

Carbon Sense Solutions Inc.

Halifax, NS

The technology

Carbon Sense Concrete Curing Equipment (consuming greenhouse gases to make stronger, greener precast concrete for a lower cost)

This award-winning clean technology is an improved method of accelerating concrete curing by permanently consuming carbon dioxide, a greenhouse gas normally released to the atmosphere. The company is targeting a \$2 billion North American concrete block market and recently presented at the last two UN Climate Change meetings. The low-cost and easy-to-install system comprises manufacturing equipment components and minor process changes that are compatible with **Error! Bookmark not defined.**all makes and models of precast concrete production plants.

Pilot trials of the system at the Shaw Block plant in partnership with Air Liquide Canada achieved 15 percent stronger concrete, resulting in a 10 percent reduction in cement usage, a 38 percent reduction in energy requirement, and improved productivity.

The process reduces CO₂ emissions in two ways: by reducing CO₂ released from steam curing energy sources and by permanently sequestering CO₂ within the concrete as limestone. In total, the process reduces plant greenhouse gas emission by about 80 percent.

Carbon Sense is meeting a global demand for cost-effective green building materials and manufacturing methods. The initial product launch will be on concrete block production in 2011.

Environmental benefits

- Reduces CO₂ emissions by 120 kg/t concrete (precast concrete plants may consume more CO₂ than they produce)
- Achieves equivalent quality performance with less cement and energy inputs, effectively lowering its carbon footprint
- Uses supplementary cementitious waste materials such as slag and flyash in place of cement
- No chemical requirements
- Fewer defects and other solid waste sent to landfill

Applications

Initially concrete block products, followed by other concrete products and new industries

Advantages

Process cost reduction for concrete producers; simple, low-cost adaptation and upgrade of standard industry equipment; improvement in material performance of precast concrete products; potential for sustainable building certification

Partners:

Shaw Brick, Air Liquide, Dalhousie University