



CASE STUDY

GPC

GPC leads the way in sustainable precast concrete in South Korea with CarbonCure

Precast concrete is a well-known off-site construction method recognized for its eco-friendly benefits, particularly in reducing construction waste compared to traditional reinforced concrete methods. GPC has added its own environmental value to precast concrete by introducing carbon mineralization technology from CarbonCure — the first precast production plant in South Korea to do so.

Company Background

A subsidiary of global construction conglomerate GS E&C, GPC is a leading player in South Korea's precast concrete sector. With an annual production capacity of 144,000 m³, GPC meets the market demand for precast concrete in key sectors such as logistics, semiconductor facilities, and underground parking structures.

GPC's Environmental Focus

GPC is developing a comprehensive sustainability roadmap that includes renewable energy and low carbon technologies. It has already taken steps toward its sustainability goals by installing a 23,000m² solar panel system at its production plant. CarbonCure was the next logical step on its journey.

With CarbonCure, GPC introduced low carbon precast concrete into the South Korea market, marking a significant step towards decarbonizing the sector.

"CarbonCure's technology offers a practical solution for reducing carbon emissions in buildings, using the world's most prevalent construction material: concrete. It's a crucial component of our sustainability strategy."

Seon-Yeop Yoo

Team Leader, Quality Team | GPC



GPC and CarbonCure

There were several reasons that GPC chose CarbonCure over other low carbon technologies in the concrete space:

- CarbonCure has received significant investments from major companies such as Microsoft and Amazon
- CarbonCure has a Verra-approved methodology for CO₂ utilization in concrete production
- CarbonCure's Carbon Credit Program aligns with GPC's specific action plan for reducing carbon emissions.
- The potential cost saving from reduced cement usage makes financial sense

With these factors in mind, GPC chose CarbonCure and conducted extensive testing. The results confirmed their confidence in achieving a conservative 4% reduction in cement usage while maintaining concrete strength.

“CarbonCure was the only company that had a methodology accepted by Verra, could inject CO₂ into our batch plant, and had a proven track record of success across North America.”

Seon-Yeop Yoo

Team Leader, Quality Team | GPC

Initial Implementation

The integration and onboarding process was smooth and efficient, completed within just two weeks. GPC managed the installation of necessary infrastructure, including a liquid CO₂ tank and piping systems, while CarbonCure provided expertise in setting up and fine-tuning the CO₂ injection system. This collaboration was pivotal in optimizing mix designs for the highest quality output.

Mix Optimization

GPC succeeded in optimizing its mix designs with CarbonCure. The injection of CO₂ and subsequent mineralization resulted in a 4% reduction in cement usage with no adverse effect on quality or performance.

Applications in the Market

GPC successfully used CarbonCure technology across a range of applications, from underground parking lots to logistics centers and semiconductor plants. The technology's flexibility and effectiveness in reducing cement usage while maintaining quality and performance have been instrumental in its success in the South Korean market.

Creating Competitive Advantage

The implementation of CarbonCure helped GPC obtain a low-carbon product certificate from a Korean government agency in 2024. This certification is achieved when a manufacturer reduces a product's carbon emission by at least 3.3% compared to a previous product, or when the product's carbon emission is lower than the average of a product line manufactured by another company.

As a result of this certification, GPC carved out a distinctive niche within South Korea's competitive precast market. Offering a low carbon concrete solution reinforced GPC's reputation as a leader in sustainable construction, appealing to environmentally conscious construction managers and developers.

Additional Value with Carbon Credits

GPC and CarbonCure are working to create the first Verified Carbon Units (VCUs) in South Korea's precast concrete sector. To ensure the highest credibility of these carbon credits, they partnered with Verra, a leading standard for VCU verification, which oversees 60% - 70% of the global VCU market.

Since implementing CarbonCure's technology, GPC has been collecting carbon credit data to showcase its reduction in cement usage and corresponding decrease in carbon emissions. This commitment to transparency demonstrates the tangible impact of their efforts to produce low carbon concrete.

Additionally, the carbon credits, validated and verified by CarbonCure and Verra, create an opportunity for GPC to benefit from additional revenue through the sale of 3rd - party verified credits.

"CarbonCure stood out for offering a differentiated, credible approach to carbon reduction, supported by high-profile investments from companies like Amazon, Microsoft, and Samsung."

Seon-Yeop Yoo

Team Leader, Quality Team | GPC

What's Next for GPC?

GPC's successful integration of CarbonCure sets a new benchmark for the South Korean construction industry. It demonstrates a viable pathway to reducing carbon emissions and solidifies GPC's position as a pioneer in sustainable construction practices.

As GPC continues to innovate, its partnership with CarbonCure remains a cornerstone of its commitment to environmental sustainability. The company plans to expand the use of CarbonCure across all product lines, creating more sustainable offerings and increasing the impact of its carbon reduction.

Build your Business. Build with CarbonCure.

CarbonCure has been used on thousands of projects ranging from healthcare to higher education, residential developments, and corporate campuses.

For more information about building with CarbonCure concrete, visit carboncure.com. To get in touch with a CarbonCure representative, send us an email at info@carboncure.com or give us a call at +1 (902) 448-4100 (Worldwide) or +1 (844) 407-0032 (North America).

All CO₂ savings values provided by CarbonCure are estimates and should not be used for carbon accounting purposes. Savings should only be claimed by the attribute owner. To purchase these environmental attributes from CarbonCure and claim them in carbon accounting, please contact support@carboncure.com to discuss relevant pathways.