



TYPE APPROVAL CERTIFICATE

Certificate No:
TAK000015C
Revision No:
1

This is to certify:

That the Epoxy Systems

with type designation(s)
Epoxy Resin L - Series

Issued to

R&G Faserverbundwerkstoffe GmbH
Waldenbuch, Germany

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.

Issued at **Hamburg** on **2022-01-10**

This Certificate is valid until **2023-02-23**.

DNV local station: **Hamburg Materials & Welding**

Approval Engineer: **Joachim Rehbein**



for **DNV**

Digitally Signed By: Wildhagen, Christian
Location: DNV GL Hamburg, Germany
Signing Date: 10.01.2022, on behalf of

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.



Form code: TA 251

Revision: 2021-03

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Job Id: 262.1-027992-2
Certificate No: TAK000015C
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Product description

Two component epoxy resin system.

Approved variants

Epoxy Resin L with following hardener
- GL 1
- GL 2

Type Approval documentation

- Technical Data Sheet
- Material Safety Data Sheet
- Test Report No. P 8602-1 and P 8602-2 issued by KIWA Polymer Institut GmbH
- Workshop Inspection Report issued by DNV GL Hamburg, dated on 2017-12-20.
- Quality assurance/control documentation

TAK000015C rev. 01 – change of production site:

- Application for type approval TAA 901 & change request 90.01a, dated 2020-05-26;
- Type approval assessment report TA 401, issued 2021-11-16;
- Certificate of analysis EN10204 3.1 issued by Bohrmann GmbH, dated 2021-09-14;
- Test reports issued by polymerphys IK GmbH, Industriepark Hoechst - G 830, 65926 Frankfurt am Main, Germany;
- Assessed production site:
Bohrmann GmbH
Raiffeisenstr. 45
55270 Klein-Winternheim
Germany

Material Properties

Properties	Test Method	Epoxy Resin L	GL 1	GL 2	Unit
Density at 23°C	ISO 2811-2	1.13 – 1.15	0.99 – 1.01	0.93 – 0.95	g/cm ³
Amine Value	CTP-TS 31-97	N/A	465 – 565	555 - 575	mgKOH/g
Viscosity at 25°C	ISO 3219	670 – 760	50 – 150	12 - 16	mPa·s

Limitation

The resin complies with the applicable requirements of DNV GL 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.

Periodical assessment

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

For a manufacturer without a valid AoM certificate, 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.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE