Troldtekt®
Natural acoustic solutions

28.04.2023

Clarification regarding Troldtekt products based on FUTURECEM

Troldtekt products based on FUTURECEM are not carbon-negative throughout the product's entire life cycle, i.e. when looking at all the stages in an EPD.

The life cycle analysis on which our EPDs are based documents that Troldtekt based on FUTURECEM has a carbon footprint throughout the *entire* life cycle of the acoustic panels which is 26 per cent lower than for Troldtekt based on grey cement and 38 per cent lower than for Troldtekt based on white cement.

29.11.2021

The mixing of the wood in the well-known acoustic panels with FUTURECEM rather than traditional cement represents a major milestone in Troldtekt's work with sustainability. FUTURECEM is a patented cement product which synergises calcined clay with lime filler. In this way, much of the fired clinker in Aalborg Portland's cement production can be replaced, and the result is cement with a 30 per cent smaller carbon footprint. Troldtekt acoustic panels based on FUTURECEM will be available from March 2022.

"The carbon footprint of each Troldtekt acoustic panel stems almost entirely from its cement content, and therefore it really makes a difference that we're now switching to a greener cement type. We've carried out a life cycle analysis which shows that Troldtekt acoustic panels based on FUTURECEM actually *absorb* more CO_2 than they *emit* when we measure the different production phases," says Peer Leth, CEO at Troldtekt A/S.

"We are continuously working to make a bigger contribution to the circular economy and reduce society's carbon footprint, and in this respect Troldtekt production based on FUTURECEM is a big step forward. All the focus on circular solutions and the desire to limit the use of virgin materials means new and stricter requirements for an increased use of recycled materials in tomorrow's buildings. Consequently, we're simultaneously targeting our efforts at product development with new green solutions for binders," he adds.

Greener solution with the usual benefits
The wood, which is the other raw material in Troldtekt acoustic panels, absorbs CO_2 as the trees grow in the Danish forests. The CO_2 embedded in the wood exceeds what is emitted during the production of FUTURECEM. And as the production of the acoustic panels at the factory in Troldhede is based on 97.7 per cent renewable energy, the total carbon accounts during production end up being negative. During use, the cement layer in a Troldtekt panel gradually absorbs CO_2 via the chemical process of carbonisation, which further reduces the negative carbon footprint.

"It is the cement that gives Troldtekt acoustic panels their strength, durability and fire-protective properties without the use of harmful chemicals. The benefits are difficult to achieve with binders other than cement. Therefore, we're very excited that Aalborg Portland has developed FUTURECEM, as it enables us to be both climate-friendly while preserving all the well-known benefits of our acoustic panels," says Peer Leth.

He adds that Troldtekt is working on different recycling methods to ensure that as little of the embedded CO_2 as possible is released during incineration when the acoustic panels finally reach the end of their useful lives after min. 50-70 years. As it happens, offcuts from Troldtekt's factory are already being used in the production of new cement at Aalborg Portland. A pilot project will establish how this scheme can be scaled up to also include cement-bonded wood wool waste from the demolition of buildings.

Being awarded Cradle to Cradle certificate at Gold level

The different types of Troldtekt acoustic panels contain either grey or white cement. To begin with, Troldtekt is introducing acoustic panels in which FUTURECEM replaces the grey cement. Both the classic panels and the solutions in the Troldtekt design series will be available based on FUTURECEM.

“Our ambition is for the Troldtekt panels which are currently made with white cement to be manufactured using FUTURECEM in the future. The potential carbon savings are even greater when replacing the white cement, which emits more CO_2 during production. We are confident, but further product development is still required,” says Peer Leth.

Like the other cement-bonded wood wool products from Troldtekt, the new acoustic panels will be certified according to the sustainable Cradle to Cradle design concept. Troldtekt based on FUTURECEM has been assessed as fulfilling the requirements for Cradle to Cradle Gold certification by the independent assessor Vugge til Vugge Danmark, while the classic Troldtekt acoustic panels are advancing from Silver to Gold. Certification is expected to be granted in early 2022.

FACTS: IMPRESSIVE CO_2 REDUCTION DURING PRODUCTION

	Troldtekt natural grey based on FUTURECEM	**Troldtekt natural grey based on grey cement**	**Troldtekt natural wood based on white cement**
Carbon footprint per m^2 of *unpainted* Troldtekt acoustic panel (EPD phases A1-A3)	-1.4 kg/m^2	0.677 kg/m^2	1.29 kg/m^2
Carbon footprint per m^2 of *painted* Troldtekt acoustic panel (EPD phases A1-A3)	-1.0 kg/m^2	1.13 kg/m^2	1.73 kg/m^2

The table shows the CO_2 reduction when traditional cement in a Troldtekt acoustic panel is replaced with FUTURECEM when measuring EDP phases A1-A3. A1-A3 covers raw materials, transport to the factory and manufacturing at the factory.

FACTS ABOUT TROLDTEKT

- Troldtekt A/S is a leading developer and manufacturer of acoustic ceiling and wall solutions.
- Since 1935, wood and cement have been the main natural raw materials in the production process, which takes place in modern facilities in Denmark with a low environmental impact.
- Troldtekt’s business strategy has been developed around the Cradle to Cradle sustainable design concept as the central element.

FURTHER INFORMATION

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