TRIO Ready-Mix has been providing concrete to Southern Vancouver Island contractors, developers, landscapers, and homeowners for over 50 years. Part of the Ralmax Group of Companies, TRIO is renowned for its unwavering commitment to customer satisfaction. In 2018, TRIO designed a new concrete plant in Victoria, British Columbia. As an environmentally conscious company, TRIO began exploring ways to reduce the environmental footprint of its new facility and decided to become the first to adopt CarbonCure for Reclaimed Water.
The Challenge

Concrete is the world’s most abundant man-made material and consumption continues to rise. We produce 4 billion tonnes of concrete every year and demand is forecast to increase by another billion over the next thirty years.

Concrete improves the quality of our built environment and its strength, durability, and resilience make it inherently sustainable. Unfortunately, the process of making cement, the key ingredient that gives concrete its strength, accounts for about 7 percent of the world’s CO₂ emissions.

TRIO is one of many concrete companies committed to sustainability and reducing carbon emissions, but the industry has lacked technological advances to help achieve those goals — until now.

CarbonCure’s technology enables concrete producers to use less cement in their mixes and improve profitability while providing them with a powerful new differentiator in a competitive marketplace.

In 2018, TRIO designed its new concrete plant in Victoria, British Columbia to have as many sustainable features as possible — which is what led them to CarbonCure.

At a Glance

Company Name
TRIO Ready-Mix

Plant Location
Victoria, BC

1
Plants with CarbonCure

>42,700 m³
Total CarbonCure concrete produced

98 metric tons
Total CO₂ savings
The Solution

With sustainability in mind, TRIO added reclaimers and other equipment to manage mixer washing water and returned concrete at the new site. The team also adopted CarbonCure for Ready Mix, which reduces cement requirements by up to 4% across TRIO’s mixes, resulting in the removal of 81 tonnes of CO2 from TRIO’s operations in just 21 months.

TRIO’s new equipment for managing water produced from truck washouts, returned concrete, and other onsite activities made it a great candidate to trial CarbonCure’s latest technology — CarbonCure for Reclaimed Water — in a commercial setting.

CarbonCure for Reclaimed Water can help producers replace virgin cement requirements further, while reusing water from the plant by stabilizing and preserving the reactivity of the cement solids present in the reclaimed water.

“It’s very rare that you get to build a brand new concrete plant. Our original plant was built in the 1960s. Even though concrete production hasn’t changed much since then, we wanted to take this opportunity to evaluate the innovative new technologies available to us.”

— Stephen Hay, General Manager
TRIO Ready-Mix
The team started slowly, introducing the technology in a few mixes and testing and monitoring performance in the field. Once the production team was comfortable with the results, usage increased and the team eventually began replacing cement content in their mix designs.

In the past, TRIO’s reclaimed water management philosophy was to intentionally keep the solids in suspension until they stopped being reactive, because they couldn’t control or predict the reactivity of the cementitious fines effectively.

The CarbonCure Technical Services and Support (TSS) Team was on the ground with Trio for the entire implementation and testing period. The team set up a small lab at Trio’s plant to run tests on the concrete, slurry, and water.

Trio also conducted internal testing and hired a third-party testing company, EXL Engineering, to verify all slump, air, and strength tests.

Today, TRIO is replacing cement content by 3% with CarbonCure for Reclaimed Water — and gaining up to an additional 4% reduction with CarbonCure for Ready Mix.
The Results

The team initially implemented the solution in residential and low specification mixes. Today, CarbonCure for Reclaimed Water is used in 70% of TRIO’s mix designs, and over 75% of TRIO’s produced concrete. The team intends to add it to its high-performance 45, 50, and 60 MPa (6,527, 7,252, and 8,702 psi) concrete as it completes its optimization process before the end of the year.

When CarbonCure-treated reclaimed water is used in TRIO’s concrete mix, the savings average CAD $0.90 per cubic meter of concrete.

“Our initial motivator was environmental, not monetary. However, we have seen a great return on investment. The virgin cement replacement is where the true environmental and cost savings are, but the water treatment and savings on the cost of safe fines disposal are also significant,” said Stephen.

TRIO Ready-Mix is an early adopter of CarbonCure for Reclaimed Water, but the team has no regrets about taking the plunge.

In the future, TRIO intends to use CarbonCure in every mix design to gain virgin cement replacement benefits and to reuse all of its water in concrete production.

“Our initial motivator was environmental, not monetary. However, we have seen a great return on investment. The virgin cement replacement is where the true environmental and cost savings are, but the water treatment and savings on the cost of safe fines disposal are also significant.”

— Stephen Hay, General Manager TRIO Ready-Mix
CarbonCure is the leading provider of carbon dioxide removal technologies for concrete, with systems installed in hundreds of concrete plants across the globe.

For more information, visit carboncure.com or contact a CarbonCure representative at info@carboncure.com or +1 (902) 442-4020.