



TYPE APPROVAL

Certificate No.:
TA-DNV-CP-0084-08340-0

Issued:
2021-12-28

Valid until:
2023-02-14

Issued for:

Sandwich Core Materials

with type designation(s)

Kerdyn® Green - Series

As specified in Annex 1

Issued to:

Gurit Italy S.R.L.

Via Torino, 10088 Volpiano, Italy

According to:

DNV-SE-0436:2021-09 Shop approval in renewable energy

and

DNV-CP-0084:2021-09 Type approval – Sandwich core materials

Applying:

DNV-SE-0441:2021-10 Type and component certification of wind turbines

Based on the documents listed in Annex 1.

This Type Approval supersedes the Type Approval TAK0000155.

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

Hellerup, 2021-12-28
For DNV Renewables Certification

Hamburg, 2021-12-28
For DNV Renewables Certification

Bente Vestergaard
Director and Service Line Leader for Type and
Component Certification

Peter Schmidt
Principal Project Manager

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Product description and application

A cross-linked, closed-cell PET (Polyethylene terephthalate) foam core material for sandwich construction.

Approved variants

- Kerdyn Green 80
- Kerdyn Green 100
- Kerdyn Green 115
- Kerdyn Green 135
- Kerdyn Green 150
- Kerdyn Green 200
- Kerdyn Green 235
- Kerdyn Green 250
- Kerdyn Green 300

Type Approval documentation

Technical data sheet(s)	Gurit Kerdyn Green, RECYCLABLE STRUCTURAL FOAM with no. PDS-Kerdyn Green-9-0521
Test report(s)	Test Report - DNV GL certified testing laboratory of Gurit Americas with no.11260, issued on 2018-01-05. Technical Report - Inclusion of Kerdyn Green 235 in DNV Type Approval, No. 12335, version 1.0, issued on 2021-07-27
Inspection report(s)	Audit Report issued by DNV GL Italy
Quality control documentation	Several CoAs

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Material properties

All values are average values (minimum values within brackets) and have been verified by testing.

Variant	Test Method	Kerdyn® Green 80	Kerdyn® Green 100	Kerdyn® Green 115	Kerdyn® Green 135	Kerdyn® Green 150	Kerdyn® Green 200	Kerdyn® Green 235	Kerdyn® Green 250	Kerdyn® Green 300
Nominal Density	(1)	80	100	115	135	150	200	235	250	300
Density Range	(1)	75 - 85	95 - 105	110 - 120	130 - 140	145 - 155	195 - 205	225 - 245	245 - 255	295 - 305
Compr. Strength	(2)	0.86 (0.50)	1.30 (0.94)	1.65 (1.28)	2.12 (1.75)	2.49 (2.12)	3.79 (3.41)	4.63 (3.73)	5.21 (4.81)	6.73 (6.32)
Compr. Modulus	(2)	74.0 (46.0)	91.0 (63.0)	105.0 (77.0)	126.0 (96.0)	142.0 (112.0)	203.0 (173.0)	246.0 (200.0)	276.0 (244.0)	360.0 (327.0)
Shear Strength	(3)	0.59 (0.47)	0.80 (0.68)	0.97 (0.84)	1.20 (1.08)	1.40 (1.26)	2.04 (1.52)	2.23 (1.70)	2.36 (1.76)	2.66 (1.99)
Shear Strength	(5)	0.58 (0.43)	0.79 (0.64)	0.95 (0.80)	1.17 (1.02)	1.35 (1.19)	1.95 (1.50)	2.17 (1.60)	2.31 (1.78)	2.65 (2.06)
Shear Modulus	(4)	18.0 (14.0)	25.0 (21.0)	30.0 (26.0)	37.0 (34.0)	43.0 (39.0)	62.0 (59.0)	76.0 (72.0)	83.0 (79.0)	105.0 (101.0)
Shear Modulus	(6)	16.0 (13.0)	23.0 (20.0)	27.0 (24.0)	34.0 (31.0)	39.0 (36.0)	57.0 (54.0)	69 (64.0)	75.0 (72.0)	93.0 (90.0)
Tensile Strength	(7)	1.54 (0.70)	1.82 (0.99)	2.02 (1.19)	2.27 (1.44)	2.45 (1.63)	2.98 (2.17)	3.26 (2.50)	3.42 (2.61)	3.77 (2.96)
Heat Resistance	(8)	–	–	–	–	–	–	–	–	≤47

(1) Density according to ISO 845 in kg/m³.

(2) Compressive properties according to ISO 844:2014, procedure B in MPa.

(3) Shear strength parallel (0°) to welding lines according to ISO 1922 in MPa.

(4) Shear modulus parallel (0°) to welding lines according to ISO 1922 in MPa.

(5) Shear strength perpendicular (90°) to welding lines according to ISO 1922 in MPa.

(6) Shear modulus perpendicular (90°) to welding lines according to ISO 1922 in MPa.

(7) Flatwise tensile test according to ASTM C 297 with specimen made of pure foam in MPa.

(8) Heat resistance according to DNV GL Class Programme CP-0084 in ° C with a retention of shear strength ≥80%.

Approved production sites

Gurit Italy S.R.L.
Via Torino
10088 Volpiano
Italy

Gurit (Tianjin)
No. 1 Hengtong Road
Yat Sen Park, Wu Qing District, Tianjin
China 301726

Periodic assessment

2.5 years after this type approval is issued, the client shall inform DNV about any modifications in production. An intermediate inspection might be needed based on the implemented changes.

For renewal, an inspection 5 years after the last workshop inspection is due.



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Remarks

A successful audit of the production site in Tianjin shall be performed within 1 year. In case of unsuccessful audit, the Type Approval for Tianjin production site will render as invalid.