, Egypt
Product	Transocean Cleanship 2.95
Product Colours	Red Pink Black Blue Green Grey

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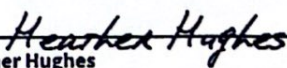
Recognised TBT-Free Anti-Fouling Paint

Manufacturer	Universal for Building Materials and Chemicals Co.
Address	104 Thawrah Str., Heliopolis,, Cairo, Egypt
Place of Production	Universal for Building Materials and Chemicals Co.
Address	10th Ramadan, A'l, Cairo, Egypt
Product	Transocean Cleanship 2.91
Product Colours	Redbrown Pink Black Blue Green Grey

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EC-TYPE EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Surface materials and floor coverings with low flame-spread characteristics: paint systems

with type designation(s)
Transvinyl Primer and Transacryl Finish

Issued to

Transocean Coatings B.V.
Rotterdam,

is found to comply with the requirements in the following Regulations/Standards:

Annex A.1, item No. A.1/3.18b and Annex B, Module B in the Directive. SOLAS 74, Reg. II-2/3, II-2/5, II-2/6, II-2/9 & X/3, IMO MSC/Circ. 1120, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2016-01-15
for DNV GL AS



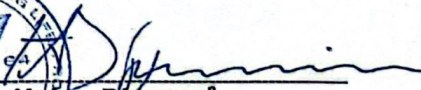
This Certificate is valid until
2021-01-14


Vidar Dolonen

Notified Body No.: **0575**

DNV GL local office:
Barendrecht




Helge Bjørnara
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Product description

"Transvinyl Primer and Transacryl Finish"

Consisting of 75 µm (105 g/m²) Transvinyl Primer and 50 µm (60 g/m²) Transacryl Finish applied on a steel plate.

Application/Limitation

Approved for use as low flame spread material, not generating excessive quantities of neither smoke nor toxic products in fire. Approved for use throughout the accommodation.

Approved for use as paint systems on a metallic substrate with thickness of at least 2.25 mm.

Transvinyl Primer:

Approved colour: Black, Grey, Red
Maximum organic content (dry film): 50 wt%

Transacryl Finish:

Approved colour: Transocean Colourshades
Maximum organic content (dry film): 61 wt%

The product satisfies the requirement for maximum calorific value (ref. SOLAS Chapter II-2, Reg. 5.3.2.2) without further testing.

Each product is to be supplied with its manual for application and maintenance.

Type Examination documentation

Test report No. 14535B dated 5 July 2010, from Warringtonfiregent, Gent, Belgium.

Tests carried out

Tested according to IMO FTP Code part 5 and Annex 2 item 2.2 and in compliance with IMO 2010 FTP Code Ch.8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire-technical rating, the Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB000000GF

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Surface materials and floor coverings with low flame-spread characteristics: paint systems

with type designation(s)
Transvinypox HS

Issued to

Transocean Coatings B.V.
Rotterdam,

is found to comply with the requirements in the following Regulations/Standards:

Annex A.1, Item No. A.1/3.18b and Annex B, Module B in the Directive. SOLAS 74, Reg. II-2/3, II-2/5, II-2/6, II-2/9 & X/3, IMO MSC/Circ. 1120, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

Høvik, 2016-01-15
for DNV GL AS


Vidar Dolonen



Notified Body No.: **0575**

DNV GL local office:
Barendrecht

This Certificate is valid until
2021-01-14




Helge Bjørnara
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: 344.1-002934-2

Certificate No: MEDB000000GF

Product description

"Transvinypox HS"

Consisting of 150 µm (210 g/m²) Transvinypox HS applied on a steel plate.

Application/Limitation

Approved for use as low flame spread material, not generating excessive quantities of neither smoke nor toxic products in fire. Approved for use throughout the accommodation.

Approved for use as paint systems on a metallic substrate with thickness of at least 2.25 mm.

Transvinypox HS:

Approved colour: Grey

Maximum organic content (dry film): 48 wt%

The product satisfies the requirement for maximum calorific value (ref. SOLAS Chapter II-2, Reg. 5.3.2.2) without further testing.

Each product is to be supplied with its manual for application and maintenance.

Type Examination documentation

Test report No. 14535H dated 6 July 2010, from Warringtonfiregent, Gent, Belgium.

Tests carried out

Tested according to IMO FTP Code part 5 and Annex 2 item 2.2 and in compliance with IMO 2010 FTP Code Ch.8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire-technical rating, the Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



TEST REPORT

REPORT NO. : 2016CE1153	PAGE : 1 OF 6
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Applicant/ Manufacturer : KOSSAN PAINT (M) SDN. BHD.
1, Jalan Korporat 1/KU9,
Taman Perindustrian Meru,
42200 Kapar,
Selangor Darul Ehsan, Malaysia.

Product : Protective Coating System 5A(1)
1st COAT : Inorganic Zinc Silicate
– TRANSOZINC SILICATE 1.52 : 75 µm
2nd COAT : Modified Silicone Acrylic
– TRANSOSIL ALUMINIUM 5.12 : 30 µm
3rd COAT : Modified Silicone Acrylic
– TRANSOSIL ALUMINIUM 5.12 : 30 µm

Reference standard / Method of test : Please refer to the next pages.

Description of sample : Received one (1) set of test panels' sample of **PROTECTIVE COATING SYSTEM 5A(1)** for testing. The details were described in the next pages.

Date received of complete application : 4 August 2016

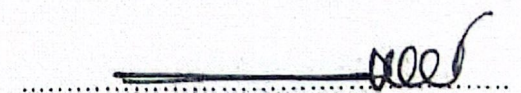
Job no. : J20161400972

Overall test result : The test results for the submitted test samples as described in this test report are described in next pages.

Issued date : 4 October 2016

Approved Signatory


(ABDUL AZIZ HARON)
Senior Testing Executive


(HAHNAS MAHBUT)
Head,
Chemical & Consumer Section (CEST),
Testing Services Department.

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This test report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Managing Director, SIRIM QAS International Sdn. Bhd. Please refer overleaf of Page 1 for Conditions Relating To The Use of Test Report

Product : Protective Coating System 5A(1)

Brand : KOSSAN TRANSOCEAN

Substrate : Carbon Steel

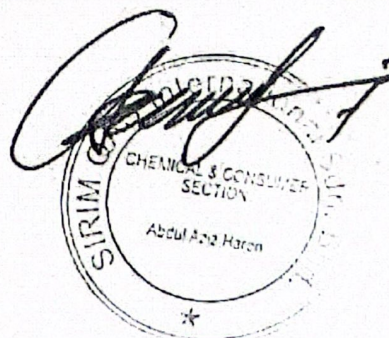
Surface Preparation : Blast Clean, Sa 2.5 (*Done by applicant*)

Paint Application : Done by applicant and witnessed by SIRIM QAS International Sdn. Bhd. on 19th to 22nd July 2016.

Coating System	Coating Layer	1 st Coat	2 nd Coat	3 rd Coat
	Generic Name	Inorganic Zinc Silicate	Modified Silicone Acrylic	Modified Silicone Acrylic
	Product	TRANSOZINC SILICATE 1.52	TRANSOSIL ALUMINIUM 5.12	TRANSOSIL ALUMINIUM 5.12
	Batch No. (Base)	W160608-8	W160416-13	W160416-13
	Batch No. (Cure)	W160608-9	-	-
	Dry Film Thickness	75 µm	30 µm	30 µm

Test Panel	Test Method	Size, mm	No. of Panel, pieces
	ASTM D3359	300 x 300 x 5	3
	ASTM D2485	150 x 75 x 2	3

No.	Reference Standard
1.	PTS 30.48.00.31-P (2012) - Petronas Technical Standards
2.	ASTM D3359-09e2 Standard Test Methods for Measuring Adhesion by Tape Test (X-Cut Tape Test)
3.	ASTM D2485-91 (2013) Standard Test Methods for Evaluating Coatings for High Temperature Service – Test Method B



REPORT NO. : 2016CE1153	PAGE : 3 OF 6
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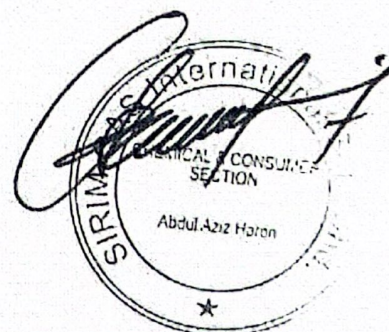
Test Results

Product : Protective Coating System 5A(1)
Brand : KOSSAN TRANSOCEAN

1) Test Method : ASTM D3359-09^{e2} Standard Test Methods for Measuring Adhesion by Tape Test (X-Cut Tape Test)

Acceptance Criteria Petronas Technical Standards PTS 30.48.00.31-P		3A – Jagged removal along incisions up to 1.6mm on either side.
No.	Sample Marking	Results
1.	1	4A – Trace peeling or removal along incision or at their intersection
2.	2	4A – Trace peeling or removal along incision or at their intersection
3.	3	4A – Trace peeling or removal along incision or at their intersection

Notes: 'X' Cut Scale 5A 4A 3A 2A 1A 0A
 Best Worst



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Test Results

Product : Protective Coating System 5A(1)
Brand : KOSSAN TRANSOCEAN

2) Test Method : ASTM D2485-91(2013) Standard Test Methods for Evaluating Coatings For High Temperature Service

Test condition:

(i) Two (2) panels were exposed to the following temperature :

Equipment Used : FURNACE
Brand : VECSTAR
Serial No. : LK 7198

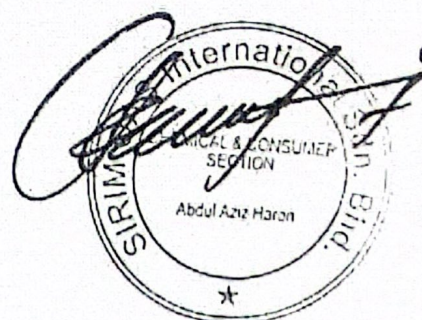
Date	Temperature, °C	Duration, Hours	Time
21/08/16	110	8	0900Hours to 1700Hours
21/08/16 to 22/08/16	150	16	1700Hours to 0900Hours
22/08/16	200	8	0900Hours to 1700Hours
22/08/16 to 23/08/16	250	16	1700Hours to 0900Hours

(ii) Then, one test panel was subjected to salt spray test.

Test condition:

Date : 24/08/16 to 25/08/16
Time : 0830HRS to 0830HRS
Duration of exposure : 24 hours
Temperature exposure zone : 35°C
Salt solution used : 5% of NaCl
pH of collected solution : 6.8
Volume of salt collected in ml/h/80 cm² : 1.8 ml/hr

No.	Type of Tests	Results
1.	Evaluation after Heat Resistance Test	There is no coating defect such as rust, blister and loss of adhesion.
2.	Evaluation after Salt Spray Test	There is no coating defect such as rust, blister and loss of adhesion.



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3) Summary of Test Results

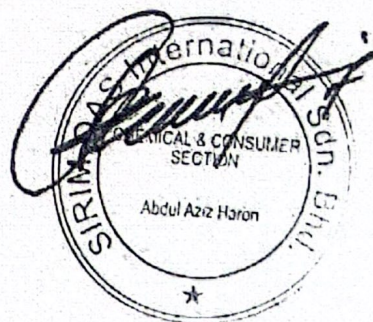
Product : Protective Coating System 5A(1)

Coating Layer : 1st COAT : Inorganic Zinc Silicate
– TRANSOZINC SILICATE 1.52 : 75 µm
2nd COAT : Modified Silicone Acrylic
– TRANSOSIL ALUMINIUM 5.12 : 30 µm
3rd COAT : Modified Silicone Acrylic
– TRANSOSIL ALUMINIUM 5.12 : 30 µm

No.	Type of Test	Acceptance Criteria PTS 30.48.00.31-P (2012)	Results	Remark
1.	ASTM D3359 Adhesion	3A (minimum)	4A	Pass
2.	ASTM D2485 Heat Resistance	Without coating defect such as rust, blister & loss of adhesion	There is no coating defect such as rust, blister and loss of adhesion.	Pass

4) Conclusion

The Protective Coating System 5A(1) of the above mentioned products and the dry film thickness meets the Acceptance Criteria of PTS 30.48.00.31-P (2012).





**Coating Certification & Testing
Professionals BV**

Huygensstraat 3
2652 XK Berkel en Rodenrijs
The Netherlands

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lab@cct-pro.com
www.cct-pro.com

Chamber of commerce
71223584

Bankers
ING Bank NV

IBAN
NL15INGB 0008411784

Report number: 20200304AD2

**Client: Universal for Building Materials and Chemicals
Co. (Sipes).**

Report date: 03-04-2020

Scope:

**System testing of Transpoxy Masterbond 466, Transpoxy
Masterbond N and Transothane Finish 363 subject to corrosive
category C5-H according to ISO 12944 – 6:2018.**



**Coating Certification & Testing
Professionals BV**

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The Netherlands

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www.cct-pro.com

Chamber of commerce
71223584

Bankers
ING Bank NV

IBAN
NL15INGB 0008411784

Report number: 20201702AD3

**Client: Universal for Building Materials and Chemicals
Co. (Sipes).**

Report date: 17-02-2020

Scope:

**System testing of Transpoxy Uniprimer, Transpoxy Masterbond N
and Transothane Finish 363 subject to corrosive category C4-H, C5-M
according to ISO 12944 – 6:2018.**

Type Approval Certificate



This is to certify, that the coating system:

Hiermit wird bescheinigt, dass das Beschichtungssystem:

Transothane Finish 365 on Transpoxy UniPrimer 171

Type of coating: Two pack epoxy primer

Produkttyp:

Acrylic Polyurethane coating

Data Sheet No.: Transpoxy UniPrimer 171 from March 07

Datenblatt-Nr.:

Transothane Finish 365 from March 07

by Messrs.: Pars Pamchal Chemical Co.

der Firma:

Tehran

Iran

has been subject to an approval procedure by Germanischer Lloyd and found to be in compliance with our Rules for Classification and Construction VI-Part 9, Chapter 6, "Guideline for Corrosion Protection and Coating Systems", Section 4, C. 4. The scope of approval for a. m. product is stipulated as follows:

einer Zulassungsprüfung durch den Germanischen Lloyd unterzogen wurde, welche eine Übereinstimmung mit den entsprechenden Klassifikations- und Bauvorschriften VI-Teil 9, Kapitel 6, "Richtlinien für Korrosionsschutz und Beschichtungssysteme", Abschnitt 4, C. 4. Der Anwendungsbereich des oben genannten Produktes ist wie folgt festgelegt.

Area of use:

Anwendungsbereich:

Exterior sections of containers

Surface Preparation:

Oberflächenvorbereitung:

ISO 8501-1 Sa 2½

Recommended coating system:

Empfohlenes Beschichtungssystem:

1 x 60 - 80 µm DFT of Transpoxy Uniprimer 171

1 x 50 - 60 µm DFT of Transothane Finish 365

Remarks: The pertinent data sheet of the manufacturer is to be taken into consideration. Safety, pollution and contamination aspects, fire resistance, and toxicity are not considered within this approval. It is the responsibility of the manufacturer and the application company to ensure that all these risks are minimised and that the statutory requirements are being fulfilled. Flag state requirements are to be observed for each application.

Bemerkungen:

Certificate of Approval No.: GL-CC 1002 HH 1

Bescheinigungs-Nr.:

This Certificate is valid until: 30.10.2013

Bescheinigungs-Nr.:

Date and location of issue: 20.04.2011

Datum und Ort der Ausgabe:

Germanischer Lloyd

Stefan Röhr

Christian Wildhagen

EC-TYPE EXAMINATION CERTIFICATE

Certificate No:
MEDB00000GD

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Surface materials and floor coverings with low flame-spread characteristics: paint systems

with type designation(s)
Transpoxy Masterbond and Transurethane Finish

Issued to
Transocean Coatings B.V.
Rotterdam,

is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/3.18b and Annex B, Module B in the Directive. SOLAS 74, Reg. II-2/3, II-2/5, II-2/6, II-2/9 & X/3, IMO MSC/Circ. 1120, 2000 HSC Code 7 and IMO 2010 FTP Code

Further details of the equipment and conditions for certification are given overleaf.

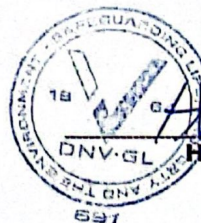
Høvik, 2016-01-15
for DNV GL AS



This Certificate is valid until
2021-01-14

Notified Body No.: **0575**

DNV GL local office:
Barendrecht



Helge Bjørnara
Surveyor

Vidar Dolonen



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.

Job Id: 344.1-002934-2
Certificate No: MEDB00000GD

Product description

"Transpoxy Masterbond and Transurethane Finish"

Consisting of two layers of 100 µm (140 g/m²) Transpoxy Masterbond and 60 µm (81 g/m²) Transurethane Finish applied on a steel plate.

Application/Limitation

Approved for use as low flame spread material, not generating excessive quantities of neither smoke nor toxic products in fire. Approved for use throughout the accommodation.

Approved for use as paint systems on a metallic substrate with thickness of at least 2.25 mm.

Transpoxy Masterbond:

Approved colour: Grey, Redbrown
Maximum organic content (dry film): 51 wt%

Transurethane Finish:

Approved colour: Transocean Colourshades
Maximum organic content (dry film): 63 wt%

The product satisfies the requirement for maximum calorific value (ref. SOLAS Chapter II-2, Reg. 5.3.2.2) without further testing.

Each product is to be supplied with its manual for application and maintenance.

Type Examination documentation

Test report No. 14535F dated 6 July 2010, from Warringtonfiregent, Gent, Belgium.

Tests carried out

Tested according to IMO FTP Code part 5 and Annex 2 item 2.2 and in compliance with IMO 2010 FTP Code Ch.8.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation, fire-technical rating, the Mark of Conformity and USCG approval if applicable (see below).

Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

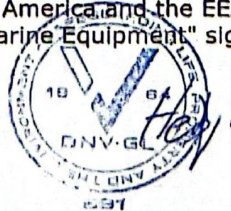
Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.

USCG Approval

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.



Technical Report Test of Transpoxy Masterbond BT 4.68 System For Transocean Coatings Co.-Sipes

Received Sample : 7/02/2022

Product Name : Transpoxy Masterbond BT 468

Package : cans 1kg.

Sample color : Gray.

1- Paint application:

The test of sample was carried out by application Transpoxy Masterbond BT Code 468 on mechanical cleaning steel specimens (8 Specimens) with thickness DFT 250 μ m. The tests of dry coating samples are carried out according to standard El 1541, section 2.2.

2- Procedure

2.1 Test Fluids

The test panels have been immersed in three test fluids, which are recorded in the following table 1:

Table 1: Test Fluids

Fluid Test	Description
A	70/30 (v/v) iso - octane/ toluene mixture
B	Jet fuel ASTMD 1655
C	Synthetic seawater ASTM D 1141

For the tests, two containers were filled by test fluid A, two with test fluid B and one with fluid C.

2.2 Tests

The testes are carried out according to El 1541, and the tests are recorded in table 2:



Table 2: Tests Procedures

Tests	Standard
Existent Gum of test fluid A&B before and after immersion in test fluids A and B	ASTM D 831 IP 540
Jet Fuel Total Oxidation Test at breakpoint (oxidative thermal stability) - 5°C of test fluid B before and after immersion	ASTM D 3241 IP 323
Measuring the electrical conductivity of test fluid B before and after immersion sample	ASTM D 2624 IP 274
Visual inspection samples against the reference after immersion in fluid C	ISO 12944
Corrosiveness to copper of test fluid B after immersion in test fluid B	ASTM D 130 IP 154

Completely immersion of one test sample in each of the five containers of test fluid has been performed at room temperature for a period 30 days.

The parameter of the fluid as presented in table 2 have been measured in each of the two containers with fluid A & B After immersion. While the specimen in fluid C have been inspected visually.

Prior to exposure to the test specimen the jet fuel total test for the aviation fuel (fluid B) was tested at 5C° increments to establish the breakpoint of the fuel, 275C°. the test fluids after exposure were then tested at 270C°.

3- Results and Requirements

The net results were recorded the following tables 3, 4 &5 as following:

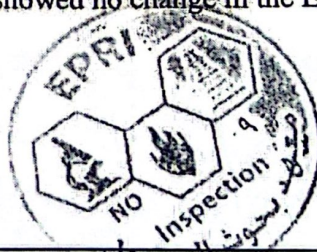
3.1 Test fluid A

Table 3. Results of test fluid A (Existing Gum measurements)

Test Sample	Existing Gum			Requirements After exposure	Y/N
Fluid A	Before exposure	After exposure			
		Specimen 1	Specimen 3		
		<1	<1	<1	Within repeatability* before exposure (Y.N)

* Repeatability = 2 (range < 1 to 2)

The test fluid A control sample after 30 days showed no change in the Existing Gum results



3.2 Test fluid B

Table 4. test results after immersion in test fluid B

Test	Before Exposure	After Exposure			Requirement after exposure	Y/N
		Specimen 2	Specimen 4	Control Specimen		
Existent Gum	2	2	1	2	Within reputability* before exposure (Y.N)	Y
Jet Fuel Total Oxidation	1	1	1	1	< 3 & no A or P **	Y
Test breakpoint: VTR(Visual Tube Rating) pressure drop (mm Hg)	<1	0	<1	<1	<25	Y
Conductivity at 21 °C (Ps/m)	8	7	8	6	Within reputability**** before exposure (Y.N)	Y
Copper corrosion	1a	1a	1a	1a	Meet DEF STAN 91-1	Y

* Repeatability = 2 (range < 1 to 2)

**for the test El 1541 (DEF STAN 91-91) Jet Fuel Total Oxidation Test must have a VTR < 3 with no abnormal (A) or Peacock colour (P) deposits on the test tube and a pressure drop <25

*** Reputability = 10 (range 0 to 19)

3.3 Test fluid C

Table 5: Assessment of DFT surface and Visual inspection after immersion test of specimen in sea water: -

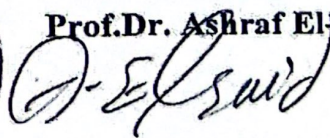
Specimen 6	Requirement after immersion	Y/N
immersion in seawater	Appears essentially as control sample	Y

4 Conclusion

The net results as above in tables were investigated that the Paint System of Masterbond BT Code 4.68 (DFT 250 µ) applied on steel surfaces are matched with El 1451, SECTION 2.2 and approved.



SPC Director
Prof. Dr. Ashraf El-Saied





TYPE APPROVAL CERTIFICATE

Certificate No:
TAK00000GA
Revision No:
1

This is to certify:

That the Protective Coating Systems - Seawater Ballast Tanks

with type designation(s)
Transpoxy Barrier 218

Issued to

The Transocean Marine Paint Association
Berkel en Rodenrijs, Netherlands

is found to comply with

DNV GL class programme DNVGL-CP-0108 – Type approval – Protective coating systems for seawater ballast tanks and double-side skin spaces
IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC)
IACS Unified Interpretations SC223. For Application of SOLAS Regulation II-1/3-2 Performance Standard for Protective Coatings (PSPC) for Dedicated Seawater Ballast Tanks in All Types of Ships and Double-side Skin Spaces of Bulk Carriers.

Application :

For use in ballast tanks, double-skin spaces, cofferdams and similar areas. Surface preparation and coating application as per PSPC or manufacturer's recommendations, whichever is stricter.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at Hamburg on 2021-10-04

This Certificate is valid until 2026-09-29.

DNV local station: **Netherlands CMC**

Approval Engineer: **Enno Brück**



for DNV

Digitally Signed By: Wildhagen, Christian
Location: DNV GL Hamburg, Germany
Signing Date: 05.10.2021, on behalf of

Thorsten Lohmann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 2



Job Id: 262.1-021684-2
Certificate No: TAK00000GA
Revision No: 1

Product description

Transpoxy Barrier 218; high solids epoxy coating

Responsibility

The holder of Certificate takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate

Application/Limitation

This approval is solely connected to the corrosion prevention properties of the coating material. The approval does not include any evaluation of toxicity, contamination, pollution, or fire technical properties.

Transpoxy Barrier 218 is approved for application on blast cleaned surfaces and on shop primed surfaces. The following shop primers are prequalified:

- | | |
|---------------------|----------------------------|
| - Transoweld Primer | [Transocean Coatings B.V.] |
| - SigmaWeld 199 | [PPG/Sigma Coatings] |

Surface preparation and coating application as per PSPC or manufacturer's recommendations, whichever is stricter.

The durability of the applied coating system will depend on the steel surface preparation, coating application and the environmental conditions.

The Type Approval Certificate is invalid if the formulation of the epoxy coating **Transpoxy Barrier 218** are changed to a degree deemed significant by DNV. If the formulation of any of the listed pre-qualified shop primers is changed to a degree deemed significant by DNV that shop primer cannot be used as part of the Protective Coating System.

Tests carried out

Type Testing carried out in accordance with DNV GL CP-0108. The tests are in accordance with procedures in IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC 223;

- Test Report from GL, Report No. 912132HH of 2010-02-02
- Test Report from COT bv, Report No. LAB11-0958-REP of 2011-11-28

Marking of product

Product/package shall be marked with *manufacturer's name and address*; **Transocean Coatings B.V., Netherlands**, *type designation*; **Transpoxy Barrier 218**, and *date of production/batch number*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment (Certificate Retention) and renewal after 5 years (Certificate Renewal) shall be performed acc. DNV GL CP-0338.

END OF CERTIFICATE



Certificate of Registration

(Quality Management System)

QFS MANAGEMENT SYSTEMS LLP

This is to Certify that the Quality Management System of

TRANS OCEAN MARINE

58 EL BAHARIA ST.- EL GOMROK- ALEXANDRIA- EGYPT

Has been found to be of the Quality Management System Standard

ISO 9001:2015

This certificate is valid for the following product or service range

SUPPLY OF MARINE AND INDUSTRIAL PAINTS.

IAF Code: 29

Certificate Number: SCC/INT/2507TS/14229

Surv. Audit on or Before: **14.06.2026**

Initial Date of Certification: **15.07.2025**

Re-certification Due on: **14.07.2028**

Date of Certificate: **15.07.2025**

Date of Expiry: **14.07.2026**

Director:

Date: **15.07.2025**



The validity of certificate is subject to regular surveillance audit on or before above mentioned dates and its only valid after successful surveillance with continuation letter issued by QFS. It is issued subject to the continued availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFS terms and conditions.

QFS MANAGEMENT SYSTEMS LLP

A-27/A, Sector-16, Noida-201301, U.P.

www.qfscerts.com

email: admin@qfscerts.com

Accredited by Standards Council of Canada