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**ENNEATECH**  
ENGINEERING POLYMERS

# ENNEAFIL

reliable, ecological,  
powerful

## ENNEAFIL

Strong fibres for  
future-ready concrete



### Power matrix

Ultra-lightweight | high stability  
excellent heat-insulating properties

ENNEAFIL - The high-performance polyamide fibre for concrete optimisation with outstanding mechanical properties and a wide range of applications. The use of ENNEAFIL significantly reduces cracking, reduces shrinkage and in some cases replaces or reduces steel reinforcement.

## ENNEAFIL Micro-A 12mm

### NOTICE

The following information has been compiled to the best of our knowledge and represents the current status of our experience and knowledge. These specifications are product descriptions, however, in no case do they constitute guarantees of quality or durability. The user is obliged to carry out their own examinations and tests in their specific area of business when processing and using our products. The information cannot be transferred to other products made with our material.



## COMPANY

ENNEATECH AG

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## PRODUCT

Trade name	<b>ENNEAFIL Micro-A 12</b>
Article number	<b>36121</b>
Polymer	<b>PA 6.6</b>
Colour	<b>Colorless</b>
Melting temperature	<b>255-265 °C</b>
Fibre shape	<b>Straight (Longitudinal Direction); Round (Cross Section)</b>
Fibre class	<b>I b – System 1</b>

## CHARACTERISTICS

Filament diameter	[DIN EN 14889-2:2006-11]	<b>27</b>	[µm]
Filament length	[DIN EN 14889-2:2006-11]	<b>12</b>	[mm]
Modulus of elasticity	[DIN EN 14889-2:2006-11]	<b>5.15</b>	[GPa]
Tensile strength	[DIN EN 14889-2:2006-11]	<b>900</b>	[MPa]
Density	[DIN EN 14889-2:2006-11]	<b>1.14</b>	[g/cm³]
Water absorption	[DIN EN 14889-2:2006-11]	<b>2.7</b>	[%]
Elongation at break	[DIN EN 14889-2:2006-11]	<b>16</b>	[%]

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## PROCESS

Ignition temperature **> 420** [°C]

Glass transition temperature **50-55** [°C]

## INFORMATION

Packaging **Foil bags 36 × 0.5 kg per carton (18 kg) or 18 × 1.0 kg per carton (18 kg)**

Filament count **111,000,000 pcs/kg**

Fibre dosage **1.5 kg/m<sup>3</sup>**

- **VEBE time with fibres 5.9 seconds**

- **VEBE time without fibres 4.1 seconds**

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## APPLICATION AREA

The polyamide fibre is designed for use in concrete, mortar and grout.

## EXAMINATION / CERTIFICATES

Polyamide fibre for concrete, mortar and grout for other purposes according to DIN EN 14889-2:2006-11 (fibre class Ib). Certificate of constancy of performance no: 1077-CPR47301101 / of the notified certification body NB 1077 RWTH Aachen in accordance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (Construction Products Regulation).

## EFFECT

- Prevention and reduction of crack formation
- Prevention of crack dispersal
- Reduces shrinkage of the concrete
- Stabilising effect in concrete
- Ductile fracture behaviour
- Good chemical resistance (acid and alkali resistance)
- No corrosion, therefore no rust spots
- Easy processability

## DOSAGE RECOMMENDATION

Recommended dosing range: 0.5 – 3.0 kg/m<sup>3</sup>.

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## ADDITION / MIXING RECOMMENDATION

Good results in terms of fibre distribution are obtained when adding the fibres in the dry state of the mixture with a minimum mixing time of 60-90 seconds before adding the water. For high fibre dosages, the mixing time can also be considerably longer in order to achieve the optimum fibre distribution in the mixture.

## SPECIAL NOTES

The hydrophilic nature of the polyamide can cause a loss of consistency in the concrete. It is recommended to compensate the loss of consistency with a superplasticiser instead of water and adjusting the formulation accordingly. In rare cases, there may be an increase in the air void content. If the air void content increases, appropriate measures should be initiated. It is recommended to carry out a suitability test before using the concrete with the fibres. It is recommended to carry out preliminary tests under practical conditions in order to check the production and further processing as well as the static effect of the fibre-reinforced concrete. Please contact our application technology department.

## COMBINABILITY

A useful addition to microfibres can be our Enneafil Macro-A 40 or Macro-A 60 products.

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## STORAGE CONDITIONS

Can be stored for up to 5 years in the original outer packaging at temperatures from 0°C to 40°C. Protect from direct sunlight and moisture.

## OCCUPATIONAL SAFETY / ENVIRONMENTAL BEHAVIOUR

There are no known disadvantages when used properly. The regulations for occupational health and safety and hygiene must be observed.

## PACKAGING / DELIVERY

36 × 0.5 kg foil bags per carton (18 kg)  
18 × 1.0 kg foil bags per carton (18 kg)

## PROCESSING RECOMMENDATIONS

It is recommended to pre-mix Enneafil Micro-A with the concrete constituents in the dry state before adding water.

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