FUTURECEM™

a sustainable solution for cement and concrete.

Paris Agreement: reducing emissions

Keep temperature increase below 2°C and pursue effort to limit to 1.5°C

IAEA International Atomic Energy Agency

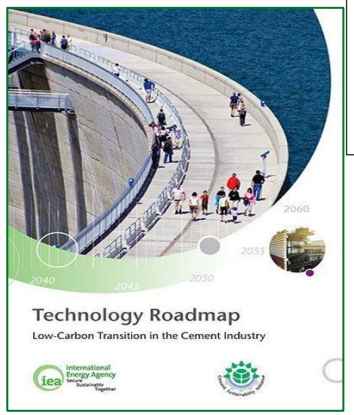
…For UE to lead the world in climate action, it means achieving net-zero greenhouse gas emissions by 2050…..

Mette Quinn - European Commission. DG CLIMA

Commissione europea

CLINKER
CEMENT
CONCRETE
CONSTRUCTION
CARBONATION

CEMBUREAU
The European Cement Association



to support the sustainable transition of the cement industry.

EU Emissions Trading System (EU ETS)

Policy | Documentation | Faq

New measures to reduce the supply of emissions allowances (EUA, or EU allowance) from 2019, combined with plans for a tighter system from 2021.

The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one.

Not only cement sector……

https://commons.wikimedia.org/wiki/File:Nordjyllandsv%C3%A6rket.jpg

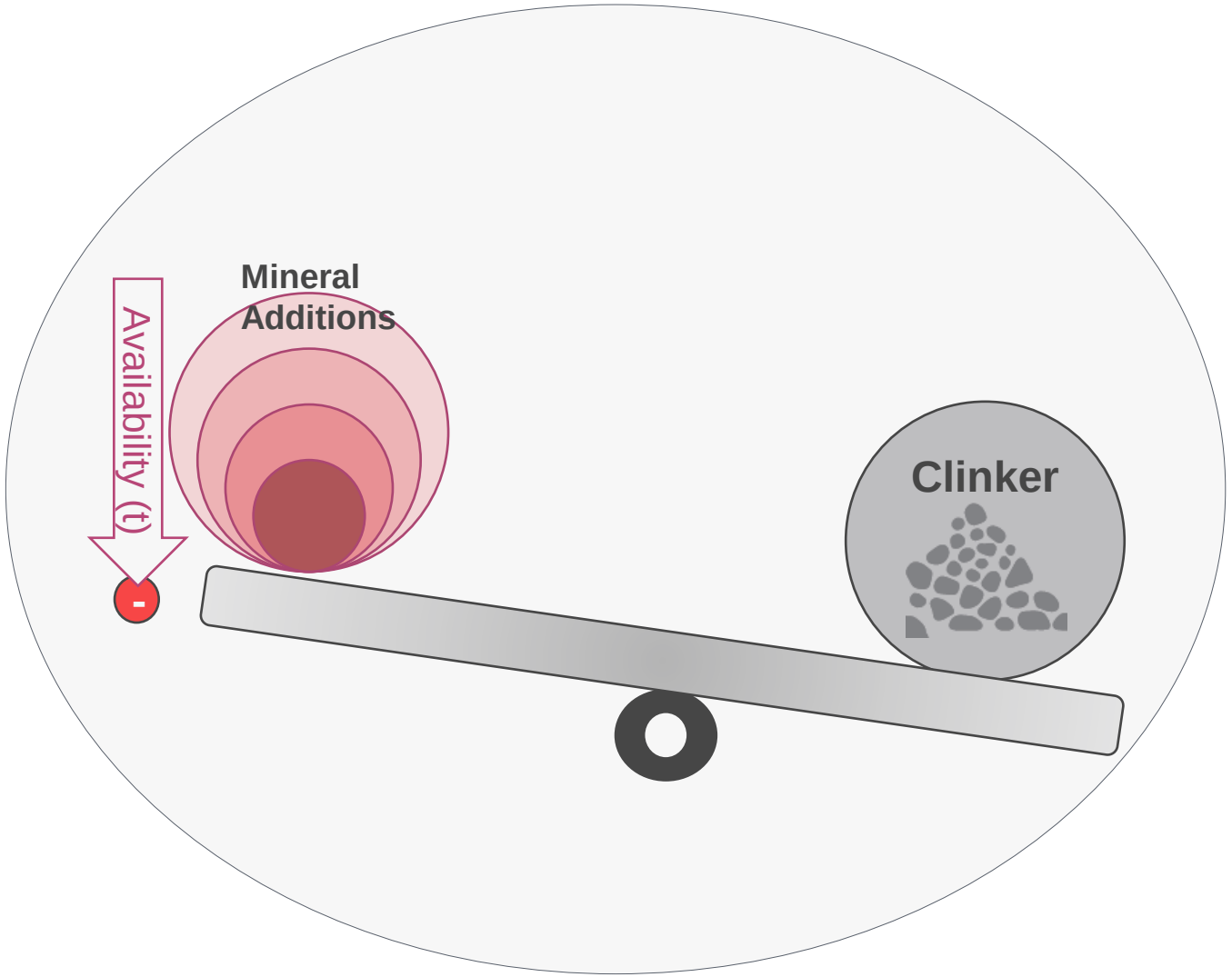
Pursuing clinker substitution as CO_2 emission strategy

Mineral additions are key factor for **clinker substitution**

The most commonly used mineral additions, ***fly ash and slag are becoming in short supply***

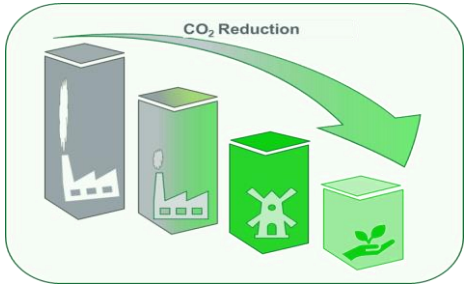
- Coal fired power stations shut down because of green transformation to reduce CO_2
- Steel production in EU is under pressure for CO_2 reduction and new technology reduce production of slag

New solutions to reduce clinker content needed



FUTURECEM™ – The cement/binder of the future

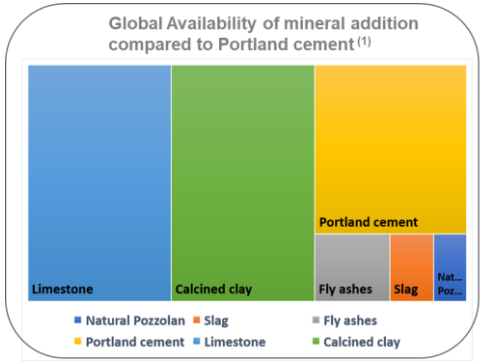
FUTURECEM



Reducing more than - 30% CO_2 emission through clinker replacement.

Green

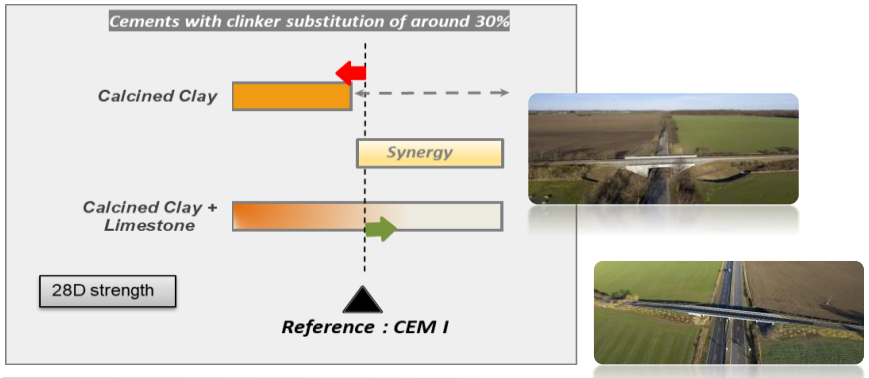
Sustainable



Relying on natural raw materials readily available on the Earth

FUTURECEM

Innovative and validated



Synergy between limestone and calcined clay enables clinker replacement.

Full scale trial in Denmark in Green Concrete II Project

FUTURECEM

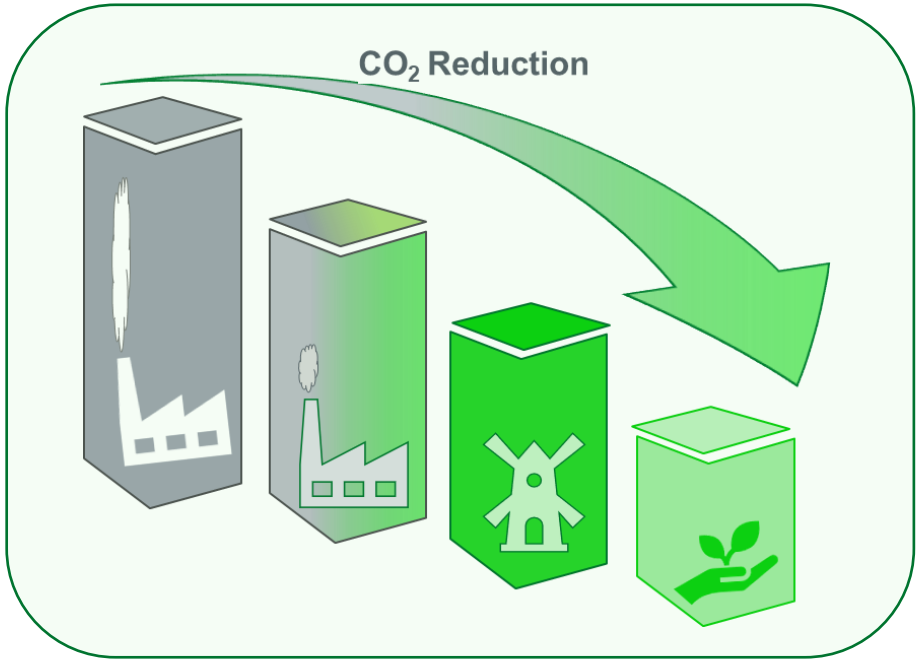
Developed by

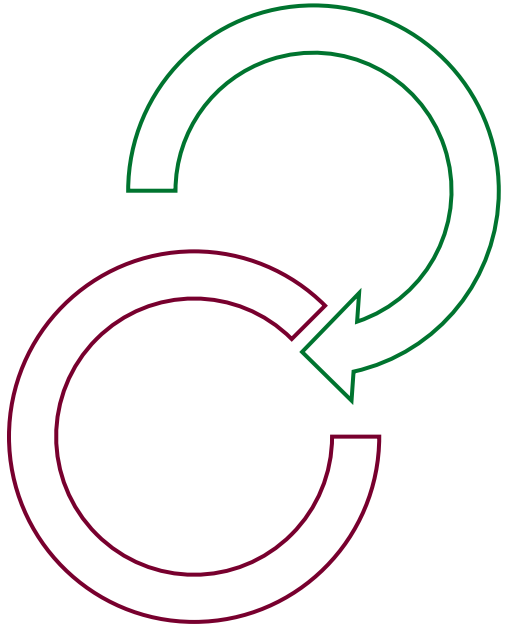
Technology patented in US, Canada, Mexico, Europe, India, China and Australia;

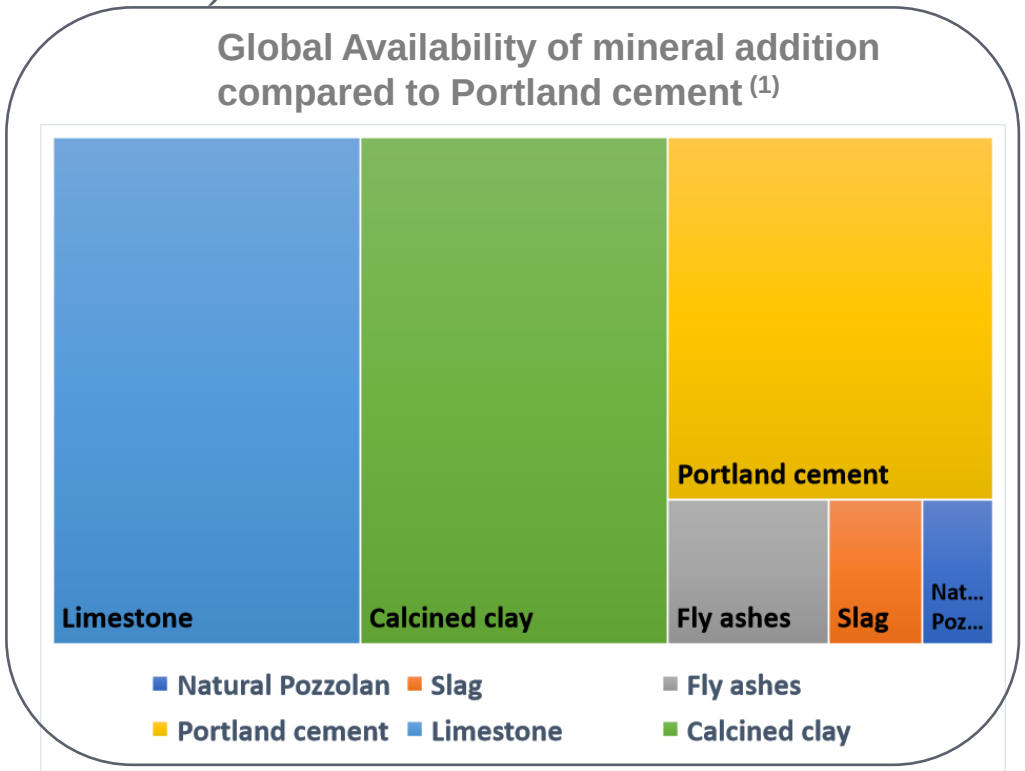
FUTURECEM™: Limestone-calcined clay

Innovative technology which enables production of durable concrete with reduced clinker content (greener) and exploiting synergies of two largely available materials on earth (sustainable)

FUTURECEM



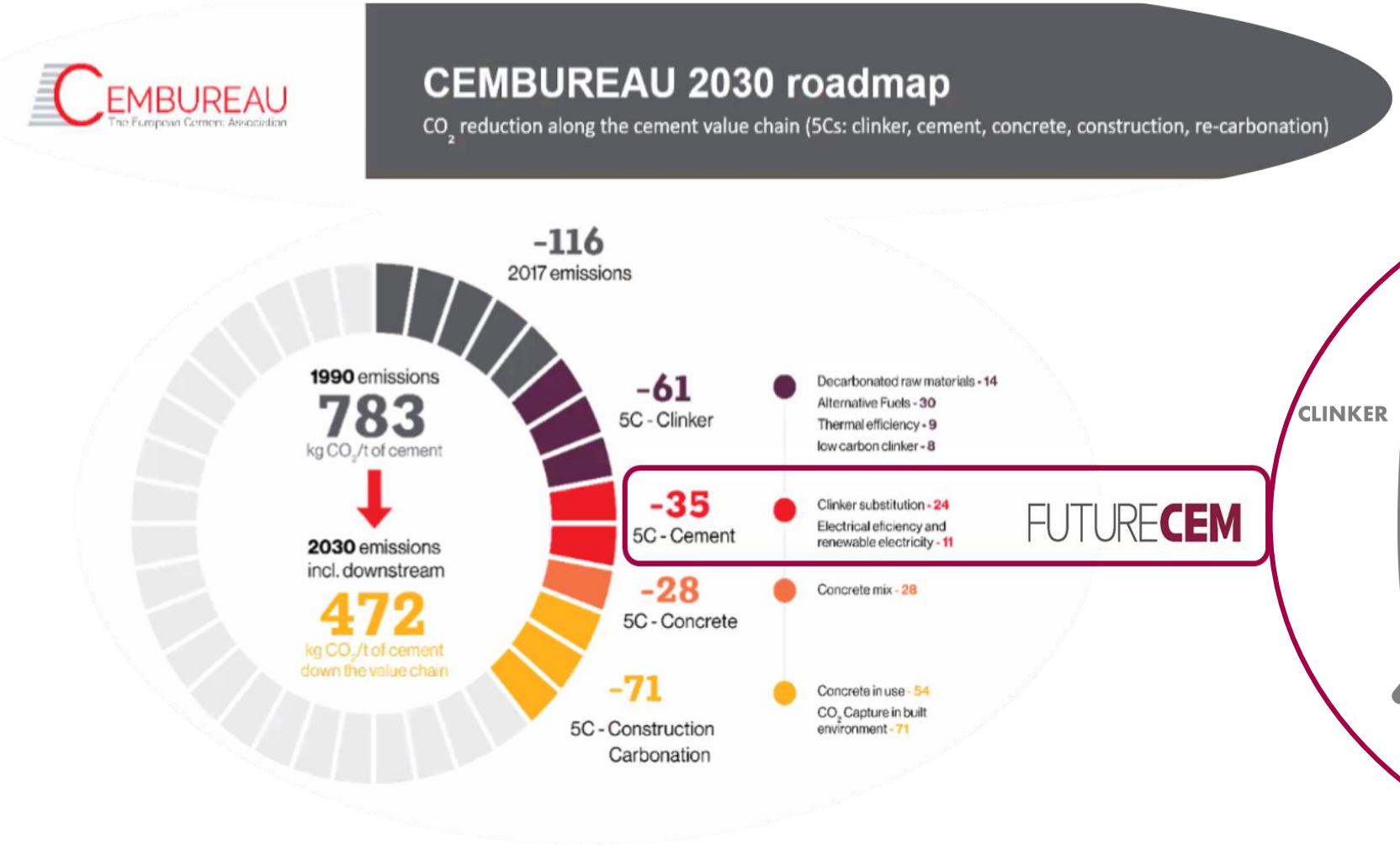


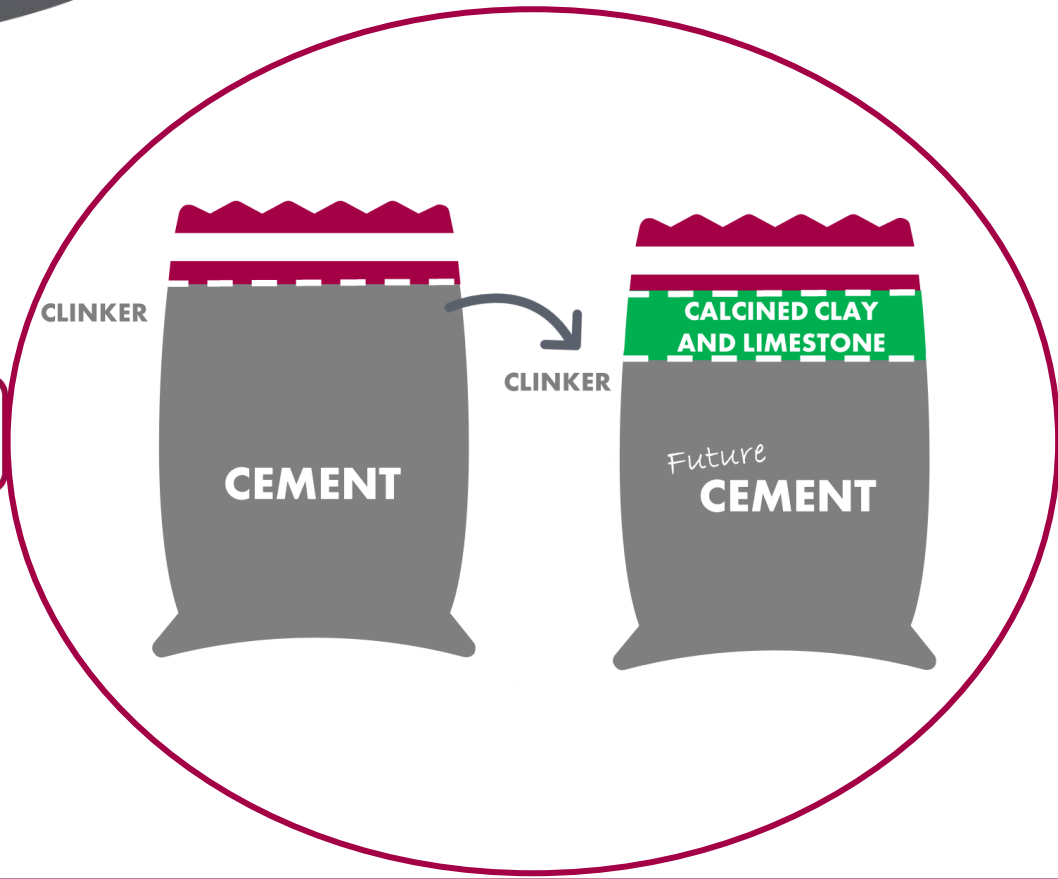


Reducing clinker content so more greener cement
More than - 30% CO_2 emission

Sustainability as main challenge (largely available materials)

as “low clinker cements” in the “Cementing the European Green Deal”-2020





A very strong and consistent technology base, developed by Aalborg Portland over the years…..

FUTURECEM

Research question: Develop a cement with **low CO_2 footprint** for a future **without fly ash** and based on **locally available clay** with low content of kaolinite

2008-2011: **FUTURECEM** Project

- Patent application submitted.

2011-2014: **SCM** Project

2014-2019: **Green Concrete II** Project

- Patent granted in Europe, USA, Canada, Mexico, China, India, Australia

2020 : **CALLISTE (extension of Green Concrete II)**

Real Construction in place with FUTURECEM™ – “Green Concrete Project II” in Denmark

FUTURECEM

FUTURECEM technology *is highly resistant to the most aggressive environmental exposure classes.*

FUTURECEM technology *is suitable for concrete industry, while maintaining conventional production and execution technologies.*

The Future is now ….

FUTURECEM

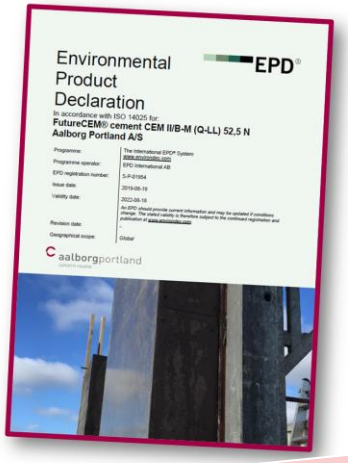
Environmental Product Declaration

Global warming potential

599
kg CO_2 pr. ton

Product stage:
- ✓ Raw materials
- ✓ Transport
- ✓ Manufacturing

599 Kg CO_2-eqv



Certificate of consistency of performance

Compliance with
the cement standard:

EN 197-1:2011

FUTURECEM™
CEM II/B-M(LL-Q) 52.5N
in on the DK market
since January 2021

Beyond cement

FUTURECEM™ is not only for the production of sustainable cement, but also …….

it powers Ultra-High Performance Concrete Premix
AALBORG EXTREME®: for structural applications: structural building elements, balconnies, bridges, …

AALBORG EXCEL®: for decorative applications: facade cladding, urban furniture

To keep in mind

FUTURECEM

What is FUTURECEM™?

FUTURECEM™ Technology:

- is the result of Cementir Group's extensive applied research which covers the whole production process, from raw materials assessment to manufacturing and cement application. FUTURECEM™ is a proprietary technology patented in US, Canada, Mexico, Europe, India, China and Australia;
- it relies on the synergy between calcined clay and limestone filler which allows over than 40% clinker replacement in cement, depending on clay type, but keeping the same performance of a pure Portland cement;
- it is a proven innovation, which is being used for building two bridges in Denmark (project "Green Concrete II").

Why is FUTURECEM™ more sustainable than ordinary cement?

FUTURECEM™ is more sustainable because it:

- determines approx. **30% CO_2 emission reduction** in the manufacturing phase;
- enables production of durable concrete with **reduced clinker content** by exploiting synergies of two largely available materials;
- is fully acknowledged as a **solution for clinker ratio reduction** in the roadmap for "Low Carbon transition in the cement industry" by the International Energy Agency – 2018 and and as "low clinker cements" in the "Cementing the European Green Deal"-2020, making Cementir Group the frontrunner. - https://cembureau.eu/about-our-industry/innovation/lower-clinker-cements/

for further information visit our website:

https://www.cementirholding.com/en/our-business/innovation/product-innovation/futurecem