

TYPE APPROVAL CERTIFICATE

This is to certify:**That the FRP Grating**

with type designation(s)

Fiberglass reinforced plastic grating. Type: molded grating "SGMFR" and pultruded grating "SGPFR"

Issued to

**Shanghai Saige Composite Materials Co., Ltd.
Shanghai, China**

is found to comply with

DNV GL rules for classification – Ships**DNV GL offshore standards****DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****Application :****Approved for use in locations according to enclosed Structural Fire Integrity Matrix.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2021-07-18**.Issued at **Hamburg** on **2016-07-19**for **DNV GL**DNV GL local station: **Shanghai CMC**Approval Engineer: **Pavel Golyshev**

Antje Fleischhauer
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.

Product description

Fiberglass reinforced plastic molded grating "SGMFR".
Fiberglass reinforced plastic pultruded grating "SGPFR".

Table 1: Tests results according to ASTM E84-09:

Grating	Flame Spread Index	Smoke Developed Index
Molded grating "SGMFR"	15	400
Pultruded grating "SGPFR"	15	650

Application/Limitation

For use in locations according to the below Structural Fire Integrity Matrix (Table 2).

Table 2: Structural Fire Integrity Matrix

Location	Service	Range of use
Machinery Spaces	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	NO
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	NO
Cargo Holds	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ¹⁾ 2)
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ¹⁾
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	YES ¹⁾
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms or access areas	YES ¹⁾
Accommodation, service, and control spaces	All personnel walkways, catwalks, ladders, platforms or access areas	NO
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms or access areas	NO
Open Decks or semi-enclosed areas	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	NO
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	YES
	Gangway for safe access to bow on tankers according to IMO MSC.62(67)	NO
¹⁾ The grating can only be used if these spaces are normally not entered when underway ²⁾ Gratings that are electrically conductive shall be required. Acceptance criteria for resistance per unit length and to earth is: < 0.1 M Ω to earth. Test standard ASTM D257-91, ref. DNV GL-CP-0070 "Fibre reinforced thermosetting plastic piping systems - Non-metallic materials"		



Job Id: **262.1-022827-1**
Certificate No: **TAF00000C6**

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

Test Report Nos. 3176710SAT-001 A and 3176710SAT-001 B dated 25th September 2009 issued by Intertek Testing Services NA, Inc. Elmendorf, Texas, USA.

Tests carried out

Tested according to ASTM E84-09.

Marking of product

The product or packing is to be marked with name of manufacturer and type designation.

Periodical assessment

DNV GL'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 DNVGL-CP-0338 Section 4.