Certificate No:
TAK000026G

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Epoxy Systems

with type designation(s)
Prime 37

Issued to
Gurit (UK) Ltd.
Newport, Isle Of Wight, United Kingdom

is found to comply with
DNV class programme DNV-CP-0089 – Type approval – Epoxy resin systems

Application :

Laminating 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 **Hamburg** on **2022-12-21**
This Certificate is valid until **2027-12-20**.
DNV local unit: **Southampton**

Approval Engineer: **Joachim Rehbein**

for **DNV**

Thorsten Lohmann
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.

Product description

Prime 37: Two-component epoxy resin system for the infusion of FRP components.

Approved variants

Prime 37 resin with the following hardeners:
- A3X Fast Hardener
- A3X Standard Hardener
- A3X Slow Hardener
- A3X Extra-slow Hardener

Material properties verified by Type Testing:

Liquid condition

Property	Test method	Resin Prime 37	Fast hardener	Extra slow hardener	Unit
Density at 21 °C	ISO 1183-1B	1.13	0.90 - 1.10	0.85 - 1.05	g/cm3
Viscosity at 25 °C	Brookfied RVT	390 - 448	300 - 500	0.12	cP
Gel time at 25 °C	Tecam	N/A	30	630	min

Cured condition

Property	Test method	Fast hardener	Extra slow hardener	Unit
Glass Transition Temperature $T_{g\ midpoint}$	ISO 6721 (DMA)	71.5	64.2	°C
Tensile Strength	ISO 527-2	76.1	67.4	MPa
Tensile Modulus	ISO 527-2	3.26	3.21	GPa
Flexural Strength	ISO 178	125	112	MPa
Flexural Modulus	ISO 178	3.25	3.16	GPa
Water absorption (7 d)	ISO 62	45.1	47.3	mg
Water absorption (28 d)	ISO 62	104.9	103.6	mg
Flexural Strength (after 28 d water absorption)	ISO 178	106.2	99.3*	MPa
Flexural Modulus (after 28 d water absorption)	ISO 178	2.99	2.94	GPa

*This value has been accepted as a fulfilment of min. required strength of 100 MPa.
Curing procedure used for type testing: Cured for 24 h at 21 °C and 16 h at 50 °C, tested at 21 °C.

Application/Limitation

The resin complies with the applicable requirements of DNV and is compatible to the fibres, adhesives and core materials.

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

Type Approval documentation

Marking of product

The product or package shall be marked. The marking shall at least include the following information:
— manufacturer’s name and address or trademark
— production plant
— product name (grade)
— storage instruction
— production date/batch number
— quality guarantee period, if any.

The marking shall be carried out in such a way that it is visible, legible and indelible. The marking of product shall enable traceability to the type approval certificate.

Periodical assessment

Periodical assessments are required after two years and after 3.5 years (retention survey) and for renewal after 5 years (renewal survey). Refer to DNV-CP-0338, Sec.4.

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning periodical and renewal assessments.

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

Assessed production site
Gurit (UK) Ltd.
St. Cross Business Park
Newport PO30 5WU
United Kingdom

END OF CERTIFICATE