Certificate No:
TAK000027C

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fire Protective System for Plastic Pipes

with type designation(s)
Chartek Fire Protective System for GRE Pipes

Issued to
International Paint Limited
Gateshead, Tyne and Wear, **United Kingdom**

is found to comply with
DNV class programme DNV-CP-0070 – Type approval – Fibre reinforced thermosetting plastic piping systems
IMO Resolution A.753(18). Guidelines for the Application of Plastic Pipes on Ships

Application :

For use as fire protective system, for IMO Res. A.753(18) Fire Endurance Level 1 compliance, intended for fibre reinforced plastic piping systems on offshore units.

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

Issued at **Hamburg** on **2023-03-06**
This Certificate is valid until **2028-03-05**.
DNV local unit: **UK & Ireland CMC & VMC**

Approval Engineer: **Gisle Hersvik**

for **DNV**

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.

Product description

Chartek Fire Protective System for GRE Pipes
where **Chartek 7** is forming part of the fire protective systems

Generic lay-up:
(1) Plastic pipe
(2) Primer, optional
(3) PIR Foam
(4) FibaRoll – GRP Laminate System
(5) Primer, optional
(6) Chartek 7, 2 coats
(7) HK-1(M) Mesh
(8) Topcoat

Manufactured by

The Chartek 7 is manufactured at the following locations:

Akzo Nobel Coatings BV, Zevenakkersweg 4, Wapenveld, The Netherlands

DNV local station: Rotterdam

AkzoNobel Saudi Arabia Ltd., PO Box 45, Dammam 2nd Industrial City, Dammam, Eastern Province, Saudi Arabia

DNV local station: Dammam

International Paint LLC, 6001 Antoine Drive. Houston, TX 77091, USA

DNV local station: Houston

International Paint (Korea) Ltd., 626-6 Gyenae-Ri, Chilseo-Myeon, Haman-Gun. Gyeongsangnam-Do, Korea

DNV local station: Gimhae

Responsibility

The Company (stated on the front page of this 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

For use as fire protective system, for IMO Res. A.753(18) Fire Endurance Level 1 compliance, intended for fibre reinforced plastic piping systems on offshore units.

The approval covers the fire protective systems with the following details:
- 50 mm Dura Corafoam PIR Foam 35 kg/m^3 or 50 mm GRM BETA+ PIR35
- 1-2 mm FibaRoll, GRP Laminate System
- 12 mm Chartek 7 reinforced by HK-1 mesh (mesh layer 8 mm +/- 2 mm from substrate, mesh overlap 150 mm)
- Optional primers and a topcoat may be used if pre-qualified by International Paint.

applied on:
- NOV FGS' Bondstrand Glassfiber Reinforced Epoxy (GRE) pipe sizes 1" (25 mm) to 28" (700 mm)

with:
- Adhesive bonded joints and fittings
- Design pressure: 16 – 25 bar

Any significant changes in design and / or quality of the material will render the approval invalid.

Flanges are not to be used for connections.

Metal to GRE interfaces is not covered by this certificate.

For use in external locations. Testing of Flame Spread, Smoke Generation and Toxicity characteristics of the insulation scheme are not carried out.

When non-conductive fluid is to be transported in the piping system, the GRE piping system is to be conductive.

INSTALLATION:
The plastic pipes to be insulated shall be prepared as per the manufacturer's instructions.
The surface preparation, meshing and details of construction are to be in accordance with the manufacturer's recommendations.

Codes:
IMO Resolution A.753(18) (adopted 04 November 1993), amended by IMO Resolutions MSC.313(88) and MSC.399(95), for Level 1 Fire Resistance.

Type Approval documentation

Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**.

Marking of product

Product/package shall be marked with *manufacturer's name, place of production* and *type designation*.

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 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 assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END OF CERTIFICATE