



MARINE DIVISION

Certificate number: 23669/A0 BV

File number: ACI1310/096/001

Product code: 6474H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE
ENMAC ENGENHARIA DE MATERIAIS COMPOSTOS LTDA
 Guarulhos-SP - BRAZIL

for the type of product

GRATINGS

LTDA

Phenolic Resin Fiberglass reinforced Floor Gratings

Requirements:

- Bureau Veritas Rules for the Classification of Offshore Units
- Bureau Veritas Rules for the Classification of Steel Ships
- ISO 9001:2008 Standards
- U.S. Coast Guard PFM 2.98, Policy File Memorandum on the Use of Fiber Reinforced Plastic (FRP) Gratings and Cable Trays.

PHENOLIC RESIN FIBERGLASS REINFORCED FLOOR GRATINGS

Requirements:

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 15 Jun 2016

For BUREAU VERITAS,

At BV RIO DE JANEIRO, on 15 Jun 2011,

Francisco Assis



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This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

FRP putruded phenolic fire retardant grating : 1½" Mesh 1½" x 6"

Fiber glass reinforced gratings are assembled with profiles manufactured by pultrusion process with Phenolic resin reinforced with fiberglass.

The grating is made with transversal **I**-shaped profiles (width x height = 15,2 x 38,1 mm), reinforced with longitudinal round

GE-3	1.1/2" (38,10mm)	1.1/2" (38,10mm)	6" (150mm)
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Maximum unsupported span = 1000mm.

DOCUMENTS AND DRAWINGS :

per the Manufacturer's technical data sheets, references :
 Drawing FRP Gratings type Approval n°. ENF-003479 Revision 0 dated April, 13th 2009.
 Floor Grating Catalogue (pag. 23)
 Installation, use and Maintenance Instruction Sheet

TEST REPORTS :

- Test Report n° 3126961SAT-002 dated December 5, 2007 from Intertek ETL Semko Laboratories, USA, as per ASTM E 84-05 (Standard burning characteristics of building materials) - Flame spread index 5, Smoke developed index 25.
 Drawing FRP Gratings type Approval n°. ENF-003479 Revision 0 dated April, 13th 2009.
 - Floor Grating Catalogue (pag. 23)
 - Installation, use and Maintenance Instruction Sheet

APPLICATION / LIMITATION :

- 1- The product has only been evaluated with due regards to its fire properties.
- 2- The fitting aboard to be the same as used for the test.

- 4.1- The product has only been evaluated with due regards to its fire properties.
- 4.2- The fitting aboard to be the same as used for the test.

cing(mm)
1)

ies, USA, as per ASTM
 ed index, 25.

m Intertek ETL Semko
 plastic FRP gratings and

4.3- As for gratings with L2 integrity, as per USCG PFM 2-98:

Location	Service	Putruded phenolic Grating
Auxilliary Machinery spaces	Personnel walkways, catwalks, ladders, platforms or access areas other than walkways or areas which may be used for escape, or access for firefighting, emergency operation or rescue	Yes *
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	No
Fuel Oil Tanks	Personnel walkways, catwalks, ladders, platforms or access areas entered when underway	Yes *
Ballast Water Tanks	All personnel walkways, ladders, platforms or access areas	Yes *
offerdams, void spaces, double bottoms, pipe tunnels, etc...	All personnel walkways, ladders, platforms or access areas	if the space is not normally entered when underway *
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, ladders, platforms or access areas	if the space is not normally entered when underway
Open decks or semi-enclosed areas	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	Yes *
	Personnel walkways, catwalks, ladders, platforms or access areas other than walkways or areas which may be used for escape, or access for firefighting, emergency operation or rescue	Yes
	Gangway for safe access to bow on tankers according to IMO MSC Resolution 67(67)	Yes
	yes, except for foam system operational areas and access routes on vessels fitted with deck foam firefighting systems.	Yes *
	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	Yes
		yes, except for foam system operational areas and access routes on vessels fitted with deck foam firefighting systems.
		Yes
		Yes
		No

PRODUCTION SURVEY REQUIREMENTS :

- 1 - The Floor Gratings are to be manufactured, examined and tested by ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification Steel Ships.
- 2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA has to make the necessary arrangements for a Society's Surveyor perform visits and product audits at the production sites.
- 3 - ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA has declared to Bureau Veritas that the type of product described in this certificate is manufactured at the following production site:

ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA
Rua Prof. João Cavalheiro Salém, 537 Bonsucesso
07243-580 - Guarulhos - SP - BRAZIL

MARKING OF PRODUCT :

- 5.1 - The Floor Gratings are to be manufactured, examined and tested by ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.
- 5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.
- 5.3 - ENMAC ENGENHARIA DE MATERIAIS COMPOSITOS LTDA has declared to Bureau Veritas that the type of product described in this certificate is manufactured at the following production site:

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6. MARKING OF PRODUCT :

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

7. OTHERS :

This approval is given on the understanding that the Manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of use and general maintenance of the products and of the conditions of this approval.

*** END OF CERTIFICATE ***