

# Culimeta®



## FACTS: Laminates



# Culimeta®

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50 JAHRE  
1958-2008

Culimeta®

# QUALITY FOR MORE THAN 50 YEARS

## Proven products for thermal, electrical and acoustic insulations

Started in 1926 in The Hague by Henri Cuyilts, his son Alfons Cuyilts in 1958 continued the company in Monheim as a trading business for thermal and electrical insulation hoses and gaskets made of glass fibre textiles.

In 1961, the conditions for the company to start its own production were created. Vincent and Diederik Cuyilts now run the company in the third generation. Today, the group operates 8 production sites in Germany, France, the UK, Latvia and Italy with a production space of more than 26 000 m<sup>2</sup> and 250 employees ensuring a wide product range within a powerful distribution network.

In Germany, Culimeta operates from two sites. With more than 70 employees at the parent plant in Bersenbrück and the site in Mölln, we master

the basic technologies and processing methods which are essential for developing and manufacturing high-end glass fibre textile products.



# CONTACT PARTNERS

## SALES & SERVICE

### Sales & Service

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The products listed in this publication are an excerpt from our standard supply range. Any deviating customised versions and dimensions are available on request.

Please do not hesitate to contact us!

# RAW MATERIAL: E-GLASS

## E-glass

### Raw materials used, among others

E-glass yarns and threads, texturised E-glass yarns,  
defined diameter 4 - 13  $\mu$

### Application temperature

450°C, short term up to 550°C

### Properties

- No health risks as free of asbestos, basalt and ceramic fibers
- Fire-proof
- Non-ageing
- Good electrical insulation
- Good thermal insulation
- Oil and solvent resistant
  - chemical resistance (pH 3 - 9)
- Not hygroscopic
- Environmentally friendly



# E-GLASS: SPECIFICATIONS

## Chemical composition

SiO <sub>2</sub>	53 - 57 %
Al <sub>2</sub> O <sub>3</sub>	12 - 15 %
CaO + MgO	22 - 26 %
B <sub>2</sub> O <sub>3</sub>	5 - 8 %
F <sub>2</sub>	0 - 0,6 %
Na <sub>2</sub> O + K <sub>2</sub> O	< 1 %
Fe <sub>2</sub> O <sub>3</sub>	= 0,5 %
Other	n/a

## Physical properties

Density	2,60 g/cm <sup>3</sup>
Hardness	5,60 (Vickers 50 g-15 s)
Sound velocity	5680 m/s

## Mechanical properties

Tensile strength virgin filament	3.400 MPa = 493 ksi
Tensile test yarn	2.400 MPa
Tensile modulus	10,5 msi
Tensile strength sized yarn	min. 50 cN/tex
Elongation at break for sized yarns	
according to binder	2,2 - 2,5 %
Elastic recovery	100 %

## Electrical properties

Dielectric constant	6,40 at 1 MHz
Dielectric constant	6,13 at 1 GHz
Loss angle	0,0018 - 0,0039 bei 1 MHz
Loss angle	0,0039 at 1 GHz
Volume resistivity	1014 - 1015 W × cm
Surface resistivity	1013 - 1014 W × cm
Electric strength	8 - 12 kV/mm

## Thermal properties

Softening point	840°C
Strain point	617°C
Linear coefficient of thermal expansion	5,3 × 10 <sup>-6</sup>
Specific heat	@ 20° C 0,764 J/g °K
	@ 200° C 0,958 J/g °K
Coefficient of thermal conductivity	1,0 W/m × K

## Thermal resistance

Temperature in °C

-200  
200  
300  
400  
500  
600

## Virgin filament

Residual strength in %

100  
98  
82  
65  
46  
14

# LAMINATED HEAT PROTECTION TEXTILES

Culimeta has a wide range of textile products with different coatings, laminates and finishes. Apart from standard mass produced makes, our company is particularly associated worldwide with highly specialised niche products.

All types of our fabrics, meshes, needle mats and fleeces can be laminated with a single or double-sided aluminium foil and/or self-adhesive film. For laminating the materials, adhesive films and webs meeting the relevant requirements are used.

## Specifications of aluminium foils:

- Maximum contact temperature: 180°C
- Aluminium purity 99.5%
- High resistance to cracks and abrasion
- Mechanical properties according to DIN EN 546-2
- Water vapour permeability  $< 0.05 \text{ g} / 24 \text{ h} / \text{m}^2 / 1 \text{ Mpa}$
- Thicknesses between 0.010 to 0.150 mm
- Depending on requirement soft, hard, embossed or perforated



## Product example: Textile

E-glass textile with aluminium foil and self-adhesive film

Product no.	FBO023ADK
Material type	E-glass
Width	1000 mm
Thickness	0.85 mm
Weight per unit area	ca. 610 g/m <sup>2</sup>
Heat resistance	
• E-glass textile	450°C
• Adhesive film	-40°C to +140°C 180°C (short time)



## Finishes

- Desized
- Caramelised
- Vermiculite

## Coatings

- Polyurethane
- Silicone

## Laminations

- Aluminium foil
- Metallised polyester film
- Self-adhesive film

## Product example: Needle and stitch-bonded mats

### E-glass needle mat with aluminium foil and self-adhesive film

Product no.	FNMB021ADk2
Material type	E-glass
Width	1000 mm
Thickness	3.0 mm
Weight needle mat	ca. 650 g/m <sup>2</sup>
Heat resistance	
· E-glass needle mat	450°C
· Adhesive film	85°C



### E-glass stitch-bonded mat with aluminium foil

Product no.	FNMB041BAL
Material type	E-glass
Width	1000 mm
Thickness	12.0 mm
Weight stitch-bonded mat	ca. 2900 g/m <sup>2</sup>
Heat resistance	
· E-glass stitch-bonded mat	450°C
· Adhesive film	85°C



### Available thicknesses:

- E-glass needle mats 3, 6, 10, 12, 15, 20, 25 mm
- E-glass stitch-bonded mats 6, 10, 12 mm

### Available weights

- E-glass needle mats 400 - 4.500 g/m<sup>2</sup>
- E-glass stitch-bonded mats 1.500 - 2.900 g/m<sup>2</sup>

# LAMINATED HEAT PROTECTION TEXTILES

## Other product example

### E-glass mesh fabric with aluminium foil

Product no.	FLL*
Material type	E-glass
Width	500 mm
Unit area weight	ca. 140 g/m <sup>2</sup>
Heat resistance	
· Adhesive film	-40°C bis 80°C



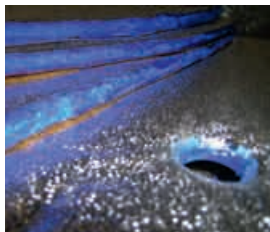
→ Other widths or unit area weights on request!

### Additional features

- Cut finish on both edges
- Edge-sealing of needle or stitch-bonded mats
- Punch manufacturing for mass production

### Availability

- As rolls or plates
- Joined widths of up to 1500 mm on request



# CERTIFICATES

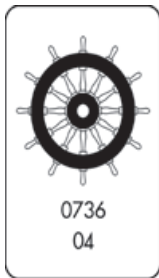
Here you find an overview of the current certificates and approvals. These are available on our homepage under <http://www.culimeta.de/downloads.php> as PDF downloads:

## Certificates:

- Certificate ISO 9001:2000, Culimeta Germany
- Certificate ISO/TS 16949:2009, Diedrichs GmbH

## Approvals for marine applications:

- EC-Type Examination certificate E-glass fabrics
- EC-Type Examination certificate E-glass needle mats
- EC-Type Examination certificate Thermolastic
- EC-Type Examination certificate Thermoplastic protective insulation
- Certificate Module D - Marine Equipment



We will gladly provide you with other certificates, approvals and patents of affiliated companies of the Culimeta group (e.g. for the field of railway transport).

# CONTACT PARTNERS

## QUALITY DEPARTMENT

The requirements on product quality and seamless documentation are increasing steadily. Their implementation is a key component of any forward-looking company philosophy.

Culimeta has proven in several audits that a quality management system has been installed in accordance with the standard requirements.

The German Professional Marine Association (See-Berufsgenossenschaft) as certifying body within the BG – PRÜFZERT certified the standard compliance already in 2005 by issuing the ISO 9001:2000 certificate.

### Quality Department

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