

Simple, Low-cost Solutions for Green Concrete Making it Easy For Producers to Reduce Their Environmental Footprint



Robert Niven
CEO & Founder

CEOCFO: *Mr. Niven, your site indicates you are recycling carbon dioxide to make better concrete. Would you tell us the process?*

Mr. Niven: We retrofit an existing concrete plant using all the same materials such as cement, aggregates, chemicals and water. That equipment enables our concrete producer to use CO₂ in their process to make their concrete better. What happens is CO₂ is added and a reaction occurs instantly; the CO₂ forms a nano-calcium carbonate particle. What this does is create a very fine material in the concrete that not only permanently removes that CO₂ from the atmosphere, but it also enhances the strength of that concrete. Our process is half material science and half equipment and what we mean by that is having a greener concrete and having a concrete with superior performance benefits which allows producers to reduce their costs.

CEOCFO: *Has it been known for a long time that you can do a process with carbon dioxide or is that a new idea?*

Mr. Niven: We fall within a type of technology class called CO₂ Beneficial Reuse. It is like Carbon Capture and Storage except that the CO₂ is used as a beneficial input for manufacturing rather than a waste product. That concept is relatively new. With all of the discussion on climate change and circular economy, these types of technologies are becoming more common. Most are in the early development stage. They are used in industries such as chemicals and concretes, fuels and plastics. We've also uncovered practical and economic solutions to unlock the well known benefits of using very fine nano-calcium carbonate material to provide material benefits in concrete. We've overcome the typical construction material sector barriers to adopting nano-materials such as high costs and complex manufacturing integration.

CEOCFO: *What is involved in implementation of your system?*

Mr. Niven: There are hard and a soft sides to implementation. What I mean by that is that we can retrofit, commission and train staff at a customer plant in less than a week. The soft implementation aspects are usually more challenging. What we do not want to do is just drop in technology and then walk away. We maintain a lasting relationship with the concrete producer and work with them to be able to help them achieve greater and greater cost savings through the material performance benefits but also teaching them how to maximize their sales using CarbonCure's unique environmental selling attributes. This requires a new way of selling and branding a company that creates new customer relationships and attracts talented HR prospects.

We are giving our licensees the hard tools and soft skills to find new cost efficiencies, gain higher market share and develop stronger customer relationships with architects, developers and engineers.

CEOCFO: *Is the end product the same and are there benefits other than being green?*

Mr. Niven: The most important value that we provide is having the higher early strength so we can make a stronger concrete sooner that provides the economic backing for them to sustainably continue to produce a green concrete. I would say that the environment cannot be the primary and only driver; you have to be able to make it economically sustainable first. Very importantly, we make it very easy and very low cost to step in to making green concrete. They are able to reduce cost by having that higher early strength and then producers are very well equipped to be able to monetize performance benefits into their lower costs or in some cases charging a premium for a higher performance concrete. After that, we provide them all of the tools to benefit from the green attributes in the market.

CEOCFO: *Is there a common thread among the companies that are interested?*

Mr. Niven: Technology adoption theory is the same for all industries. Depending upon your stage of market development you will see that a lot of the early adopters of technology tend to be considered mavericks within their industry looking to

get that competitive edge in the market place. They usually share our vision of the future and require less reference cases to make the decision to adopt new solutions. We work with many of these innovative companies in the US and Canada. They do not necessarily have to be metropolitan areas; some are metro and some more rural.

CEOCFO: *How do you handle the pushback from the standard concrete makers and is it more difficult than other industries in that regard?*

Mr. Niven: I think it is all about segmentation. You cannot take it personal. There are going to be individuals who need more time and references before making a purchasing decision. You learn to see the signs of self identified early adopters in the marketplace and devote your energy to making them successful. With our industry, we also have particularly important public safety considerations. As such you need to be patient and demonstrate that innovations meet the existing codes and standards. In fact you want to have a conservative concrete market because all of our infrastructure is all based upon concrete so you want to make sure that they have a higher standard for quality. We are happy to comply with that and we certainly would not want to lessen those. We work within those codes and standards and work with existing economics and competitive pricing to be able to provide a cleaner solution.

CEOCFO: *How do you reach out to potential customers and identify the right people to approach?*

Mr. Niven: We are starting to see people come to us now but that is still a minority of our new sales. We still have work to do to get the word out and to work through our sales channels. What has been rewarding is seeing that wave of referrals so that the people that come to us tend to be those that have relationships with satisfied licensees. They are seeing how well it is working for them and they want to replicate that success. Seeing these referrals reinforces that we are doing the right thing. In the majority of cases, our sales process involves screening prospects based on their market, innovation tendencies and physical plant attributes. We also employ trusted and experienced industry professionals twenty-five or thirty years of operational experience and established relationships. They tend to be individuals that have sat in the same chair as our sales prospects. A selective sales process tends to work a lot faster than trying to have an open-door approach by trying to sell to everyone.

“CarbonCure is an easy and affordable option for producers to make green concrete and find new cost efficiencies.” - Robert Niven

CEOCFO: *Will the licensees be the ones installing the system?*

Mr. Niven: No. We install and commission the technology and train our licensee staff with the CarbonCure system. Naturally, the licensee staff is closely involved in these initial steps and in for an ongoing basis.

CEOCFO: *Is it an all or nothing? Would a company retrofit the whole plant?*

Mr. Niven: It does not need to be all or nothing. What tends to happen is they will start off on a percentage of the production of a plant. It is similar to the chemical admixture model. However, we see licensees operate long enough to realize that it is worthwhile to put this through all of the production. By expanding production they are able to recoup greater cost reduction, but on top of that, they send a stronger message in the marketplace. They can say they are not just doing it when you ask for it but they are using CarbonCure because it is the right thing to do and it makes sense for their business. They are rebranding their company rather than just a product and that has a much more powerful message to concrete specifiers that are passionate about green building. Green building professional are looking for supplier that share their outlook of the world. By retrofitting all of their production they have that message so that they can stand as peers alongside their customers rather than just act as a vendor.

CEOCFO: *Would you tell us about the concrete market?*

Mr. Niven: The green building segment of the construction market seems to be recession proof by exhibiting robust growth throughout the last decade. Like most industries, concrete is challenged to adjust to a rapidly changing market such as what we're seeing with green building. Considering it's second only to drinking water as the most abundant manmade material in the world, it has an enormous opportunity to have a positive impact through environmental performance improvements. There is a consolidating cement market that is trending towards fewer large global players. On the other hand, concrete is a mostly an unconsolidated market that uses cement as its main active ingredient. They operate in a competitive market where price is typically the main differentiating factor to determine whether they win that business or not. We try to provide green attributes and cost efficiencies so concrete producers can compete on more than just price but also on the environmental performance. The industry is under a lot of pressure right now from other building materials that are taking a more visible approach to reducing carbon footprint. These other building materials are starting to push and threaten the market share for the concrete industry on the attributes of environmental performance. As such

the timing is excellent for concrete producers to adopt green technologies to compete with other materials and traditional producers. The outlook for at least the next 5 years looks promising. We believe green concrete producers will rebound faster and capture more of the market than traditional producers.

CEOCFO: *Are there competing environmentally friendly concepts?*

Mr. Niven: There are many other green technologies that are in the concrete sector. We do not look at other green technologies as competitors. Our industry must attract much more green innovation to succeed in a crowded construction material market. Our main competition is the status quo. It is the producer that has not really thought about sustainability and is missing the cost and environmental benefits. We need more green options to enter the market. Unfortunately many are niche applications; very few are mainstream. Among the mainstream options are supplementary cementitious materials, such as fly ash, slag and limestone that displace some of the clinker content of cement. There are some innovative solutions as well but most of these are in the early development process. We are the only CO2 use technology in the market today but are seeing a great deal of investment and research in the space.

CEOCFO: *Why choose CarbonCure Technologies?*

Mr. Niven: CarbonCure is an easy and affordable option for producers to make green concrete and find new cost efficiencies. We make it as easy as possible for concrete producers to reduce the environmental footprint of their concrete products and make it easy for the specifiers to choose a green concrete product that meets all of the same codes and standards and is supplied by the same manufacturers that have provided quality products for decades. We take out the risk of choosing to specify and manufacture green products.

Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine



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