



Certificate no.:
TAK00002MG

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Other Fibre Products

with type designation(s)

TENRON® Single or Multi-End Direct Roving

issued to

ISOMATEX SA

GEMBLOUX, Belgium

is found to comply with

DNV class programme DNV-CP-0082 – Type approval – Glass fibre rovings

Application:

Manufacturing of fabrics and/or fibre reinforced plastics.

Issued at **Hamburg** on **2025-12-12**

This Certificate is valid until **2030-12-11**.

for **DNV**

DNV local unit: **Netherlands CMC**

Approval Engineer: **Gisle Hersvik**

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 USD 300 000.

Product description

TENRON® Single or Multi-End Direct Roving: Mineral fibre

SEDR: Single-End Direct Roving
MEDR: Multi-End Direct Roving
Sizing type: IS65T (for epoxy matrix)
Twist: without

Approved variants

Properties	Test Method	SEDR / MEDR	Unit
Density, nominal	ISO 1889	70 – 7200	tex
Filament Diameter, nominal	ISO 1888	9, 10 and 11	µm
Loss on Ignition	ISO 1887	0.4 – 1.5	%
Moisture Content	ISO 3344	<0.1	%

Place of manufacture

ISOMATEX SA, Scientific Park CREALYS, Rue Camille Hubert 29, 5032 Gembloux, Belgium

Application/Limitation

The approval is valid for the above listed nominal linear density range and filament diameters.

Intended for use in uni- and multi-axial multi-ply fabrics, etc.

The roving complies with the applicable DNV requirement and is compatible with the laminating resin.

Notes:

- At this time, the DNV rules do not specifically set requirements for mineral fibre and fabrics made from mineral fibre, and area of use will be evaluated during classification of vessels.
- This type approval certificate is issued with basis in the test requirements of DNV-CP-0082 Glass fibre rovings.

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**.

The following tests are performed:

-Tensile strength of impregnated rovings	ISO 9163:2005-07 / ASTM D2343
-Tensile Test [UD composite w/TENRON® fibres in EP matrix]	ASTM D3039-17
-Tensile Properties	ASTM D3039-14
-Interlaminar Shear Test (ILSS) [UD composite w/TENRON® fibres in EP matrix]	ASTM D2344-06
-Breaking force and elongation	ISO 3341:2000
-Compressive Properties	ASTM D695-15

Marking of product

Product/package shall be marked with *manufacturer's name*: **ISOMATEX SA, Belgium**, *type designation*: **TENRON®**, *roving diameter*, *roving tex*, *date of production*.

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

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.



Job ID: **262.1-044333-1**
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Periodical assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

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