



Marine & Offshore

Certificate number: 22592/C0 BV

File number: COMP3/1/1 to /5

Product code: 9064H

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

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Gurit Americas Inc.

Magog, Quebec - CANADA

for the type of product

MISCELLANEOUS CORE MATERIALS FOR F.R.P. SANDWICH

Structural foam core material for sandwich construction.

Requirements:

Bureau Veritas "Hull in Composite and Plywood, Material Approval, Design Principles, Construction and Surevy" NR546 as amended

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate is a renewal of certificate N° 22592/B2 BV expiring on 05/05/2020

This certificate will expire on: 05 May 2025

For Bureau Veritas Marine & Offshore,

At BV PORT EVERGLADES CENTRE, on 10 Mar 2020,

Flavio Rosas



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 Marine & Offshore. 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 & Offshore 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 Marine & Offshore 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:

Designation: **CORECELL™ M FOAM type M60, M80, M100, M130 and M200.**

Applications: Structural Core material for sandwich constructions.

Material description: SAN foam (styrene-Acrylonitrile polymer) with Closed Cells.

The following manufacturer's specified values are confirmed by type testing:

Properties	Test	Method	M60	M80	M100	M130	M200	Unit	Values(3)
Density	ASTM	D 1622	65	85	107.5	140	200	kg/m ³	msv
			61	81	100	130	185		mstmv
Compressive strength	ASTM	D1621-04	0.55	1.02	1.55	2.31	4.40	MPa	msv
			0.33	0.80	1.24	1.95	3.66		mstmv
Compressive modulus	ASTM	D1621-04	31	52	76	111	210	MPa	msv
		D1621-04	21	42	62	94	168		mstmv
		D1621-73	45	71	107	170	317		msv
		D1621-73	35	57	83	130	239		mstmv
Shear strength	ASTM	C273	0.68	1.09	1.45	1.98	2.95	MPa	msv
			0.55	0.96	1.26	1.75	2.64		mstmv
Shear modulus	ASTM	C273	20	29	41	59	98	MPa	msv
			17	25	34	49	81		mstmv
Tensile strength	ASTM	D1623	0.81	1.62	2.11	2.85	4.29	MPa	msv
			0.35	1.35	1.72	2.30	3.44		mstmv
Tensile modulus	ASTM	D1623	44	72	109	176	334	MPa	msv
									mstmv
Styrene resistance: - Volumetric variation (1) - Mass variation(1)	ISO	175	0	0	0.1	0.1	0.1	%	
			0.1	0	-0.1	0	-0.1		
Water absorption(2) (in % of volume increase)	ISO	2896	1.61	1.76	1.18	1.30	0.95	%	

Note 1: After 2 hours of immersion, and then 2 hours of drying @50°C.

Note 2: After 7 days of complete immersion.

Note 3: msv: manufacturer specified value; mstmv: manufacturer minimum specified value.

2. DOCUMENTS AND DRAWINGS:

- Material Safety Data sheet "Gurit Corecell Safety datasheet " issue date 10/102018
- Corecell M- Foam leaflet PDS-Gurit Corecell™ M-9-0618
- Test reports dated 02/18/2010
- Letter from Gurit dated June 1st 2015 concerning reformulation

3. TEST REPORTS:

- Type Testing carried out according to Type Approval documentation, NR 546 DT R00E March 2012 appendix 1 at Gurit facilities on the 18th February 2010.

4. APPLICATION / LIMITATION:

- Use: structural core for hull sandwich construction or other parts of ships according to BUREAU VERITAS Rules.
- Compatibility with resins: polyester, vinylester, epoxy.

5. PRODUCTION SURVEY REQUIREMENTS :

The *Corecell type M Foam* are to be manufactured, examined and tested by GURIT in accordance with the type described in this certificate and Bureau Veritas Rules for " Hull in Composite Materials and Plywood, Material Approval, Design Principles, Construction and Survey".

Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end GURIT has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

GURIT has declared to Bureau Veritas that the type of product described in this certificate may be manufactured at the following production sites:

GURIT Americas Inc.
Magog, (Québec), Canada

6. MARKING OF PRODUCT:

- Product shall be marked with *type designation, density and manufacturer's name*: **GURIT AMERICAS Inc.**

7. OTHERS:

Nil.

*** END OF CERTIFICATE ***