DNV·GL

Certificate No:
TAK00000Y0

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Vinyl Ester Resins

with type designation(s)
SWANCOR 901 with variants; SWANCOR 901-P, SWANCOR 901-T, SWANCOR 901-TP, SWANCOR 901-V and SWANCOR 901-VP

Issued to
Swancor Highpolymer Co., Ltd.
Nantou, Taiwan

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 **2017-08-17**
This Certificate is valid until **2022-08-16**.
DNV GL local station: **Kaohsiung**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**

Martin Strande
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.

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Job Id: **262.1-007903-3**
Certificate No: **TAK00000Y0**

Product description

Epoxy-modified (Bisphenol-A Type) Vinyl Ester Resins; **SWANCOR 901** with variants;
SWANCOR 901-P,
SWANCOR 901-T, **SWANCOR 901-TP**,
SWANCOR 901-V and **SWANCOR 901-VP**.

The following indicative properties have been verified by Type Testing:

Property	**Test Method**	**Swancor 901**		
Fracture Elongation	ISO 527	3,5 / 3,1	%	mean / msmv
Tensile Strength	ISO 527	82 / 78	MPa	mean / msmv
Water Absorption	ISO 62	52,3	mg	msmv
HDT	ISO 75	105,8	ºC	msmv
Barcol Hardness	ASTM D2583	41	-	msv
Density	ISO 1675	1,051	g/cm^3	msv
Curing Procedure used for Type Testing	12 hrs at 25°C, 2 hrs at 105ºC [1)]			

[1)] The curing procedure is different from what is recommended in DNVGL-CP-0083.

msv = Manufacurer's Specified Value, verified to be within ±10% of mean of Type Test results
msmv = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results
mean = mean of Type Test results

Type Approval documentation

Tests carried out

Type Testing carried out according to **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturer's name*: **Swancor Highpolymer Co., Ltd., Taiwan** 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.
- 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 DNV GL Type Approval Certificate.

END OF CERTIFICATE