

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Polyester Resins**

with type designation(s)

VINALKYD 550 PE-R Series with variants;**VINALKYD 550 PE-R/68, VINALKYD 550 PE-R/ALV and VINALKYD 550 PE-R/61 A**

Issued to

Orgachim Resins AD
Ruse, Bulgaria

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 2 resin for use in marine vessels in accordance with stated Rules/Standards.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-03-20**This Certificate is valid until **2024-03-19**.DNV GL local station: **VARNA**for **DNV GL**Approval Engineer: **Gisle Hersvik**

Rikard Törnqvist
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.



Product description

Orthophthalic unsaturated polyester resins;

VINALKYD 550 PE-R (high reactive, non-accelerated, non-thixotropic)

VINALKYD 550 PE-R/68 (high reactive, non-accelerated, non-thixotropic)

VINALKYD 550 PE-R/ALV (medium reactive, pre-accelerated)

VINALKYD 550 PE-R/61 A (medium reactive, pre-accelerated)

The following properties have been verified by type testing of cured resin samples:

Property	Test Method	Vinalkyd 550 PE-R	Units	
Density	ISO 1675	1.223	g/cm ³	mean
Tensile strength	ISO 527-2	54.7	MPa	mean
Tensile modulus	ISO 527-2	3972	MPa	mean
Flexural strength	ISO 178	94	MPa	mean
Flexural modulus	ISO 178	3945	MPa	mean
Barcol hardness	ASTM D2583	52	-	mean
HDT	ISO 75-2, Method A	64	°C	mean
Water absorption	ISO 62	94	mg	mean
Curing Procedure		24hrs at 23°C + 24hrs at 50°C + 2hrs at 100°C		

Application/Limitation

Laminating resin for construction of laminates made of fibre reinforced plastics, on condition that reinforcement fibre product complies with DNV GL requirements and is compatible with the resin.

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 in accordance with **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturer's name*; **Orgachim Resins AD, Bulgaria** and *type designation*.

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 GL 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 Assessment to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.



Job Id: **262.1-031108-1**
Certificate No: **TAK00001JX**

- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE