EDITION 05/22

FIBER TECHNOLOGY

Polypropylene fibers | Glass fibers | Glass fiber mats

APPLICATION

DIMENSIONING

DESIGN

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RCT gmbh
REISACHER CHEMIE & TECHNIK

POLYPROPYLENE FIBERS

Applications

Polypropylene fibers can be used to improve the quality of all mineral-bound building materials, e.g. precast concrete, ready-mix concrete, screeds, industrial floors in mortar.

The use of polypropylene fibers in industrial floors and stables can eliminate the need for complex and expensive steel reinforcement. Construction joints can be cut more easily, smoothly and quickly with improved edge breakage.

Static dimensioning for industrial and stable floors is carried out for our customers by our consulting engineering office.

Due to the use of polypropylene fibers, the installation can be carried out cost-effectively without the use of concrete pumps. The time-consuming installation of spacers and steel mats is no longer necessary.

They are cheaper than steel reinforcement or steel fibers, the risk of corrosion is eliminated and the concrete is easier to smooth than with steel fibers.

Properties

Polypropylene fibers consist of 100% pure polypropylene and are therefore physiologically harmless. They are manufactured according to the quality standards of ISO 9001 and have a general building authority approval!

Addition and dosage

Polypropylene fibers can be added in bulk or in water soluble plastic bags.

The dosage level is 0.7 kg to 1.2 kg per m^3 of concrete.

Polypropylene fibers can be added in the mixing plant as well as directly in the truck mixer.

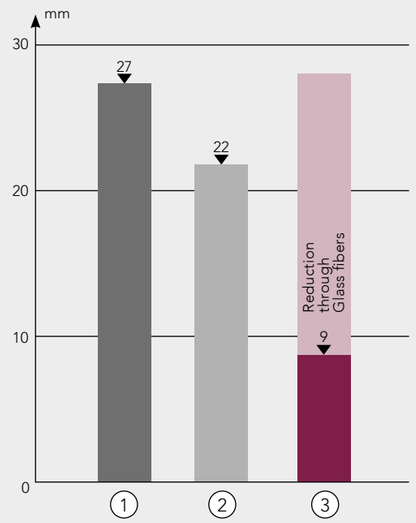
Advantages of polypropylene fibers in fresh concrete

- Chemically neutral to all cements and admixtures
- Very strong reduction of early shrinkage cracks due to reduction of early shrinkage stresses
- Easy mixing
- No wear of the mixing tools
- Smooth, fiber-free concrete surface
- Retention of water, thus improving the curing process
- Non-toxic and environmentally friendly
- Increase of the water retention capacity of the concrete
- Improvement of green strength

Advantages of polypropylene fibers in hardened concrete

- Improvement of abrasion resistance
- Improvement of resistance to frost and de-icing salt
- Reduction of the penetration depth of water and chemical substances
- Improvement of impact strength
- Improvement of tensile strength
- No possibility of corrosion
- No effect on coatings or surface treatments
- Smooth fiber-free concrete surface
- Increase in flexural tensile strength
- No risk to health and injury to humans and animals due to protruding steel fibers.

Water penetration depth (pavement concrete)



① Cement content CEM I 42.5 Z = 350 kg/m³

② Cement content CEM I 42.5 Z = 290 kg/m³
Hard coal fly ashc FA = 60 kg/m³

③ Cement content CEM I 42.5 Z = 290 kg/m³
Hard coal fly ash FA = 60 kg/m³
AR Glass fibers cretex® 13X GF = 4 kg/m³

Feature	Unit	Polypropylene	Steel	AR Glass
Tensile strength	MN/m^2	370	1.100	3.500
E-Modul	MN/m^2	4.000 – 6.000	200.000	74.000
Fracture resistance	%	11	5 – 35	2
Bulk density	g/cm^3	0,91	7,85	2,7
Length	mm	18	60	13 – 25
Diameter	mm	0,038	0,8	0,013
Surface	m^2/kg	125	1,0	115
Number of fibers	per g	63.000 x 10	22	215.000

Damage in steel fiber concrete

ALTA FIBER GLASS FIBER

Basics and application of glass fiber concrete

In order to produce concrete components that are even thinner, lighter, more durable and more cost-effective, the development of glass fiber concrete is advancing all the time. With the appropriate dosage, the glass fibers are statically effective and absorb the highest tensile forces like steel reinforcement.

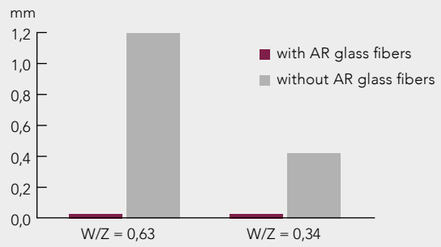
Due to the fact that there is no longer any danger of corrosion, it is possible to manufacture components thinner.

The design of glass fiber reinforced concrete components consists of the mathematical proofs that a component fulfills the requirements regarding structural safety and serviceability. This concept corresponds to today's design standards.

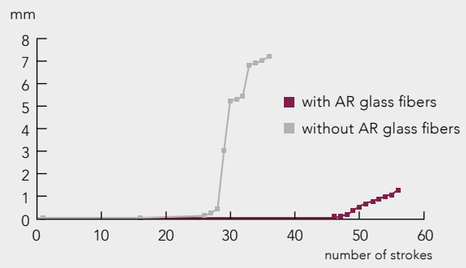
Advantages of polypropylene fibers in fresh concrete

- Consulting on the use of glass fibers
- Compilation of the correct fiber dosage and concrete formulation
- Execution of concreting tests
- Carrying out of dimensioning by our engineering office
- Demonstration of possible applications

Carbonation depth

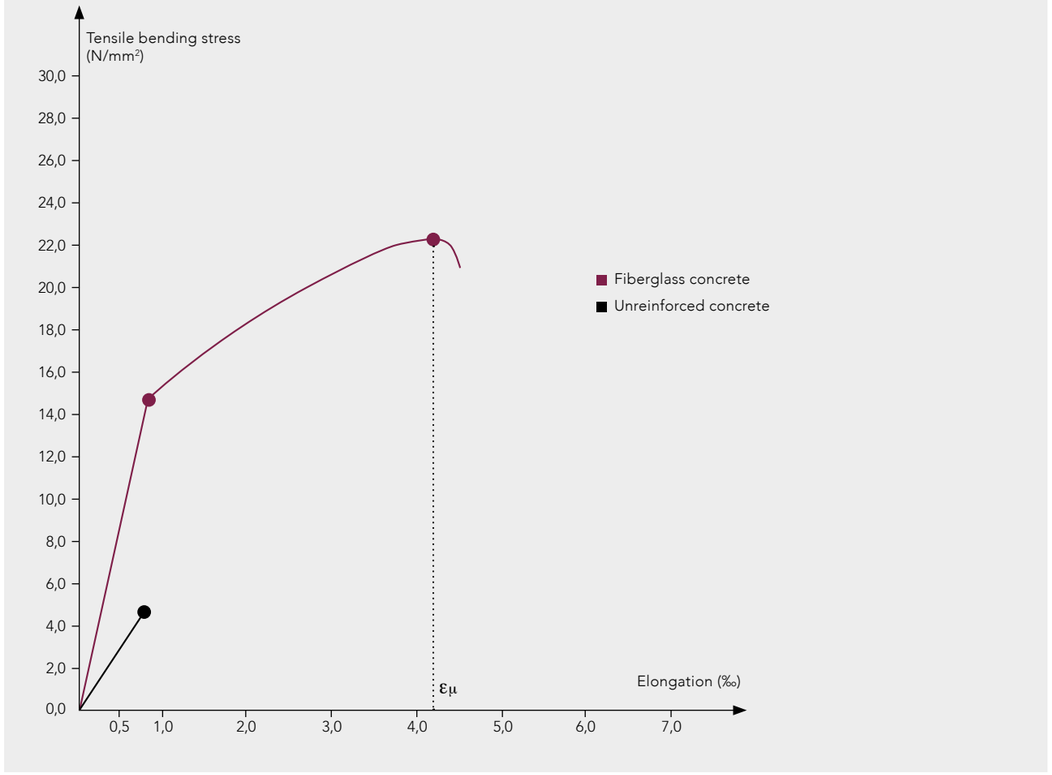


Impact strength

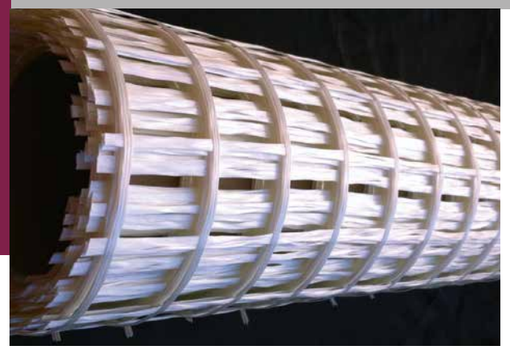


Comparison of flexural strength of glass fiber-reinforced concrete and unreinforced concrete

Depending on the amount of glass fibers added, the flexural strength of the concrete will be increased.



ALTA FIBER GLASS FABRIC AND MATS

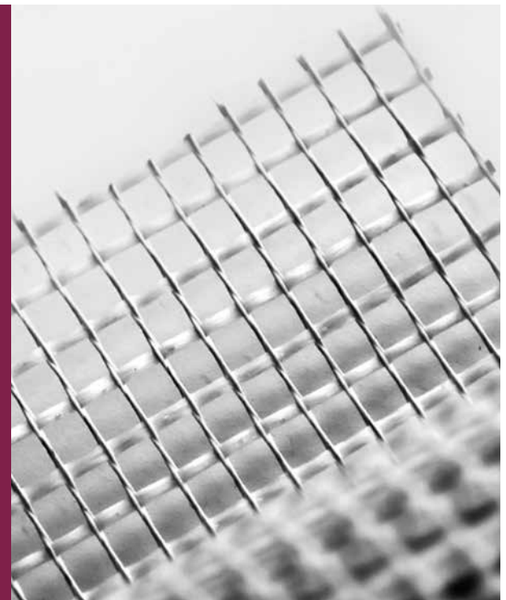


Product description

Alta fiber fabrics/mats are made of alkali-resistant direct rovings. They exhibit durable resistance in acidic and alkaline media. Thin-walled concrete components such as tables, stair treads, etc. can be reinforced with these fabrics.

The mats/fabrics can be added to all mineral-bound building materials such as precast concrete, screeds, special components and mortars.

Our product range covers movable and rigid mats/fabrics, depending on the application or type of component. Due to their high flexural strength, they serve as reinforcement for thin-walled components. They can be cut to size with standard scissors.



Product advantages

- Increase in flexural strength
- Minimization of hairline cracks
- Increased durability of concrete
- Serves as crack reinforcement
- With one design they can be included in the static calculation
- No concrete cover required

DESIGN PLASTIC FIBER CONCRETE

FOR INDUSTRIAL FLOORS, HALL FLOORS, PARKING LOTS

CONTACT DATA

Company/client .....

Street .....

Postcode/Place .....

Company/client .....

Phone .....

E-mail .....

CONSTRUCTION DETAILS

☐ Outer surface ☐ Interior area

Floor area m² ..... Start of construction .....

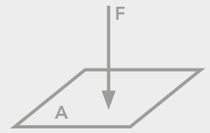
Special features .....

FLOOR SLAB DETAILS

Floor slab thickness (cm) ..... Concrete quality C ..... Base layer EV2 (MN/m²) .....

Soil parameter ..... Concrete compressive strength (N/mm²) .....

LOADS



Area load

..... kN/m²

Shelf load

..... kN/m²

Point load

..... kN/m²

Contact area

x .....

Stacker

Total weight

..... (tons)

Axle load

..... (tons)

Wheel load

..... (tons)

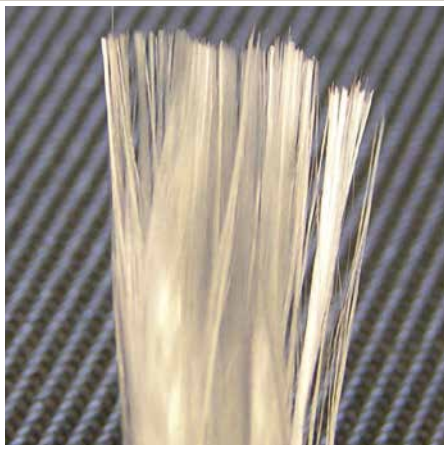
TRUCK/SLW

SLW 30 .....

SLW 60 .....

Total weight

..... (tons)



www.rct-germany.de

RCT Reisacher Chemie & Technik

Hermann-Krum-Straße 7
88319 Aitrach
Germany

Phone +49 (0) 7565 942 687 – 0
Fax +49 (0) 7565 942 687 – 90

info@rct-germany.de
www.rct-germany.de

RCT develops, produces and distributes high quality chemical construction admixtures for the professional concrete and precast industry. Continuous research and development, innovative production processes and many years of experience in the concrete industry – that is the basis for our success.

Our performance is underlined by flexibility, competent advise on site by our field service and our worldwide partners, application support and a complete product range

Products

- Fiber technology
- Concrete admixtures
- Pigments and liquid colors
- Concrete release agents
- Mixer protection
- Special products