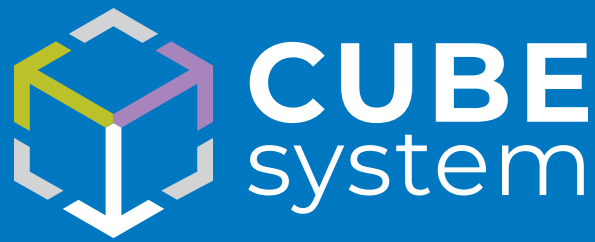


CUBE SYSTEM

New solutions
for low-carbon concrete





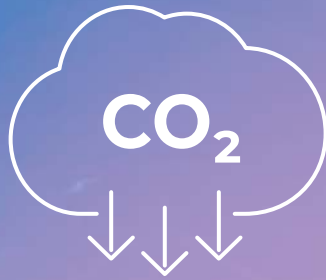
A complete portfolio of solutions that contribute to reducing the environmental impact of concrete production

Concrete is far from being considered as a sustainable material, particularly due to the **massive amounts of CO₂** emissions associated with the production of Portland cement. Amongst the various levers in the hands of the cement industry to control greenhouse gas emissions, the industry has a number of **innovative technologies** that will assist in reducing its **carbon footprint**. These include **carbon capture** and **reducing the clinker/cement ratio**.

One such approach is the use of **secondary cementitious materials or SCM** (such as blast-furnace slag, fly ash and natural pozzolans) to partially replace clinker in the manufacture of cement. This is a fundamental part of the strategy to **reduce CO₂ emissions by 55% by the year 2030** and to achieve **carbon neutrality by the year 2050**.

The use of **cement with lower clinker content** and **recycled aggregates** in concrete production presents several challenges for the concrete industry, however. Mixes generally will demand increased water content to achieve and maintain optimal rheological properties and the slower development of strength at both early and late stages.

At **MAPEI** we are committed to improving the sustainability of the construction industry, while supporting our customers in this very dynamic environment. To this end, we have developed the **CUBE system**. This integrated approach helps the concrete industry in overcoming the difficulties of reduced clinker cements and aggregates of varying quality through the various phases: Production, placement and in situ. **CUBE system** actively helps the industry maintain its **high standards** while **reducing the climatic impact**.



CO₂ reduction



Robustness

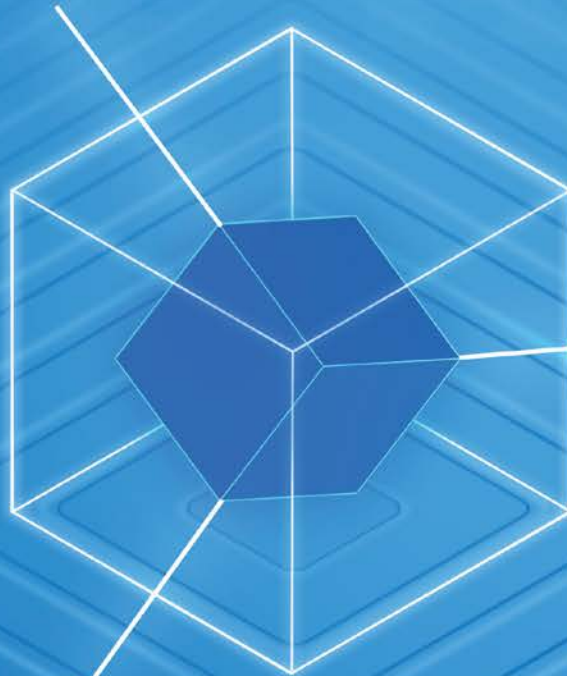


Strength enhancement

CUBE system

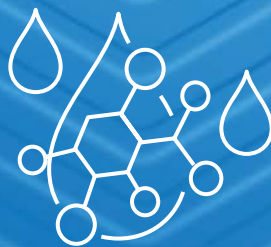
Robustness

Recycled
aggregates



Rheology

Cement
blends





High-range water reducers

This new concept of **superplasticizers** is specifically designed to face the challenges of the sustainable concrete.

Cement blends

Polymers designed to disperse a wide range of cementitious materials, including Type 1L and low-alkali cements

Recycled aggregates

Special **absorption inhibitors** (RE-CON AGG technology) integrated into the formulations

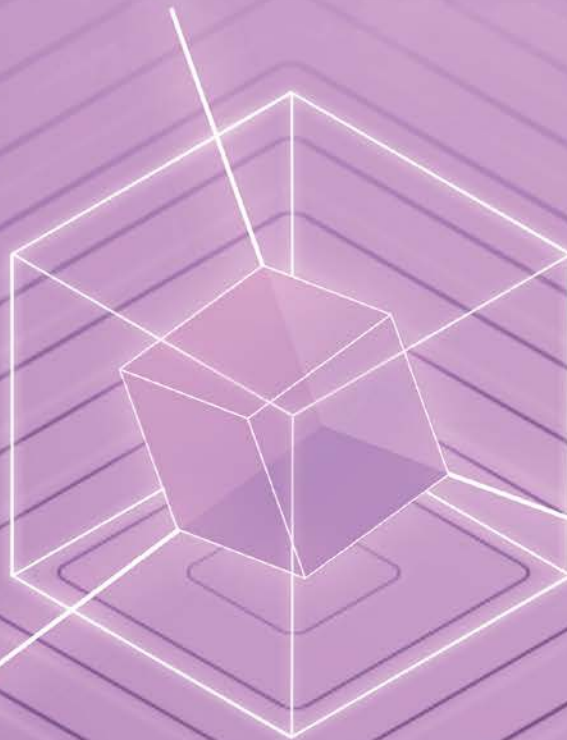
Rheology

Specific **gradual-release polymers** that guarantee low viscosity and extended workability without delaying set time

CUBE system

Strength Enhancement

Secondary
nucleation (SN)



Alkaline
activation
(AA)

Augmented
pozzolanic reaction
(APO)





Property technologies

Thanks to the use of proprietary technology based on **nano-compounds of silicate hydrates**, our patent-pending **CUBE system** represents the fundamental cornerstones of the next generation of admixtures for the new cements with reduced clinker content.

Secondary nucleation (SN)

The addition of **nano-composite silicate hydrates** produces hydration reactions more rapidly and diffusely in the cement paste.

Augmented pozzolanic reaction (APO)

The combination of **nano-compounds of silicate hydrates** incorporates set-balancing components and produces a more **powerful pozzolanic reaction**, thereby enabling faster development of strength after both short and long curing cycles.

Alkaline activation (AA)

The new **blended cements** have a **smaller carbon footprint** and combine the properties of Portland cement with the properties of alkaline activation materials. Development of the strength of blended cements is promoted by the alkaline activation of their components.

PRODUCT RANGE

Mapecube 1	Early strength enhancer for shorter curing times
Mapecube 4	All-ages strength enhancer for fly ash or slag-Portland blends
Mapecube 60	Strength enhancer with fluidifying effect for concrete with low CO ₂ emissions
Mapecube 60W	Strength enhancer with fluidifying effect for concrete with low CO ₂ emissions, especially suited to colder environments



MAPEI USA
MAPEI Caribe
MAPEI Canada

MAPEI Headquarters of North America

1144 East Newport Center Drive
Deerfield Beach, Florida 33442
1-888-US-MAPEI (1-888-876-2734) /
(954) 246-8888

Technical Services

1-888-365-0614 (U.S. and Puerto Rico)
1-800-361-9309 (Canada)

Customer Service

1-800-42-MAPEI (1-800-426-2734)

Services in Mexico

0-1-800-MX-MAPEI (0-1-800-696-2734)

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