

Nano carbon could reduce mega footprint

An Australian company's US laboratory has completed preliminary trials on what is claimed to be a stronger, lighter and cheaper concrete made by mixing cement with carbon nanofibres (CNF). According to Eden Energy, the global demand for cement production annually generates about 15 per cent of the world's greenhouse gases.



Credit: Eden Energy.

The company says only tiny amounts of carbon nanofibres – 0.1 per cent by weight relative to cement – were added in the trials. Executive Chairman, Mr Greg Solomon, says the idea came from a pyrolysis research collaboration with the University of Queensland. The project initially aimed to produce hydrogen from natural gas (methane), generating solid carbon as a by-product instead of carbon dioxide. Eden Energy recognised the potential of one of the by-products – CNF.

Mr Solomon says Eden Energy is capable of producing up to 120 tonnes of CNF per year. If added to concrete for load-bearing structures, this could potentially save about 1.6 tonnes of concrete per kilogram of added CNF.

‘This equates to approximately 180 000 tonnes of concrete per year being saved if the whole 120 tonnes of CNF were used. At the same time, we would also produce approximately 40 tonnes of hydrogen [as a commercial, low-emissions energy source].’