



Certificate No:
TAK0000216

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Polyester Resins

with type designation(s)
ETERSET 2860 Series

Issued to

Eternal Materials Co., Ltd.
Kaohsiung, Taiwan

is found to comply with

DNV GL class programme DNVGL-CP-0083 – Type approval – Polyester resin, vinylester resin, gelcoat and topcoat
DNV GL rules for classification – High speed and light craft
DNV GL standard DNVGL-ST-0342 – Craft

Application :

Grade 1 polyester resin for construction of laminates made of fibre reinforced plastics.

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

Issued at **Høvik** on **2021-05-06**

This Certificate is valid until **2026-05-05**.

for **DNV**

DNV local station: **Kaohsiung**

Approval Engineer: **Gisle Hersvik**

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Gustav Heiberg
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.



Form code: TA 251

Revision: 2021-03

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Product description

ETERSET 2860 Series, including:

ETERSET 2860,

ETERSET 2860P, ETERSET 2860P-1, ETERSET 2860P-2, ETERSET 2860P-3, ETERSET 2860P-4,
ETERSET 2860PT-1, ETERSET 2860PT-2, ETERSET 2860PT-3, ETERSET 2860PT-4.

The *ETERSET 2860 Series* is intended for SCRIMP and general-purpose resin injection.

The following properties have been verified by Type Testing of cured resin:

Property	Test Method	ETERSET 2860		
Tensile Strength	ISO 527-2	81,4	MPa	mean
Fracture Elongation	ISO 527-2	4,6	%	mean
Tensile Modulus	ISO 527-2	3736	MPa	mean
Flexural Strength	ISO 178	134	MPa	mean
Flexural Modulus	ISO 178	3677	MPa	mean
Water Absorption	ISO 62	62.2	mg	mean
HDT	ISO 75	79.2	°C	mean
Barcol Hardness	ASTM D2583	42	-	mean
Density	ISO 1675	1,078	g/cm ³	mean
Curing Procedure used for Type Testing		24 hrs at 23 °C + post cure 3 hrs at 80 °C		

Legend:

mean: mean of Type Test results.

Application/Limitation

The approval covers the variants stated above.

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

Type Approval documentation

Tests carried out

Type Testing carried out according to **Type Approval documentation**.

Marking of product

Product/Package shall be marked with *manufacturer's name*; **Eternal Materials Co. Ltd., Taiwan** and *type designation*, *lot number*, *gross weight/net weight* and *manufacturing date*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV Type Approval Certificate.

Periodical Assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical assessments (for Certificate Retention and Certificate Renewal) shall be performed according to DNVGL-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>

END OF CERTIFICATE