



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. K-4999

This is to certify that the  
**Aramid-Glass Hybrid Fibre Products**

with type designation(s)  
**ARAMAT™ 372K/200**

Manufactured by  
**CHOMARAT Textiles Industries**  
**LE CHEYLARD, France**

is found to comply with  
Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft  
Det Norske Veritas' Standards for Certification No. 2.21, Craft, 2008  
Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007

Application

**For use in marine vessels according to stated Rules/Standards and Manufacturer's recommendations. Area of use will be evaluated during approval of classified objects.**

Høvik, 2012-05-27  
for Det Norske Veritas AS

**Rikard Törnqvist**  
Head of Section



DNV local office:  
Marseille

This Certificate is valid until  
2016-12-31

**Gisle Hersvik**  
Surveyor

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.  
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: K-4999  
File No.: 332.54  
Job Id.: 262.1-001506-4

## Product description

**ARAMAT™ 372K/200:** Aramid/Glass Fibre Tape (Twill Weave).

The following indicative properties have been verified by Type Testing of laminates:

Property	Test Method	ARAMAT 372K/200			
		Warp	Weft		
Tensile Strength – Longitudinal	ISO 527-4	280,59	300,10	msv	MPa
Tensile Modulus - Longitudinal	ISO 527-4	14,78	14,57	msv	GPa
Tensile Elongation - Longitudinal	ISO 527-4	2,45	2,67	msv	%
Compressive Strength - Longitudinal	ISO 604	214,73	213,79	msv	MPa
Compressive Modulus - Longitudinal	ISO 604	4994,30	6051,84	msv	MPa
Compressive Elongation - Longitudinal	ISO 604	8,14	6,98	msv	%
Interlaminar Shear Strength	NF 14130	31,39	29,29	msv	MPa
Combustible Content	NF EN ISO 1887	46,20		mean	%
Moisture Content	NF ISO 3344	0,168		mean	%
Resin	Araldite LY 556				
Curing Procedure for Type Testing	Min. 1 hr 90°C + 2 hrs 140°C + 48 hrs at room temperature,				

msv = Manufacturer's Specified Value (verified to be within mean  $\pm 10\%$  of Type Test results)  
mean = Mean of Type Test results

## Application/Limitation

The Type Approval is valid for the following nominal weight variant; 578 g/m<sup>2</sup>.

## Type Approval documentation

1. Previous Type Approval Certificate No. K-3143.
2. Survey Report from DNV Marseille of 2012-05-15, incl. Appendix, Test Results (2012-05-14), Technical Data Sheets, Product Samples, Product Specifications and Raw Material Data Sheets etc.

## Tests carried out

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

## Marking of product

Product/package shall be marked with *manufacturer's name*; **CHOMARAT Textiles Industries, France** and *type designation*.

## Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey 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. Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey are:

- 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 Type Approval Certificate.

END OF CERTIFICATE