



Certificate no.:
TAK00002C4

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Fire Retardant Resins

with type designation(s)
FL-918

issued to

Changzhou Rixin Resin Co., Ltd.
Changzhou, Jiangsu, China

is found to comply with

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

Application:

Fire retardant resin for life saving appliances. 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.

Issued at **Hamburg** on **2024-03-20**

This Certificate is valid until **2028-01-01**.

for **DNV**

DNV local unit: **Nanjing NB & CMC**

Approval Engineer: **Joachim Rehbein**

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.



Form code: TA 251

Revision: 2023-09

www.dnv.com

Page 1 of 2

Product description

FL-918: Fire retardant terabromophthalic, non-thixotropic, non-accelerated polyester resin, which was authorized to produce by Jiangsu Fullmark Chemicals Co., Ltd.

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

Properties	Test Method	FL-918		
Tensile Strength	ISO 527-1,2	67.5	MPa	mean
Tensile Modulus	ISO 527-1,2	3.13	GPa	mean
Fracture Elongation	ISO 527-1,2	4.0	%	mean
Water Absorption	ISO 62	99.4	mg	mean
HDT	ISO 75-2	63	°C	mean
Barcol Hardness	ASTM D2583	43	-	mean
Density	ISO 1675	1.27	g/cm ³	Mean
Oxygen Index, cured resin	ASTM D2863	31.3	%	
Fire retardant	ISO 5660-1. LSA code, MSC/Circ.1006	Pass		
Curing procedure used for Type Testing		24 hrs at room temperature, 24 hrs at 50° C		

Legends:

mean = Mean of Type Test results

Application/Limitation

Fire retardant resin for production of components used for life saving appliances.

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*: **Changzhou Rixin Resin Co., Ltd, China** and *type designation*: **FL-918**.

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.

Assessed production site

Changzhou Rixin Resin Co., Ltd.,
68 Xiaohekou, Xiangtou Village, Zhulin Town, Jintan District,
Changzhou City, Jiangsu Province,
China

Periodical assessment

Periodical assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

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

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