

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Polyester Resins**with type designation(s)
Colpoly 7810 - AI-E1

Issued to

Helios TBLUS d.o.o.
Domžale, Osrednjeslovenska, Slovenia

is found to comply with

DNV class programme DNV-CP-0083 – Type approval – Polyester resin, vinylester resin, gelcoat and topcoat

Application :**Grade 2 polyester resin for construction of laminates made of fibre reinforced plastics.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**Issued at **Hamburg** on **2022-06-10**This Certificate is valid until **2027-06-09**.for **DNV**DNV local station: **Rijeka**Approval Engineer: **Joachim Rehbein**

Thorsten Lohmann
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 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 300,000 USD.



Product description

Colpoly 7810 AI-E1: Unsaturated polyester resin based on isophthalic acid and neopentyl glycol.

Curing with 1.5% MEKP-50

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

Property	Test Method	Colpoly 7810 AI-E1	unit	
Fracture Elongation	ISO 527-1, 2	2,3	%	mean
Tensile Strength	ISO 527-1, 2	55,4	MPa	mean
Water Absorption	ISO 62	84,6	mg	mean
HDT	ISO 75-2 A	57,5	°C	mean
Barcol Hardness	ASTM D2583	50	-	msv
Density	EN ISO 1183-1:2019 A	1,20	g/cm ³	msv
Curing Procedure used for Type Testing		24hrs at 23°C, post cure: 24 hrs at 50°C		

msv = Manufacturer's specified value, verified to be within ±10% of mean of Type Test results

mean = Manufacturer's specified mean value, based on a minimum 2/3 of tested specimens

Notes:

Value for HDT is lower than stated in CP-0083, table 2.

Assessed production site

HELIOS TBLUS d.o.o., obrat COLOR, Škofjeloška 50, 1215 Medvode, SLOVENIJA

Application/Limitation

Grade 2 unsaturated polyester resin for construction of laminates made of glass fibre reinforced plastics by vacuum infusion.

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 according to **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturers name Helios TBLUS, product name, article no., lot. no., production date mm-yyyy, best before date mm-yyyy.*

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

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning retention and renewal assessments.

For a production site without a valid AoM certificate, periodical assessments are required after two years and after 3.5 years (retention survey) and for renewal after 5 years (renewal survey). Refer to DNV-CP-0338, Sec.4.

This certificate is only valid if required periodical assessments are carried out with satisfactory results or an AoM certificate for production site is in place. To check the validity of this certificate, please look it up in

<https://approvalfinder.dnv.com>

END OF CERTIFICATE