Certificate no.:
TAK00002N3

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Polyester Resins

with type designation(s)
Unsaturated Polyester Resins: DS-186P-40 & DS-186P-80

issued to
Nantong Tianhe Resin Co., Ltd.
Nantong, **China**

is found to comply with
DNV class programme DNV-CP-0083 – Type approval – Polyester resin, vinylester resin, gelcoat and topcoat

Application:

Grade 1 resin for use in marine vessels.

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

Issued at **Hamburg** on **2026-03-20**
This Certificate is valid until **2031-03-03**.
DNV local unit: **Nantong**

for **DNV**

Approval Engineer: **Gisle Hersvik**

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 USD 300 000.

Product description

Unsaturated Polyester Resin DS-186P-40 & **Unsaturated Polyester Resin DS-186P-80**

Approved Variants

DS-186P-40 Pre-promoted
DS-186P-80 Pre-promoted

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

Property	Test Method	DS-186P-40	DS-186P-80	unit	
Tensile Strength	ISO 527	80.4	80.5	MPa	mean
Fracture Elongation	ISO 527	4.95	5.67	%	mean
Barcol Hardness	ASTM D2583	40	40	-	mean
HDT [1)]	ISO 75 (Method A)	97	94	ºC	mean
Water Absorption [1)]	ISO 62	74.1	69.9	mg	mean
Density (cured)	ISO 1183-1	1.167	1.173	g/cm^3	mean
Curing procedure used for Type Testing		24 hrs at room temperature, 24 hrs at 60ºC 24 hrs at room temperature, 24 hrs at 60ºC, 4 hrs at 100ºC [1)]			

mean = mean value of test results

Place of manufacture

Nantong Tianhe Resin Co., Ltd., No.12 Tongwang Road, Nantong Economic-technological Development Area, Nantong, 226000 Jiangsu Province, P.R. China

Application/Limitation

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

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/package shall be marked with *manufacturer's name:* **Nantong Tianhe Resin Co., Ltd., China***, type designation* and *date of production/batch number*.

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 / Certificate Renewal) shall be performed according to DNV-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.dnv.com

END OF CERTIFICATE