

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Vinyl Ester Resins**

with type designation(s)
DION® 9100 PLUS

Issued to

Polynt Composites Norway AS
Gamle Fredrikstad, Norway

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 resin for use in marine vessels according to 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 **2020-09-09**

This Certificate is valid until **2025-09-08**.

for **DNV GL**

DNV GL local station: **Sandefjord**

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

DION® 9100 PLUS; Bisphenol-A epoxy-based vinyl ester resin.

Approved variant:
DION® VE-1270

The following properties have been verified by Type Testing:

Property	Test Method	DION® 9100 PLUS		
Tensile Strength	ISO 527	72	MPa	mean
Tensile Modulus	ISO 527	3 165	%	msv
Fracture Elongation	ISO 527	5,6	%	mean
Flexural Strength	ISO 527	121	MPa	mean
Flexural Modulus	ISO 527	3 266	%	msv
Water Absorption	ISO 62	63,6	mg	mean
HDT	ISO 75	81,9	°C	mean
Barcol Hardness	ASTM D2583	35	-	mean
Density	ISO 1675	1,132	g/cm ³	mean
Curing Procedure used for Type Testing		24 hrs at room temperature, 24 hrs at 60°C		

Legends:

mean: mean of Type Test results

msv: manufacturer's specified value, verified to be within $\pm 10\%$ of mean of Type Test results.

Application/Limitation

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, place of production 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 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>



Job Id: **262.1-032930-1**
Certificate No: **TAK00001WY**

END OF CERTIFICATE