



New process in the concrete industry: Environmentally friendlier, market-specific and innovative

The Munich-based company MultiCON that has been engaged in the development of ecological and economical concretes for years inspires the construction industry with an environmentally friendlier process. Sand is required to produce concrete. 50 billion tons are extracted every year from nature. 40 billion tons of it are required solely by the construction industry. This has serious consequences for the ecosystem. The sand extraction destroys the habitats of animals taking away their basis of existence. Moreover, the base of many people's lives is endangered that for example make their living from fishing. A new patented process developed by the MultiCON GmbH allows making fine rock flour, fine and/or desert sand usable for the construction industry as of now. This way, the illegal extraction of sand and the global sand shortage can be counteracted.

Munich, August 2019. With a revolutionary technology, the Munich-based company MultiCON has achieved a breakthrough: Fine rock flour, fine and/or desert sands can be made usable for the construction industry as of now. In the process, fine and desert sands are pulverized to "fine sand flour" in a first step. Subsequently, this fine sand flour is pelletized with mineral binders in combination with special additives to form pressure-resistant pellets. The pellets then replace gravel during concrete production. Generally, tailor-made pellets in sizes from 0 to 16 mm with optimum grain size distribution are produced from the fine sand flour. By applying the MultiCON Dual High-Speed Mixing Technology, these pellets can then be used to produce high quality concretes which are reduced in weight by 25 %, harden more quickly and generally possess higher strengths than commercially available standard concretes 24 hours after production.

In addition, this patented MultiCON process offers a number of ecological advantages:

Enormous CO₂ savings

With the dual concrete mixing technology developed by the MultiCON GmbH, it is possible to produce high quality, less expensive and environmentally friendlier concretes. During conventional cement production, which is an essential concrete component, enormous quantities of the greenhouse gas carbon dioxide have been generated so far. MultiCON's innovative technology leads to a CO₂ reduction of up to 30 percent. "Above all it is a matter of optimizing the product of concrete to the highest possible extent and to preserve it for the future in terms of resource conservation", declares Dr. Leopold Halser, Managing Director of the MultiCON GmbH. "The production of 1 ton of cement generates up to 800 kg of CO₂. In the mass concrete area, where between 300 and 400 kg of cement are usually used worldwide, it was thus possible to avoid up to 100 kg of carbon dioxide emissions per cubic metre by applying our technology", the expert for suspension concretes said.

"As the production of CO₂-reduced concretes must be of global interest, however, a global application of the patented MultiCON method for the production of these concretes can only be implemented successfully and efficiently in a direct cooperation with the cement industry", underlines Dr. rer. nat. Helmut Rosenlöcher, Technical Director of MultiCON and inventor of the technology. With the MultiCON technology, multi-component cements developed by the cement industry can now be processed to high quality concretes that are suitable for mass production so that a global reduction of carbon dioxide emissions could be implemented on a large scale.

Particularly in the Middle East, where an almost unabated boom in the construction industry can still be observed, there is a high level of interest in the innovative technologies of the Munich-based company. MultiCON has agreed a longer-term cooperation with one of the largest cement producers in the



Middle East both for the production of CO₂-reduced concretes and also for the preparation of desert sands. This cooperation with the cement industry will result in a rapid dissemination of these technologies and thus an effective measurable ecological effect can be demonstrably achieved and with regard to the new guidelines of the Paris Agreement of 2016 a non-negligible contribution to CO₂ savings will be achieved.

In the face of the current controversy about the CO₂ tax, MultiCON focuses on combining economic interests with ecological objectives. "For the concrete producing industry, incentives would have to be offered where the use of CO₂-reduced concretes is simultaneously related to considerable savings in the concrete production itself. Construction must not necessarily become more expensive due to a CO₂ tax, but it must become more innovative", says Dr. Rosenlöcher.

No need for long transport routes

The MultiCON technology allows to process existing local sand sources which could not have been used for concrete production in the past. This way, for example tailor-made gravel aggregates up to 16 mm in size with perfect grain size distribution / composition can be purposefully produced from fine and also from desert sands. These pellets can then be perfectly processed in the matrix optimized suspension by MultiCON to form concretes with sustainable characteristics. By applying the MultiCON sand preparation plants and the MultiCON high-performance mixer, it is therefore not only possible to produce the raw materials sand and gravel required for concrete production, but also the high quality concretes produced from them. As a result, polluting and expensive transports carrying the aggregates to the construction sites are no longer necessary. "Especially in the so-called MENA countries, there is a great demand for plants for the preparation of desert sand in combination with the suspension technology", says Dr. Leopold Halser. The first plants have already been ordered and will soon be erected in Dubai and Egypt. Further valuable business relations to Jordan, Bahrain, Saudi Arabia and Kuwait have been established.

Use of resources by means of market-specific solutions

Due to its characteristics, desert sand has previously been unusable for the construction industry. This sand is too fine, geometrically too round and its surface is too smooth. By applying MultiCON's patented solution for the preparation of this specific fine sand, this resource can be used in the future.

But the processing of unused fine sands is also interesting for Europe. In Northern Germany, e. g. in Mecklenburg-Western Pomerania, but also in large parts of Eastern Europe, large quantities of unusable fine sands are available. For the company MultiCON it is obvious to use the existing resources of the natural sand and gravel reserves, in particular the unusable fine sand components from gravel pits, and not to dispose of them again as in the past, because this also causes great environmental damages.

Here in Germany, too, and in Europe in general, the patented method for the preparation of fine sands shall be applied. The prerequisites here are different from those in the desert: The studies on the sustainability of the concretes, particularly the frost resistance in Germany and in Europe, are currently being evaluated. "The preliminary results for the fine sand concretes submitted so far are very promising, so that it can be assumed that the previously unused fine sand reserves can be used for concrete production", underlines Dr. Helmut Rosenlöcher.

About MultiCON GmbH:



The MultiCON GmbH with headquarters in Munich was founded in 2016. The company offers innovative overall solutions for the concrete industry. The range of services covers concrete formula optimization, granting of patent and country licenses, know-how transfer, planning and construction of the plants with renowned industrial partners as well as operation of the plants. Furthermore, MultiCON is cooperating with renowned institutes and universities to develop new patents and products. MultiCON always searches for custom-fit solutions for global and local challenges in the industry and implements them in a market-specific way. For more information, go to www.multicongroup.com