

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

**Synolite 8388-P-1, Synolite 8388-P-2, Synolite 8388-P-3, Synolite 8388-P-6,
Synolite 8388-P-7, Synolite 8388-P-8, Synolite 8388-P-9, Synolite 8388-P-10 and
Synolite 8388-P-11**

Issued to

**Aliancys AG
Schaffhausen SH, Switzerland**

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
Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010****Application :****Grade 2 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.**This Certificate is valid until **2021-08-17**.Issued at **Høvik** on **2016-08-18**DNV GL local station: **Augsburg**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.

Job Id: **262.1-001788-4**
Certificate No: **TAK00000EB**

Product description

Synolite 8388-P-1, Synolite 8388-P-2, Synolite 8388-P-3, Synolite 8388-P-6, Synolite 8388-P-7, Synolite 8388-P-8, Synolite 8388-P-9, Synolite 8388-P-10 and Synolite 8388-P-11: Low viscous, pre-accelerated, promoted, thixotropic, medium reactive DCPD polyester resins. An LSE (Low Styrene Emission) system is incorporated.

The following properties have been verified by Type Testing:

Property	Test Method	Synolite 8388-P-1		
Fracture Elongation	ISO 527	1,6	%	msmv
Tensile Strength	ISO 527	51,8	MPa	msmv
Water Absorption	ISO 62	55,5	mg	msmv
HDT	ISO 75	72,3	°C	msmv
Barcol Hardness	ASTM D2583	39	-	msv
Density	ISO 527	1,18	g/cm ³	msv
Curing Procedure used for Type Testing		24 hrs at 50°C		

msv = Manufacturer's Specified Value, verified to be within $\pm 10\%$ 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

Manufactured by

Aliancys Nederland B.V., Nieuw Amsterdamseweg 31a, 7764 AN Schoonebeek, The Netherlands

DNV GL local station: Rotterdam

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Type Approval documentation

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Tests carried out

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

Marking of product

Product shall be marked with *manufacturer's name*; **Aliancys Nederland B.V.** 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.

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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 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 the DNV GL Type Approval Certificate.

END OF CERTIFICATE