DRIVING CARBON REDUCTION THROUGH INNOVATIVE PRODUCTS, TOOLS AND DATA

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SAINT-GOBAIN

SAINT-GOBAIN CONSTRUCTION CHEMICALS NORTH AMERICA BUSINESS UNIT

*The merger of CHRYSO and GCP Applied Technologies within Saint-Gobain CC has expanded our capabilities to innovate, become more sustainable and efficiently serve customers across **North America**.*

- 400+ Employees with 4 Applicative Labs and 2 Innovation Centers
- Most Advanced and Innovative Portfolio in North America
- Leader in Sustainable Solutions
- 200+ Years of Experience in Technical Services

CONCRETE ADMIXTURES & TECHNOLOGIES

CEMENT ADDITIVES

FLOORING: DUCTILCRETE, CEMFLOOR

NORTH AMERICAN NETWORK

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HIGH PERFORMANCE SOLUTIONS – CONSTRUCTION CHEMICALS

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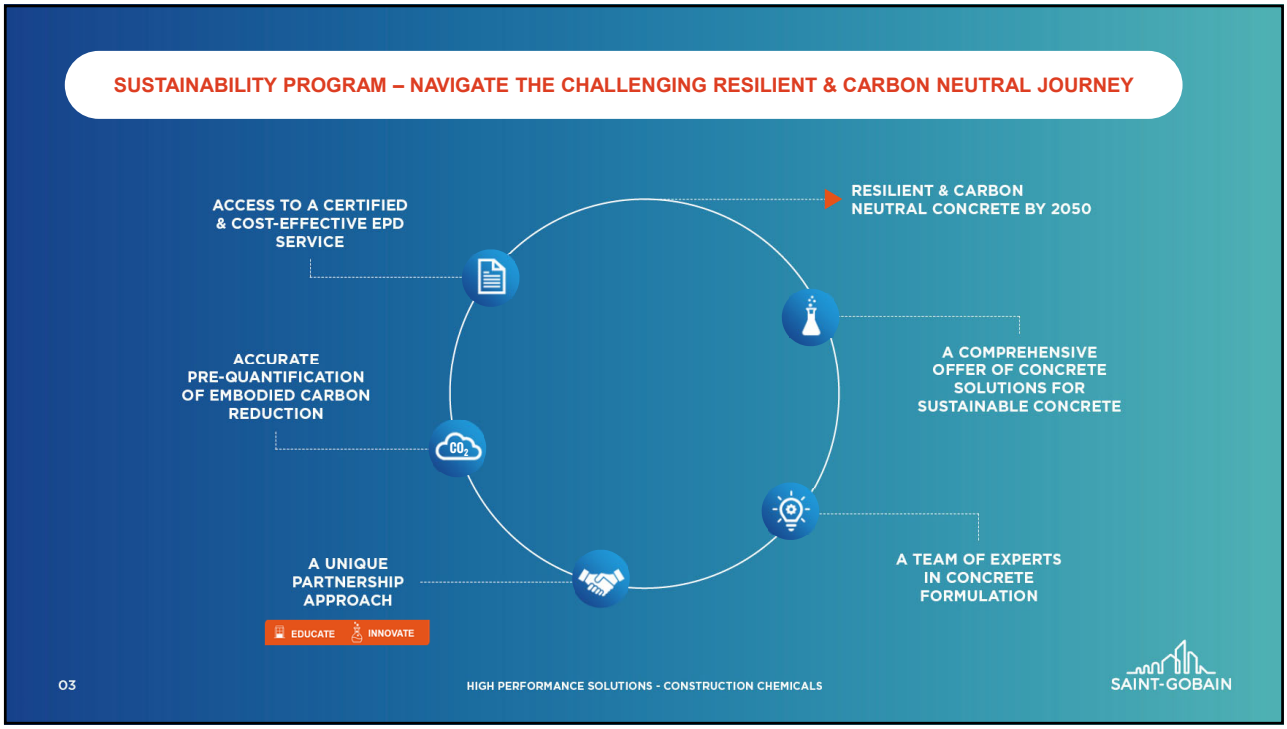
SUSTAINABILITY PROGRAM – NAVIGATE THE CHALLENGING RESILIENT & CARBON NEUTRAL JOURNEY
ACCESS TO A CERTIFIED & COST-EFFECTIVE EPD SERVICE
RESILIENT & CARBON NEUTRAL CONCRETE BY 2050
A COMPREHENSIVE OFFER OF CONCRETE SOLUTIONS FOR SUSTAINABLE CONCRETE
ACCURATE PRE-QUANTIFICATION OF EMBODIED CARBON REDUCTION
A TEAM OF EXPERTS IN CONCRETE FORMULATION
A UNIQUE PARTNERSHIP APPROACH
EDUCATE
INNOVATE
03
HIGH PERFORMANCE SOLUTIONS - CONSTRUCTION CHEMICALS
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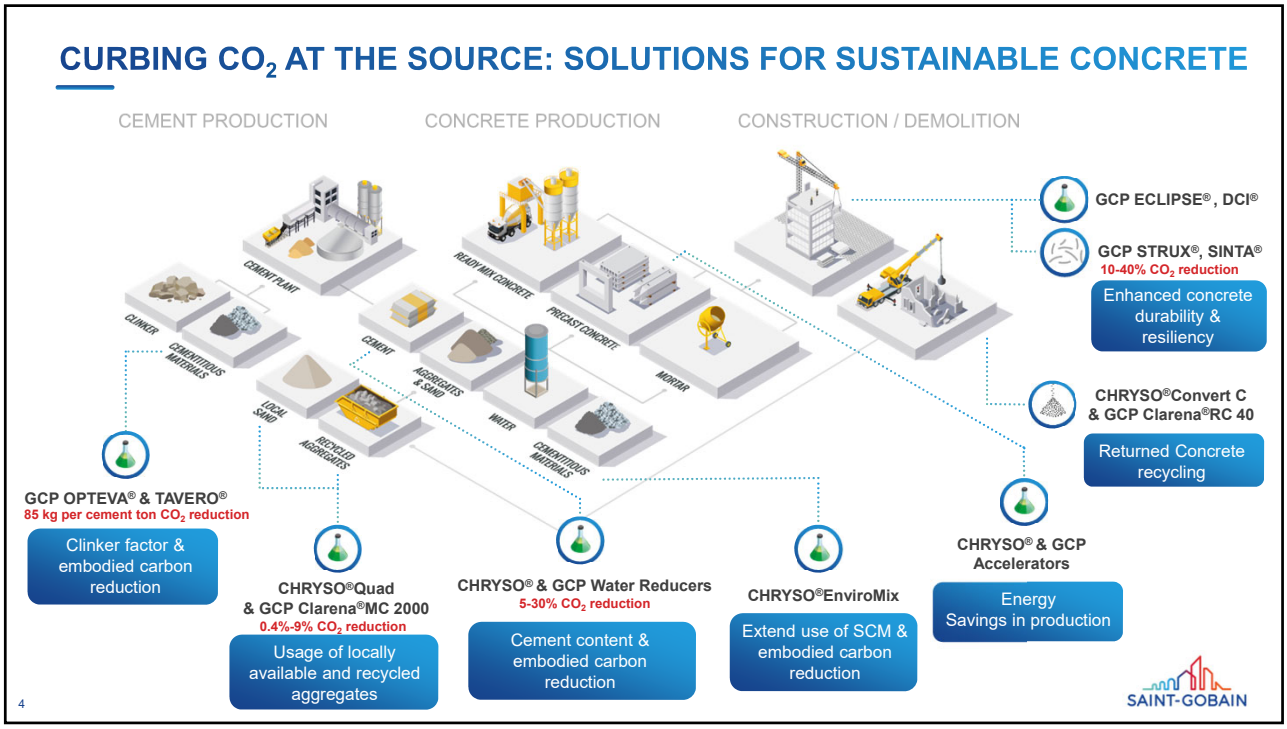
CURBING CO_2 AT THE SOURCE: SOLUTIONS FOR SUSTAINABLE CONCRETE
CEMENT PRODUCTION
CONCRETE PRODUCTION
CONSTRUCTION / DEMOLITION
CEMENT PLANT
CLINKER
CEMENTITIOUS MATERIALS
CEMENT
LOCAL SAND
RECYCLED AGGREGATES
AGGREGATES & SAND
WATER
READY MIX CONCRETE
PRECAST CONCRETE
MORTAR
GCP ECLIPSE®, DCI®
GCP STRUX®, SINTA®
10-40% CO_2 reduction
Enhanced concrete durability & resiliency
CHRYSO®Convert C & GCP Clarena®RC 40
Returned Concrete recycling
GCP OPTEVA® & TAVERO®
85 kg per cement ton CO_2 reduction
Clinker factor & embodied carbon reduction
CHRYSO®Quad & GCP Clarena®MC 2000
0.4%-9% CO_2 reduction
Usage of locally available and recycled aggregates
CHRYSO® & GCP Water Reducers
5-30% CO_2 reduction
Cement content & embodied carbon reduction
CHRYSO®EnviroMix
Extend use of SCM & embodied carbon reduction
CHRYSO® & GCP Accelerators
Energy Savings in production
4
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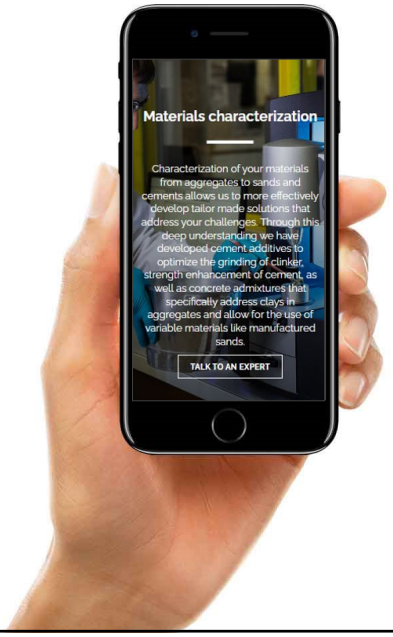
A TEAM OF TECHNICAL EXPERTS IN CONCRETE FORMULATION



We work with customers to characterize their materials

We support customers through our regional application labs

Together, we define customer targets and develop a mix optimization strategy

We help customers quantify the CO_2 reduction of optimized mix designs

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NEW GENERATION OF STRENGTH ENHANCER ADMIXTURES

ACCELERATE HYDRATION of CEMENT and SCMS

ENHANCES EARLY AND LATE AGE STRENGTHS

REDUCE CEMENT FACTOR BY APPROX 10% & MAINTAIN PERFORMANCE

- **Tailor-made** formulations for producer performance and material needs
- **Neutral to slump life** and other concrete characteristics; compatible with WR admixtures
- Non-corrosive according to ASTM G180 and EN 480 14:2006 testing

ENVIROMIX® SE STRENGTH ENHANCERS

New levers to enhance the cement & cementitious material reactivity and therefore concrete mechanical strengths to reduce cement content.

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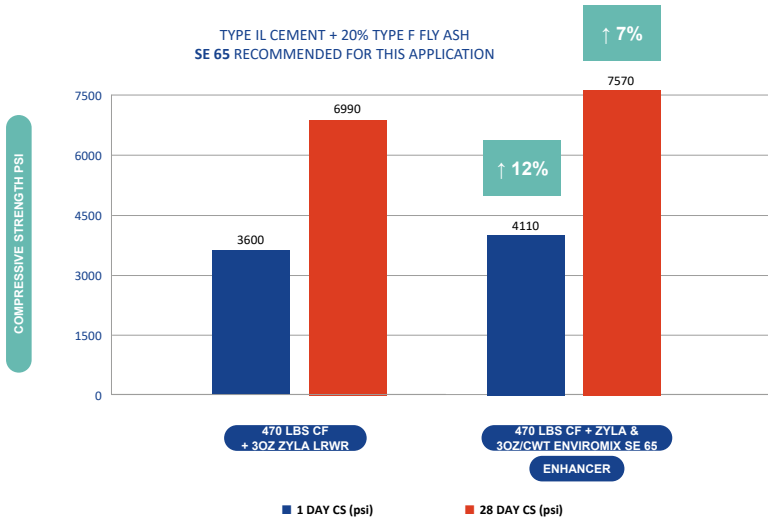
CASE STUDY 1 | EARLY & LATE AGE STRENGTH GAIN WITH LOW DOSAGE



PRODUCER BENEFITS

Improve the early and later age compressive strength

Reduce potential of low breaks

Improve overall quality and durability of the concrete

No detrimental impact on other plastic or hardened properties

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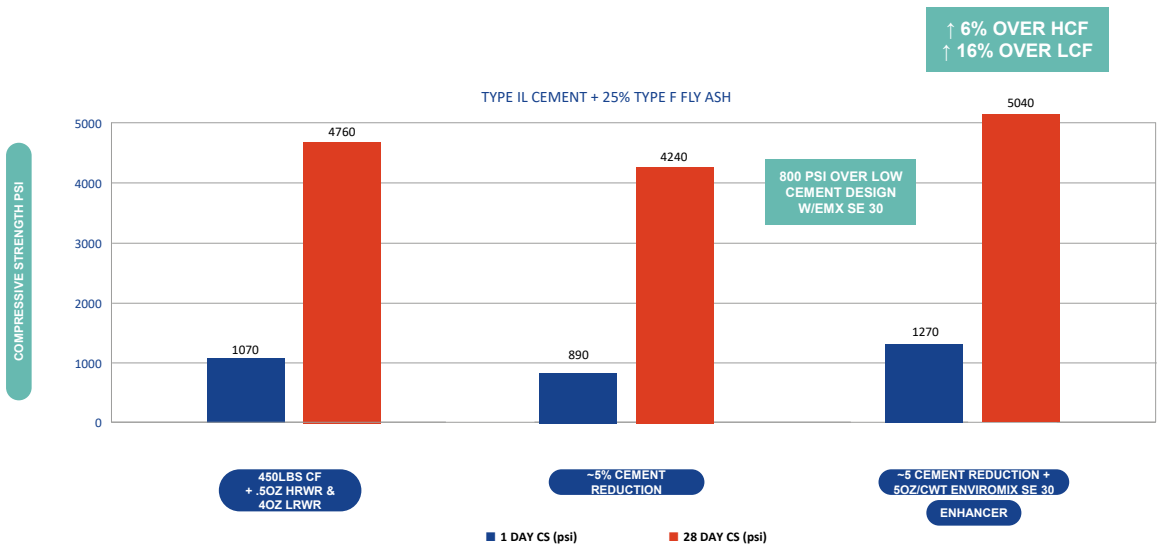
CASE STUDY 2 | CEMENT REDUCTION WITH STRENGTH GAIN



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CASE STUDY 2 | CEMENT REDUCTION WITH STRENGTH GAIN

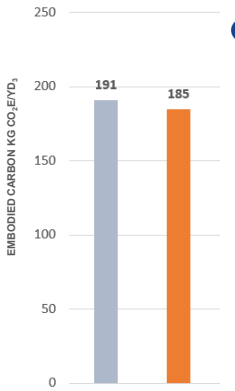
4.5% CEMENT REDUCTION

450lbs CF = **191 kg CO_2e/yd_3**
430lbs CF REF w/SE 30 = **185 kg CO_2e/yds_3**

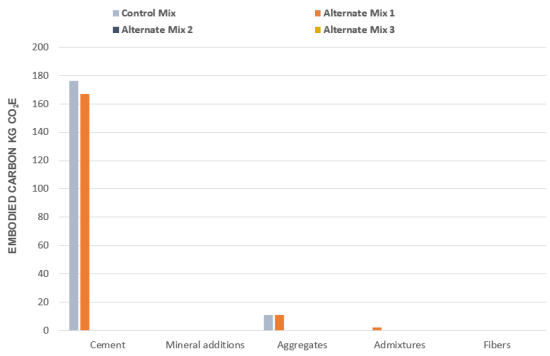
Strength enhancer allows for:

- Strength gain even in low cement mixes
- Cost savings
- Maintain performance characteristics
- SE 30 recommended for this application

Mix Designs Embodied Carbon footprint



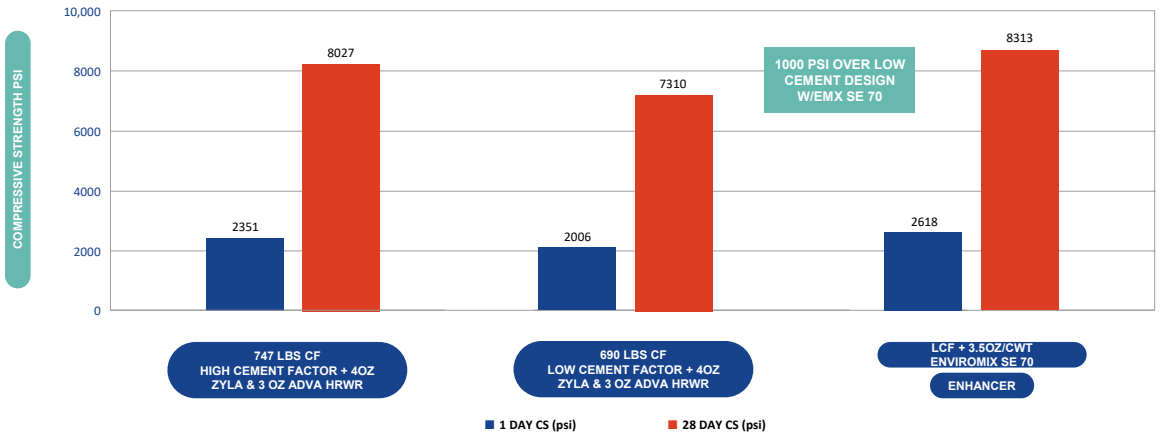
Embodied Carbon footprint breakdown



CASE STUDY 3 | CEMENT REDUCTION & MAINTAIN PERFORMANCE

↑ ~3% OVER HCF
↑ 12% OVER LCF

TYPE IL CEMENT + MANUFACTURED SAND



CASE STUDY 3 | CEMENT REDUCTION & MAINTAIN PERFORMANCE

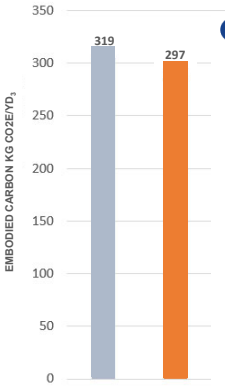
8% CEMENT REDUCTION = 7% CO_2 REDUCTION

747 lbs CF = **319 kg CO_2e/yd3**
690 lbs CF w/SE 70 = **297 kg CO_2e/yd3**

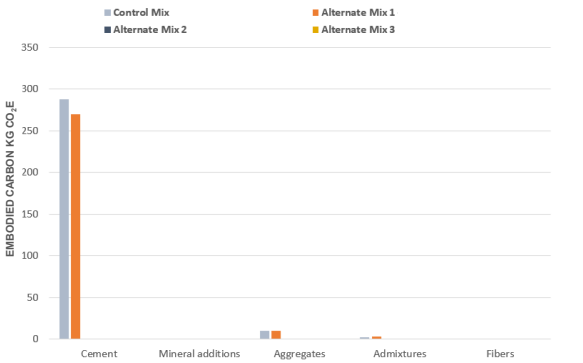
Strength enhancer allows for:

- Further optimization through (SCM) use
- Cost savings
- Circular economy benefits through optimized use of manufactured sands
- SE 70 recommended for this application

Mix Designs Embodied Carbon footprint



Embodied Carbon footprint breakdown



CONCLUSION

STRENGTH ENHANCERS

New admixture options are available to move beyond the limitations of traditional water reducers.

CO_2 REDUCTION

Cement reduction thus CO_2 reduction is possible even in lean mixes.

MIX OPTIMIZATION

It is possible to enhance strength, reduce cement & increase strength with new technologies.

Utilize CO_2 quantification & mix optimization tools and engage in an EPD program with 3rd party verification -- it is critical to understand the impacts associated with your concrete mix designs.

For more information on how we're curbing CO_2 at the source and our strength enhancer program, scan the QR code or visit www.curbingco2atthesource.com

SCAN ME

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