Certificate No:
TAF00001M9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Surface Material of Low Flame Spread

with type designation(s)
KCC CERAKWOOL New-Bio 1100(96K) + G.C.F (612, 10um)

Issued to
KCC Corporation Ltd. Gimcheon Plant
Gimcheon, Gyeongsangbuk-do, Republic of Korea

is found to comply with
DNV offshore standards
DNV rules for classification – Ships
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021

Application :

Low flame spread surface materials, not generating excessive quantities of smoke nor toxic products in fire.

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

This certificate is recognized by Transport Canada.

Issued at **Høvik** on **2022-03-06**
This Certificate is valid until **2027-03-05**.
DNV local station: **Ulsan**

Approval Engineer: **Karolina Kuśmider**

for **DNV**

Helene David-Andersen
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

"KCC Cerakwool New Bio 1100(96K) + G.C.F(612, 10 μm)".
Consist of an aluminium foil and layer of glass fiber cloth faced to "KCC Cerakwool New Bio 1100" ceramic fiber with glue.

Ceramic fiber from KCC GIMCHEON PLANT
Density: 96 kg/m3

Aluminium foil and glass cloth fabric from Go Sung System
Aluminium thickness: 10 μm
Fiber glass thickness: 120 μm

Alternative adhesives:
A) Water glass from DC Chemical Co., Ltd.
B) Polyethylene from Yulim Industry Co., Ltd.

"KCC Cerakwool New Bio 1100(96K) + G.C.F(612, 10 μm)":
Minimum product thickness: 50 mm

Application/Limitation

Approved for use as low flame spread surface material, not generating excessive quantities of smoke nor toxic products in fire.

Approved colour: white.

Maximum organic content: 1%

Approved for use on non-combustible substrate of thickness greater than 25 mm.

Any adhesive used, other than the one used during testing, has to be tested for low flame spread characteristics according to IMO 2010 FTP Code part 5.

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 installation, use and maintenance.

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No.: A2016-0085 (product tested with adhesive A) dated 27 January 2016 from "FILK" Fire Insurers Laboratories of Korea.

Test report No.: A2017-0004 (product tested with adhesive B) dated 27 January 2016 from "FILK" Fire Insurers Laboratories of Korea.

Tests carried out

Tested according to IMO 2010 FTP Code part 5 and Annex 2 item 2.2 and 2.3.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation and fire technical rating.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled *"Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)",* DNV confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.