

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Polyester Resins**with type designation(s)  
**POLIPLAST M 608 M11**

Issued to

**Carlo Riccò & Fratelli S.p.A.**  
**Correggio RE, Italy**is found to comply with  
**DNV GL class programme DNVGL-CP-0083 – Type approval – Polyester resin, vinylester resin, gelcoat and topcoat****Application :****For use in wind mill industry; Grade 2 infusion resin for production of fibre reinforced plastics****The following pages are intergral part of this certificate**Issued at **Hamburg** on **2019-08-27**for **DNV GL**This Certificate is valid until **2024-08-26**.DNV GL local station: **Italy/Malta CMC**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.



Job Id: **262.1-030177-1**  
Certificate No: **TAK00001RY**

## Product description

**Poliplast M 608 M11**: Pre-accelerated unsaturated polyester resin with hardener MEKP-Butanox M50

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

Property	Test Method	Poliplast M 608 M11		
Fracture Elongation	ISO 527-2	2.95 / 2.06	%	mean / min
Tensile Strength	ISO 527-2	65.1 / 55.7	MPa	mean / min
Water Absorption	ISO 62	107.9 <sup>1</sup>	mg	mean
HDT	ISO 75	70.9	°C	mean
Barcol Hardness	ASTM D2583	36 (32)	-	msv (mean)
Density	ISO 1675	1.095	g/cm <sup>3</sup>	mean
Curing procedure: 24h at 23°C and post -curing 24h at 50°C				

Legend:

mean: mean of Type Test results.

min: minimum individual value of Type Test results.

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

## Notes:

<sup>1</sup> Water aging properties are documented

## Assessed production site(s)

Carlo Riccò & Fratelli S.p.A.  
Correggio RE

## Application/Limitation

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

Any significant changes in design and / or quality of the material will render the approval invalid.

## Type Approval documentation

1. Application for approval
2. Type Approval Assessment Report TA 401, dated 2018-12-18 and addendum
3. Test report no. B308/18 by IMA Dresden, dated 2019-05-08  
Water aging properties are documented by tensile and HDT testing
4. TDS 404 rev. 3, dated 2018-10-29
5. MSDS Rev. 02, dated 2018-02-15
6. Div. email correspondence with DNV GL Milan
7. Certificate of Analysis, #0605\_19, #0801\_19, #

## Tests carried out

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

## Marking of product

Product shall be marked with *manufacturer's name* and *type designation*.

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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 and 3.5 years (retention survey) and at renewal after 5 years (renewal survey).

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