



Basalt fibre technology for concrete reinforcing

Ground-breaking basalt fibre technology for reinforcing concrete has been introduced to the South African market by Basalt Technology, part of the PMSA group of companies. PMSA (Pan Mixers South Africa) is a leading supplier of manufacturing machinery and technology for concrete bricks, blocks and paving.

PMSA marketing and sales manager, Quintin Booysen, says Basalt Technology was officially established in January 2012, to promote the substantial benefits of its new concrete reinforcing product StoneRod, which is made from basalt rock.

“StoneRod is a basalt fibre product that offers a cost-effective alternative to industry-standard steel and E-glass concrete reinforcing products for various applications and it complements PMSA’s existing range of concrete-related products and technology,” says Booysen.

Basalt Technology director, Gordon Forrester, explains that the basalt rock is transformed into fibres by taking the rock in its purest form, melting it and drawing it through dies. The material can then be spun to produce a twisted yarn, or can be wound as a single filament. “Once the StoneRod fibres are formed, they are processed to create different products. StoneRod has similar chemical properties to glass fibre and StoneRod materials can be used in all the applications where glass fibre is traditionally used.”

Forrester highlights the tensile strength of StoneRod fibre – at 4 840MPa – compared to E-glass at 3 250MPa. “As well as being almost fifty percent stronger than glass fibre, StoneRod is also impervious to water and heat,” he adds.

StoneRod fibres can be manufactured into concrete rebar using a pultrusion process and Forrester points out that StoneRod rebar is corrosion-proof, it is 87% lighter than steel and has a tensile strength of 1 200MPa. “The lifespan of concrete can be extended significantly, particularly in coastal areas, by using StoneRod rebar. The product’s resistance to rusting means that the concrete does not become distressed as is common with steel reinforcement.”

StoneRod can be used in various building and civil engineering applications, in concrete

rebar, concrete floor reinforcement, fence droppers, Shotcrete and asphalt reinforcing for roads. The fibre can also be used to reinforce pothole patching materials and is being used increasingly internationally in road construction.

Forrester says that basalt fibre technology has been known since the 1920s but it was not until the 1990s that it moved into

commercial production internationally.

“In South Africa,” he says, “StoneRod rebar is currently being tested at the civil engineering department at the University of the Witwatersrand and the basalt fibres are being tested at the University of Johannesburg’s civil engineering department. The test programme has been put in place in order to provide future

customers with additional assurances regarding the products’ quality and authenticity.”

He adds that StoneRod has many applications outside the concrete market: in cladding panels, for example, as well as thermal and acoustic insulation, fireproofing and sound-proofing materials and geo-grids.

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Basalt Technology’s StoneRod rebar offers a cost-effective and corrosion-proof alternative to conventional steel or glass fibre reinforcing.