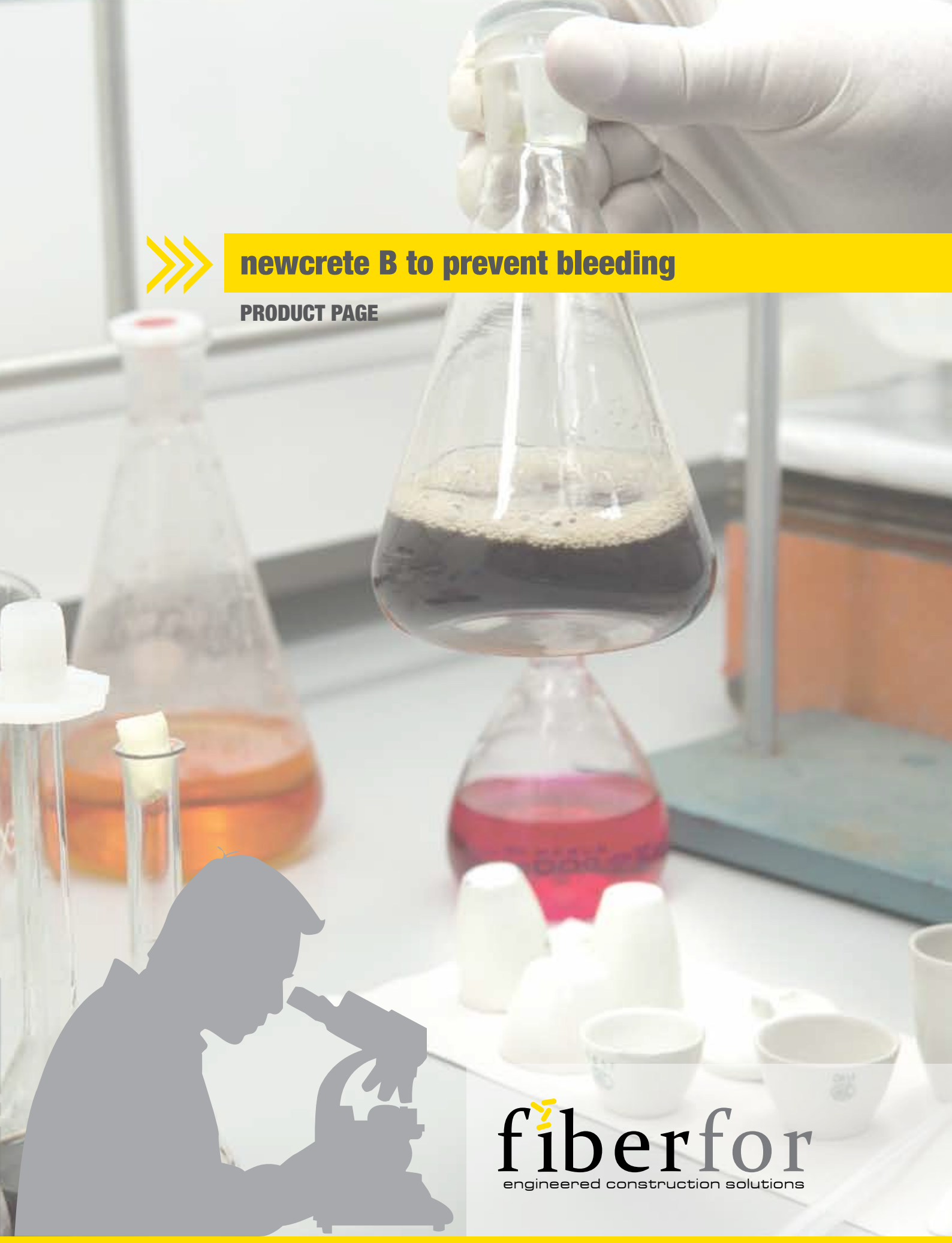
newcrete B to prevent bleeding

PRODUCT PAGE



fiberfor
engineered construction solutions

newcrete B to prevent bleeding

The Problem

Bleeding is a phenomenon characterized by a rise in the water leading to an erosion of exiguous components (e.g., cement, charcoal and powdered sand) to the surface of the pouring. This phenomenon causes the casting to weaken because of segregation, separation and decomposition of the concrete's components.

The phenomenon is created as a consequence of osmotic and/or hydrostatic stresses and a sedimentation of coarse aggregates leading to a number of irreversible defects in the cement's matrix;

- Weakening the applications until their disqualification.
- Cement losses due to concrete component leakages into the soil.
- Aggregate sedimentation and segregation of the concrete
- Cracking
- Depreciation (e.g. Damaged granite pile heads that must be cut, filled and renewed, defective pilings, etc.)

The Solution

The solution presents the latest development surrounding synthetic microfibers, designated to resolve the problem of bleeding and reinforcement of various applications' foundations.

The fibers are based upon a designated, patented technology and characterized by certain chemical and mechanical properties that enables a highly effective tool used to prevent the phenomenon, thanks to the interaction obtained with the cementic system that creates a network for improved concrete coherency.

The fibers are 100% polymer nylon and characterized by an ultra-thin fiber diameter. High friction and bonding coefficients with the concrete.

These characteristics enable an optimal reinforcement of the cementic matrix for the benefit of resisting osmotic and hydrostatic stresses faced by the concrete during the creation of this phenomenon.

The Advantage

In contrast to the commonly practiced solution of additives that reduce bleeding, while creating other problems (e.g., air pockets that damage the concrete's strength, high cement content that affects the concrete's workability, critical in foundation applications and significantly increases project costs);

newcrete B fibers significantly reduce the appearance of bleeding and offers other advantages that improve the concrete's properties; e.g., flow capability, strength and the pour's resistance to seismic stresses.

The correct use of fibers enables a significant savings in both time and in money, reduced depreciation, a reduction in the quantities of additional cement above and beyond standard requirements, cost cuts and shortened time frames for project execution.

Primary Applications

A Specific Development for Resolving the Problem of Bleeding

The fibers assist in reducing bleeding in a variety of overall applications and in particular foundation work, for example:

- Bentonite Pilings
- CFA Pilings
- Cellar Walls
- Multiple Volume Elements
- Multiple Depth Elements

Technological Characteristics

The Fibers' Composition

The fibers are microfibers, made from polyamides (nylon 6:6) composed from a hydrogen, oxygen and nitrogen mix.

These components grant the fibers their hydrophilic qualities and required compatibility with concrete mixtures that enables the fibers to disperse uniformly throughout the matrix and strengthen their coherency to the concrete.

The Fibers' Properties

The fibers are chacterized by mechanical properties such as strength, extension and toughness. These properties contribute significantly to receiving a particularly high friction co-efficient of the fiber with the cementic matrix.

The fibers are characterized by various structural properties (a molecular orientation) that enable a high fiber content in the matrix, thanks to ultra- low diameters (microfibers) and high friction coefficients. The fibers produce a reinforced network for the concrete paste and improves the mix's coherency.

The fibers are characterized by stable chemical properties, thereby providing them outstanding advantages such as particularly high thermal, alkali and UV radiation resistance.

Technical Properties

Structure	Filamentary
Length	12 millimeter
Nominal Diameter	12 micron
Density	1.14 grams per cubic cm
Nominal DiTex	1.5
Tensile Strength	350 MPa
Elastic Modulus	2200 MPa
Liquefaction Temperatures	264°C
Alkali Resistance	Very High
Acidic Resistance	Very High
UV Radiation Resistance	Very High
Color	Transparent

Contents and Quantities

Fiber Quantity per Cubic Meter

The optimal quantity is one product bag containing 300 to 500 gram fibers per cubic meter concrete. (Compliant with the application's characteristics)

Cement Quantity per Cubic Meter

The recommended quantity is according to standards or the foundation engineer's specifications.

Test Results

Today, by simply adding newcreteB fibers to any cement mixture, according to the recommended dose, it is possible to reduce significantly 'bleeding' that occurs in foundation applications, by combining the fibers while protecting and improving the concrete's properties including the prevention of failures and defects and the resultant costs in their repair.

Service and Support

The Laboratory

The product was developed in our laboratory. The laboratories are state of the art and among the most advanced in the field of fibers and concrete, servicing to adapt the solution to each application and project for technical consultation purposes during any application for the benefit of meeting the specific needs of each of our customers.

Experts in the Field

The product is adapted to the specifications of each application, at both the fiber and the concrete levels.

The company's experts offer technical support services at the design level to assist and define the solution's scope and character (the quantity and type of fibers required) and during implementation and execution, through accompanying, consulting and providing expert technical support as required.

Actual Application

Blending Fibers into the Aggregate

It is possible to add fibers during each of the concrete preparation stages

There is no need to modify the composition of the planned concrete aggregate.

The product bags decompose in the concrete aggregate and release the fiber content into the mixture with the fibers disperse uniformly across the matrix.

Add the amount of fibers compatible to the volume of concrete in the drum, according to the required dose and mix at the maximum speed (at least 70 rotations) for at least 4 minutes.

Packaging and Storage

Storage

The shelf-life of the packaged product is approximately one year.

The product must be stored in a dry and protected environment.

Delivery

The product is manufactured and packaged in the company's facilities.

The product comes packaged in decomposable paper bags or in bulk.

The quantity of fibers in the packaging can be adapted according to the customers specific needs and requirements.

The shipped product arrives in decomposable bags, packed in carton boxes.

A label containing the product's specifications is attached to each carton.

Packaging

The dimensions of the carton packaging are 46 x 34 x 39 (height, length, width) and each carton contains 50 packages of 300 grams or 30 packages of 500 grams fiber per bag.

The product comes with the following documentation:

- Bill of Lading
- Invoice
- Instructions for Use
- MSDS Safety Instructions
- Product Quality Compatibility Approval
- Examining the Real -Time Impact of the Fibers

A Sample Project - The Dan Region Wastewater Treatment Plant (Shafdan)

The Application

Bentonite pilings constructed by the Solel Boneh company.

Location and Climate Conditions

The Dan Region Wastewater Treatment Plant (Shafdan), near Rishon Le'Zion, in climatic conditions characterized by enhanced humidity caused by proximity to the sea and a brackish watertable.

The Problem

Bleeding and concrete sedimentation of approximately one meter in the pile because of problematic soil and a high pressured aquifer.

The Solution

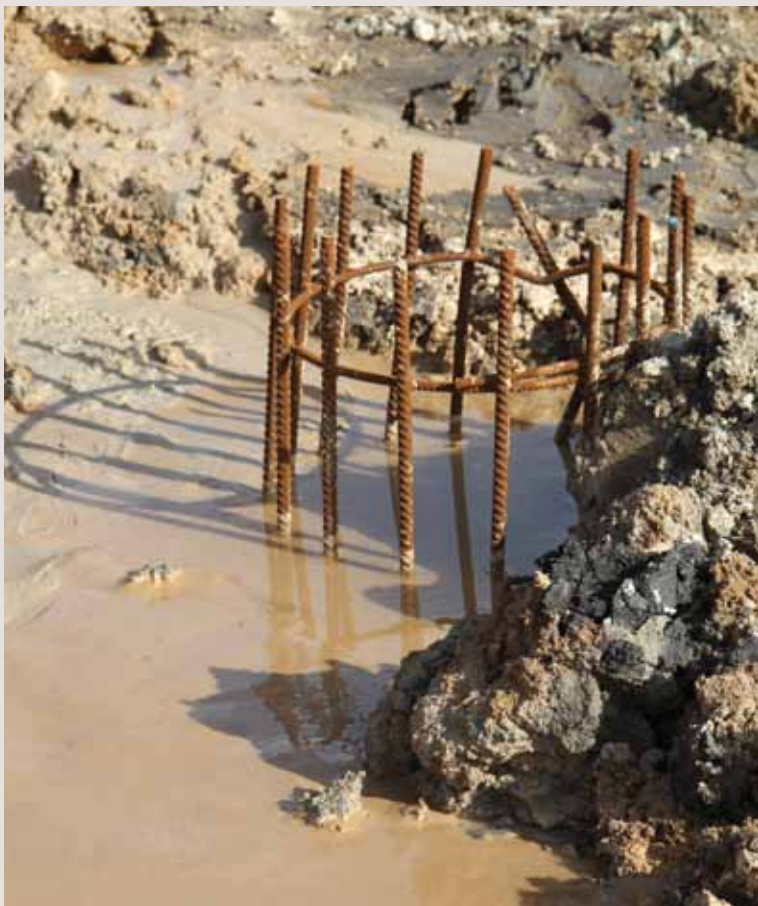
Prevent bleeding by adapting the specialized solution to bleeding in Bentonite pilings applications, in problematic field conditions as detailed and experienced in this project, through the use of newcreteB 6:6 nylon fibers.

Fiber dose.....300 gram / cubic meter
Concrete quantity for the pilings ..... 45,000 cubic meter
Quantity of Pilings..... 1,400
Pile Diameter.....80 to 100 cm
Pile Depth.....30 meters

Results

There was a total cessation of all bleeding, an abbreviated project timetable, a return on investment and increased profitability as a consequence of the following:

- Reduced defections and depreciation (leading to defective pile heads required chiseling, filling and preparation of new pile heads, and the rejection of weakened pilings, etc.)
- Reduced the scope of finishing work to chisel and completing the pile heads
- Reduced quantities of cement and other additives as required by SII 118.



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