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Solidia Presents Trial Results of Utilization of CO₂ in High-Performance Building and Infrastructure Products During DOE National Energy Technology Laboratory Carbon Storage R&D Conference

Technology leaders explore “Developing the Technologies and Infrastructure for CCS”; Solidia technology trials demonstrate 70% reduction of CO₂ emissions in cement and concrete production

Pittsburgh, Pa., August 13, 2014—Solidia Technologies® Chief Technology Officer Nicholas DeCristofaro, Ph.D., presented results of trials on the “Utilization of CO₂ in High-Performance Building and Infrastructure Products” today during the U.S. Department of Energy’s National Energy Technology Laboratory’s (NETL) Carbon Storage Research and Development Project Review.

Findings of the four-year R&D project co-funded by Solidia and NETL as part of its Carbon Storage Program, demonstrate that, when the reduced carbon dioxide emissions associated with the production of Solidia Cement™ are combined with the CO₂ reacted into Solidia Concrete™ during the CO₂ curing process, the CO₂ footprint of precast concrete products can be reduced by up to 70 percent. Dr. DeCristofaro joined a group of scientists and technology team leaders of NETL-supported R&D projects who gathered this week in Pittsburgh to explore “Developing the Technologies and Infrastructure for Carbon Capture and Storage (CCS).”

The most recent focus of Solidia’s research includes improving the understanding of water distribution in concrete during the drying and curing process and how that water distribution can be controlled to allow concrete curing in the shortest period of time. The research demonstrated that Solidia Concrete can achieve full hardness in a time comparable to that which traditional concrete made from ordinary Portland cement (OPC) reaches its initial hardness in a controlled curing environment. In every application studied, Solidia Concrete fully cures in less than 24 hours as compared to the curing time of 28 days required for OPC-based concrete to achieve final hardness. At every stage of curing, Solidia Concrete parts match or exceed the strength of comparable products made with OPC-based concrete.

The ongoing research project is funded with US$1.1 million from the NETL through its Carbon Storage Technology program and US$1 million from Solidia Technologies as cost share. The research focus includes mechanical strength, water use, and curing time of Solidia Cement™-based concrete, which reacts with CO₂ instead of water. NETL

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supports Solidia Cement technology because of its potential to consume CO\(_2\) as it cures, based on NETL’s mission to support the development of technologies that reduce or avoid man-made greenhouse gases emitted to the atmosphere.

In the project’s next stage, research will focus on demonstrating this CO\(_2\) reduction and storage capability in actual concrete products made in commercial pre-cast concrete plants.

"We are grateful for the R&D funding from the DOE’s National Energy Technology Laboratory, which has enabled Solidia Technologies to refine and accelerate the commercialization of a new technology that provides a sustainable pathway for the cement and concrete industry," commented Dr. DeCristofaro.

Solidia’s technology and product development is further substantiated by additional third-party research and collaborative testing. Lafarge, a world leader in building materials, is instrumental on research in concrete applications, and The Linde Group, a global leader in the international gases and engineering, has extended its CO\(_2\) supply and delivery expertise to technology development and commercialization. The U.S. Department of Transportation’s Federal Highway Administration supports Solidia with a Cooperative Research and Development Agreement (CRADA) to examine transportation infrastructure applications at the Turner-Fairbank Highway Research Center. Long-term research continues at Rutgers, the State University of N.J., where the original generation of the technology was developed, and collaborative research efforts are underway in laboratories at Purdue University, Ohio University, and the University of South Florida.

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**About Solidia Technologies®**

Solidia Technologies® makes it easy and profitable to use carbon dioxide (CO\(_2\)) to create superior and sustainable building materials. Suitable for large- and small-scale applications, Solidia’s patented technology starts with a sustainable cement, cures concrete with CO\(_2\) instead of water, reduces carbon emissions up to 70%, and recycles 60 to 100% of the water used in production. Using the same raw materials and existing equipment as traditional concretes, the resulting CO\(_2\)-cured concrete products are higher performing, cost less to produce, and cure in less than 24 hours. Solidia was honored with the 2013 R&D Top 100 Award, named a finalist in both the 2014 CCEMC Grand Challenge First Round and the 2013 Katerva Award, shortlisted to both the 2013 Cleantech 100 and MIT’s Climate CoLab, and named a 2014 Best Place to Work in NJ. Based in Piscataway, N.J. (USA), Solidia’s investors include Kleiner Perkins Caufield & Byers, Bright Capital, BASF, and BP. Follow Solidia Technologies at www.solidiatech.com and on LinkedIn and Twitter: @SolidiaCO2.

**ABOUT NETL**

The National Energy Technology Laboratory (NETL), part of the U.S. Department of Energy (DOE) national laboratory system, is owned and operated by the DOE. NETL supports the DOE mission to advance the energy security of the United States. NETL implements a broad spectrum of energy and environmental research and development (R&D) programs that will return benefits for generations to come. These include: enabling domestic coal, natural gas, and oil to economically power our Nation’s homes, industries, businesses, and transportation; and protecting our environment and enhancing our energy independence. NETL has expertise in coal, natural gas, and oil technologies; contract and project management; analysis of energy systems; and international energy issues. In addition to research conducted onsite, NETL’s project portfolio includes R&D conducted through partnerships, cooperative research and development agreements, financial assistance, and contractual arrangements with universities and the private sector. Together, these efforts focus a wealth of scientific and engineering talent on creating commercially viable solutions to national energy and environmental problems. www.netl.doe.gov/about