




The company expects that, at commercial scales, its cement will be available at or below market prices | Photo source [Anaya Katlego on Unsplash](#)

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THE WORLD'S FIRST CARBON NEGATIVE PORTLAND CEMENT

 PROPERTY & CONSTRUCTION

A new process for manufacturing cement uses calcium silicate rocks instead of limestone

Spotted: Concrete is the most [widely used](#) manufactured material on the planet and cement is its key ingredient. More than four billion tonnes of the material are used globally every year, generating around 2.5 billion tonnes of carbon dioxide (CO₂) annually – about eight per cent of the global total. Cement production is so energy intensive because it uses enormous kilns that are continuously heated to around 1,500 degrees Celsius. This high heat powers the process that turns limestone (CaCO₃) and clay into cement, but it also releases high levels of CO₂.

Startup Brimstone is hoping to change this with a process that produces an identical product to conventionally manufactured cement, but without releasing CO₂. Brimstone accomplishes this by sourcing lime (CaO) from calcium silicate rocks instead of limestone. The calcium silicate rocks do not contain embedded CO₂, so do not release the gas as a waste by-product. The process also produces magnesium species as a waste product. This passively absorbs CO₂, making the entire process net carbon negative, even when accounting for the fuel used.

Carmichael Roberts of Brimstone investor Breakthrough Energy Ventures, [points out](#) that, “Not only has Brimstone figured out a way to eliminate the [CO₂] emissions in [the cement manufacturing] process – [its] innovation creates an opportunity where our built environment could be a net sink for carbon. This means that the buildings and bridges that we build with carbon negative Brimstone Portland Cement can be a part of the climate solution instead of the intractable liability they are today.”

Springwise has spotted a wide range of other innovations reducing the impact of concrete use, such as making [concrete blocks](#) using unrecyclable plastic, and using [AI](#) to make the use of concrete more efficient.

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Takeaway:

Cement production today accounts for [three times](#) the amount of CO2 emissions produced by the aviation industry, but it is vital for almost every type of construction. Although alternatives to cement have been developed, they generally require all-new building techniques. Being physically and chemically identical to ordinary cement, Brimstone's material may allow developers and architects to continue using the exact same techniques already in use, but with far fewer carbon emissions.