

EUREKA NETWORK PROJECT 4443 INNODISP CONCRETE



REVOLUTIONARY CONCRETE PRODUCT ACHIEVES GREATER STRENGTH WITH HALF THE VOLUME

An improved concrete product known as PrimeComposite has taken the global market by storm; with impressive reductions in volume required compared with traditional concrete, as well as superior mechanical properties, it offers environmental, structural and economic benefits in one package.

Concrete, because of its strength and durability, has been a mainstay of construction for thousands of years. The problem is that, while it is very strong, it is not particularly efficient and it is no friend to the environment; the cement industry is one of the primary producers of CO2 worldwide. The material is also prone to cracking as it dries, a feature which significantly reduces the lifespan of concrete structures and makes them less aesthetically pleasing.

In recent years, however, the market has changed thanks to an innovative product developed by a consortium of partners from Belgium and Latvia. It all began with research conducted by the University of Latvia's Institute of Polymer Mechanics, which suggested that randomly-dispersed fibres scattered in a special, improved concrete mixture would allow it to bear double the load of other concrete. Latvian SME Primekss Ltd, an expert in concrete coverings, saw an opportunity here to develop a new, more efficient product that might fill a gap in the market.

Making ideas concrete

With the help and support of the EUREKA Network, Primekss and the Institute of Polymer Mechanics joined forces with Belgian SME Sprl Xavier Destree to engage

in INNODISP CONCRETE, a project that ran between 2008 and 2010 with €230,000 in funding. Its aim was to create an improved concrete that could achieve the same construction goals as regular concrete when 20% less was used – but in practice, the researchers achieved even better with a 50% reduction in volume. On top of this, the new product – PrimeComposite – reduces and often eliminates the need for joints, which are always a weak spot in concrete constructions. It is also lean, crack-free and immune to shrinkage.

As project leader, Primekss played a significant part in the day-to-day activities on INNODISP CONCRETE, as CEO Janis Ošlejs recalls: "Our role was to work together with the other partners to come up with systems and recipes for making better concrete – as well as providing a place for field tests and application of the product." Although this work had its share of challenges, it resulted in lasting partnerships that persist today, and big changes for the SMEs involved. "Primekss is far more successful than it used to be," Ošlejs enthuses. "The project has directly created at least 40 jobs since 2010."

But the biggest success story is in the product itself, which continues to exceed competitors and has achieved sales of more than €100m to clients throughout Europe, South Africa, Kazakhstan, the USA, India, Russia and many other countries. Going forward, Primekss will further investigate and develop the impact of its innovative material – and it will facilitate this goal by applying, once again, for EUREKA funding. "EUREKA has been a very important part in the success of this project. Its support and funding have helped us focus on the development of the product, and we are

really grateful to the Network for this assistance."

The partnership was very profitable for all parties involved and brought together various competences without which the project could not have achieved its outstanding results. The Vilnius laboratory refined its spatio-temporal characterisation process using lasers from Ekspla, also based in Vilnius, and tested it on all kinds of advanced semiconductor structures made by the German company Aixtron, enhancing

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the quality of its products. Based in North Rhine-Westphalia, Aixtron is the leading supplier in the world in its field, which has helped bring the innovation to the attention of companies and scientists from around the world and increased the visibility of Professor's Jarasiunas' laboratory. The researchers have published a number of papers on the holographic techniques and have carried out testing using the prototype at Vilnius and now Ekspla is in talks to make the diagnostic device for companies. «We're a small laboratory but through this partnership we've made a huge step in creating a device that is user-friendly, reliable and capable of analysing the various latest materials for electronics,” says Jarasiunas.

MAIN PARTNER

Primekss Ltd.
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OTHER PARTNERS

University of Latvia/Institute of Polymer Mechanics (Latvia)
Sprl Xavier Destree (Belgium)

TOTAL R&D INVESTMENT

€ 230,000

DURATION

24 months

COUNTRIES INVOLVED



EUREKA is a European network for market-oriented R&D.

