

Grilon Multifilaments

Thermoplastic Specialty Yarns

GRILON®

EMS





Introduction

EMS-GRILTECH is a Business Unit of EMS-CHEMIE AG, which belongs to EMS-HOLDING AG.
EMS-GRILTECH`s corporate offices with research & development, technical service and production facilities are located at Domat / Ems (Switzerland). The multifilament yarns, which are produced with high performance polymers and specialty chemicals of EMS-CHEMIE AG, are known worldwide under the tradename Grilon.

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Bonding

- **permanent**
- **temporary**

Reinforcing

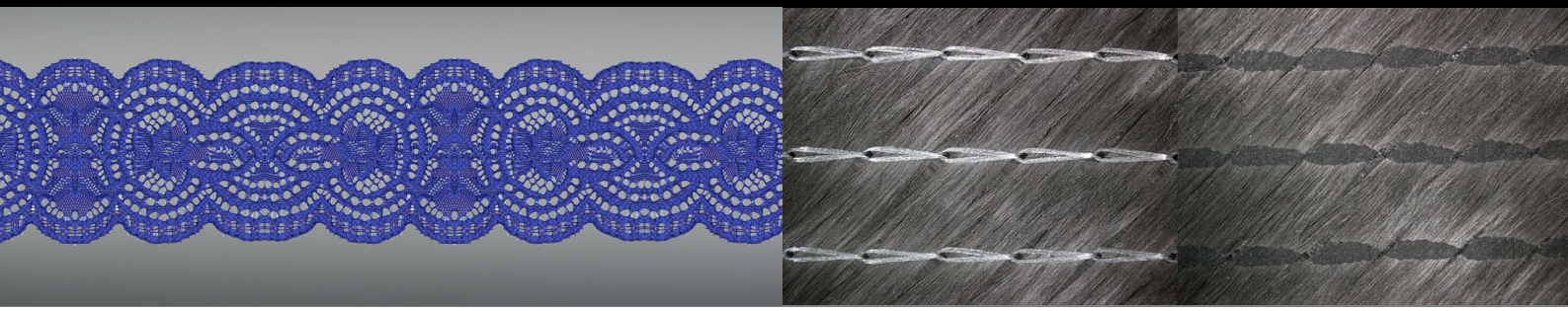
- **complete**
- **partial**

Processing

- Weaving
- Knitting & Warp-Knitting
- Braiding & Laying
- Stitching & Sewing
- Dyeing & Printing
- Finishing

Application

- Buildtech
- Clothtech
- Composites
- Indutech
- Medtech
- Mobiltech
- Protech
- Sporttech



Grilon – the multifunctional yarn for innovative products and smart processes

Grilon yarns are effective multifunctional yarns. They are used as separation, bonding and reinforcing yarns in various applications in the textile and garment industries.

The yarns can be processed with all textile technologies like weaving, knitting, warp-knitting and braiding. Further processes like sewing, stitching, dyeing and finishing open new possibilities.

Besides the classic markets of clothing and underwear, you can find the yarns in numerous technical applications.

Through special yarn finishings and blends our combi-yarns can be tailored to specific client requirements.

Depending on the application it is possible to incorporate special additives to achieve certain characteristics.

Different polymer types can also be utilized in bi-component constructions.

By the use of partial placement in textile fabrics specific reinforcing effects can be created. Innovative multilayer structures are possible through the use of new knitting and weaving technologies.

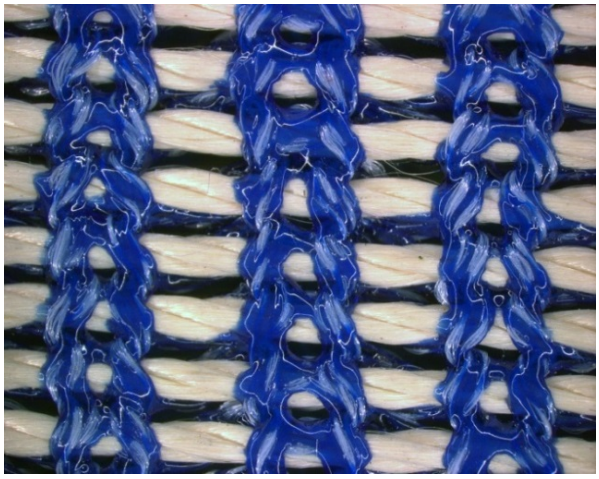


Fig.1 Warp-knitted fabric reinforced with Grilon (blue)



Fig. 2 Carbon fabric stitched with Grilon (white)





Applications

Apparel

- Stabilization of raschel laces, ribbons, picot edges for underwear
- Stabilization of edges for seamless, fully-fashioned and compression hoisiery
- Fixation of cutting edges for labels and hems

Technical

- Stabilization of technical sewing threads
- Bonding ribbons for different materials
- Bonding of multilayer structures

Function

Grilon yarns are workable on weaving, knitting, braiding, raschel, sewing and stitching machines. Additional processes like dyeing, printing and finishing are possible.

By the application of a small amount of heat the polymer will melt and flow into the other fiber material and textile structure. After cooling the polymer stabilizes the textile fabric.

Using this technology different materials can be bonded together. Also materials which are very difficult to bond can be worked into a multilayer structure.

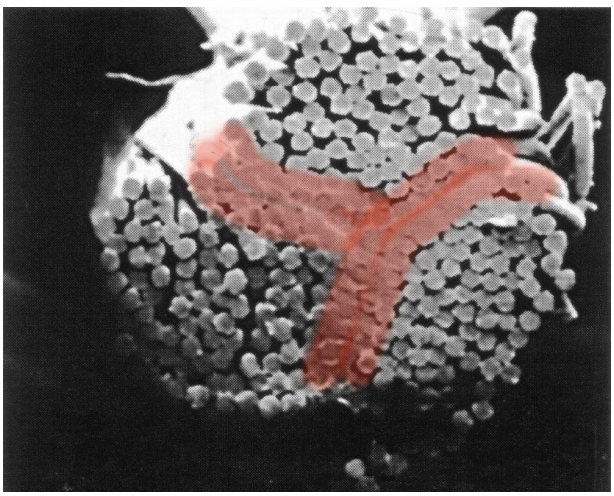


Fig. 3 Reinforced sewing thread for technial application

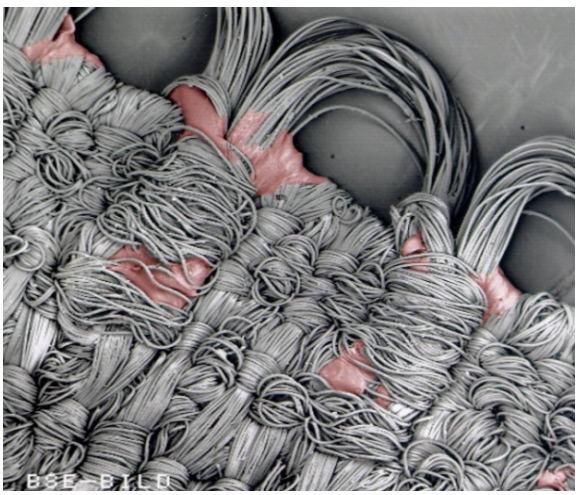
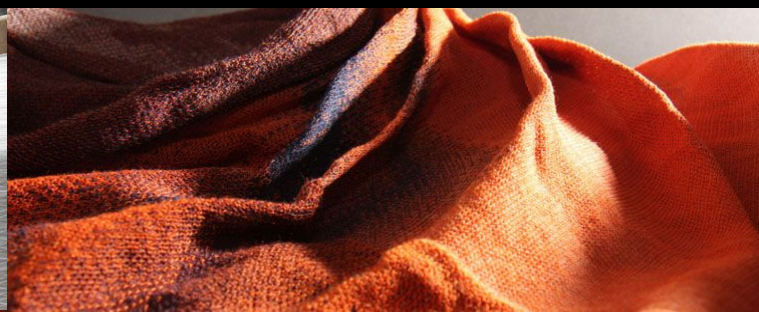


Fig. 4 Picotribbon after dyeing with Grilon (red)





Applications

Apparel

- High-class garment manufacturing (heat-sealed-button-yarn, collar stands, smart clothes)
- Clothes for industrial laundry

Technical

- Stitching yarn for composite fabrics
- Reinforcing yarn for technical textiles, composites and belts
- Reinforcement of woven fabric for protective clothing, home textiles and base layer for coated materials
- Stabilization of ropes, HF wires
- Fixation of conveyor belt edges

Further information you will find in our brochure "Technical Yarns and Fibers for Composites".

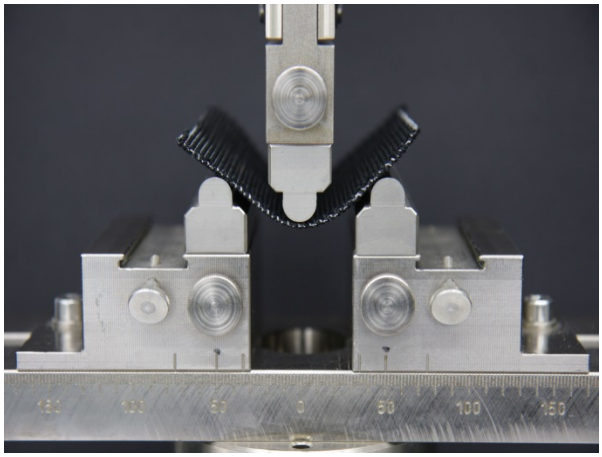


Fig. 5 Bending stiffness

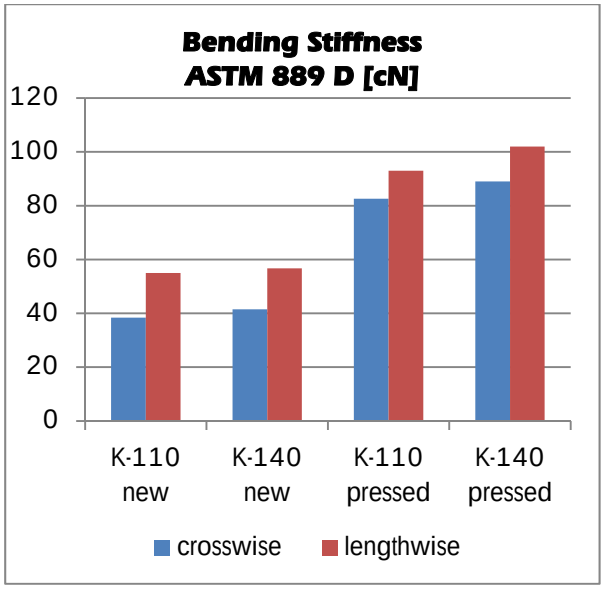
Function

Use of Grilon yarn will help create new textile fabrics with special characteristics. Grilon allows a partial reinforcement effect of textile structures.

The reinforcement effect will be influenced by temperature, yarn count, type and duration of heating.

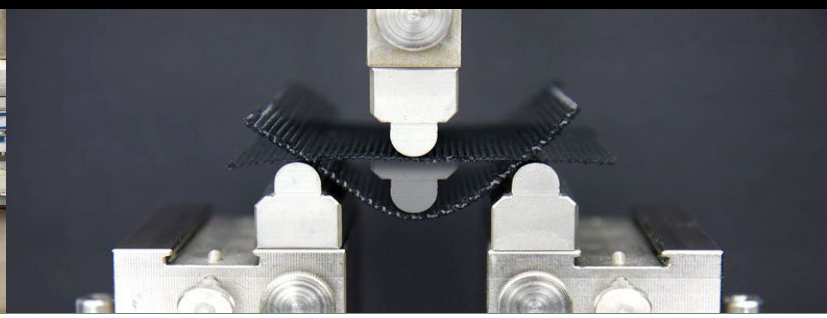
Depending upon the requirements Grilon yarns can also be texturized, twisted and dyed.

Various sizes of make up spools are possible.



Knitting material; 50% PES / 50% Grilon





Product Portfolio

Bonding Yarns				
Polymer	Yarn Type	Melting Point [°C]	Yarn Count [dtex]	Application Temperature [°C]
CoPES	KE-60	60 °C	110 · 330	80 °C – 110 °C
CoPES	KE-135	135 °C	75 · 110	145 °C – 165 °C
CoPES	KE-160	160 °C	23	170 °C – 195 °C
CoPA	K-85	85 °C	75 · 840	100 °C – 125 °C
CoPA	K-110	110 °C	23 · 390	130 °C – 155 °C
CoPA	K-140	140 °C	23 · 167	155 °C – 175 °C
CoPA	K-178	178 °C	55 · 200	190 °C – 205 °C

Combi-Yarns					
Polymer	Core Yarn	Yarn Type	Melting Point [°C]	Yarn Count [dtex]	Application Temperature [°C]
CoPA	PES	C-85	85 °C	200 · 900	100 °C – 125 °C
CoPA	PES	C-140	140 °C	200	155 °C – 175 °C
CoPES	PA66	C-140	140 °C	45	155 °C – 175 °C

Dyeing Behaviour

Dyeing	Fiber	Co PET	Co PA
Direct	CO	-	+
Reactive	CO, WO	-	+
Vat	CO	+	+
Acid	WO, PA	-	+
Metal complex	PA	-	+
Disperse	PA, PES	+	+

Textile Conversion Formulas

Yarn Count	1 dtex = 1.11 den 1 den = 0.9 dtex
Tenacity	1 cN / tex = 0.1132 g / d 1 g / d = 8.830 cN / tex
Temperature	°C = (°F -32) / 1.8 °F = 1.8 * °C + 32





Customer Benefits

Increased economy by efficient processes

By using Grilon yarn several production steps can be saved. Textile fabrics can be partially reinforced according to specific needs.

Quality

Since many years our products are used in a wide field of applications that demand high and consistent quality.

Environment & Safety

Field of energy: 85% of our power demand is CO_2 neutral (Watt d'OR 2008 Energy Award).

Reach

ÖKOTEX 100; class 1; baby articles

Advantages

- Research & Development capability
- Individual assistance and problem-solving
- Knowledgeable in all textile processes
- Global sales network
- Flexibility
- Customized product development

Please contact us! We will find an innovative solution for your new product.



SQS Certificate

SQS herewith certifies that the company named below has a management system which meets the requirements of the standard specified below.

EMS-GRILTECH
a Business Unit of EMS-CHEMIE AG
7013 Domat/Ems
Switzerland

Certified area
Entire Company
including the divisions
at EMS-CHEMIE (North America) Inc., USA
and EMS-CHEMIE (Taiwan) Ltd., Taiwan

Field of activity
Development, Manufacturing,
Technical Service and Sales of Technical Fibers,
Hotmelt Adhesives and Chemical Products
for Surface Treatment

Standard
ISO 9001:2008 Quality Management System



CERTIFICATE

TESTEX AG, Swiss Textile Testing Institute

Gotthardstrasse 61
CH-8027 Zürich

Institute of the International Association for Research and Testing in the Field of Textile Ecology

The company

EMS-CHEMIE AG

Business Unit EMS-GRILTECH
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is granted authorisation according to Oeko-Tex® Standard 100 to use the Oeko-Tex® mark, based on **test report ZHVO 097490.1**

CONFIDENCE IN TEXTILES
Tested for harmful substances
according to Oeko-Tex® Standard 100
BMM 11769 TESTEX

for the following articles:

GRILON fibres and yarns, raw or black

The results of the inspection made according to Oeko-Tex® Standard 100, product class I for baby articles, have shown that the above mentioned goods meet the human-ecological requirements of the standard presently established.

The certified articles fulfil the requirements of Annex XVII of REACH (incl. the use of azo-dyes, nickel, etc.) as well as the American requirement regarding total content of lead in children's articles (CPSIA; with the exception of accessories made from glass).

The holder of the certificate, who has issued a conformity declaration according to EN ISO 17050-1, is obliged to use the Oeko-Tex® mark only in conjunction with products that are conform with the sample initially tested. The conformity is verified by audits.

This authorisation is valid until 31.05.2015



EMS-GRILTECH worldwide

www.emsgriltech.com

EMS-GRILTECH is a Business Unit of EMS-CHEMIE AG, which belongs to EMS-CHEMIE HOLDING AG (www.ems-group.com).

We manufacture and sell Grilon, Nexylon and Nexylene fibers, Griltex thermoplastic adhesives, Grilbond bonding agents, Primid crosslinkers for powder coatings and Grilonit reactive diluents. We have developed these materials and additives into outstanding specialty products for technically demanding applications. In this manner we create added value for our customers who enjoy success in their own markets through continuous improvement.

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