

Sustainable Cement

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Addressing SDGs 9, 12, and 17



The CO2 Issue of Cement Production



The issue?

Carbon emissions from cement production accounts for around 8% of man-made global carbon emission.

Why does this matter?

With developing countries looking to urbanize and developed countries looking to advance further, cement will continue to be an essential foundational resource to our societies.

Finding sustainable and efficient solutions to the carbon emission problem within cement production by investing in the potential of the conventional portland cement alternative will benefit businesses, enable accessibility for developing countries, help with the fight against global warming, and present many more benefits.

How Cement Relates to the SDGs



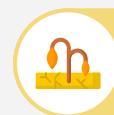
SDG 9

Cement and its role in sustainable industrialization and development of infrastructures such as homes, buildings, etc.



SDG 12

Finding sustainable methods for cement production and consumption and managing its waste products.



SDG 17

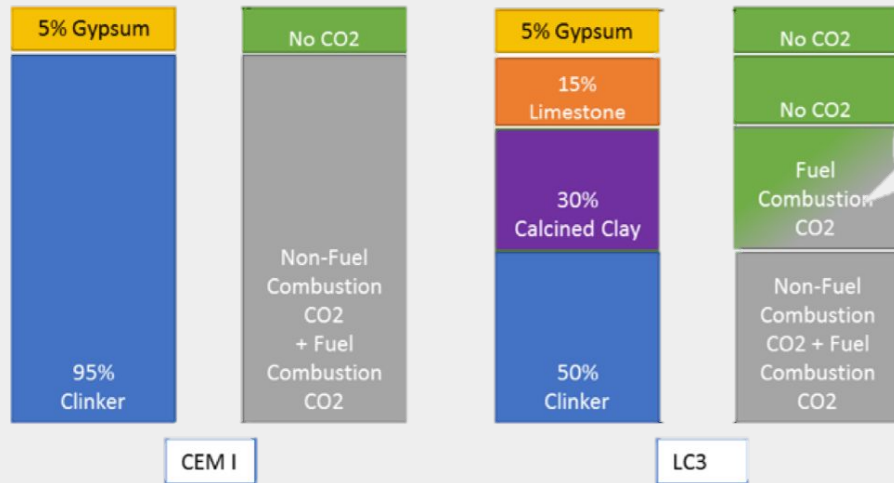
Effective implementation of technology, ideas, and plans to improve the quality of cement and its sustainable usage.

What is cement?: A binding substance used in construction as a key ingredient to concrete..which is the building block of our societies.

Our Alternative: LC3

What is LC3?

LC3, simply put, is a variation on our conventional portland cement. It reduces the use of clinker* (main ingredient of cement) in the production process and replaces it with calcined clay which inherently has significantly less carbon emissions and eliminates the need to break down limestone.



Has potential to reduce up to 40% of carbon emission in the cement production process.

No new technology or novel process is required to switch to LC3! A slight altering of the portland cement production method will do.

Benefits?

Benefits?



Why LC3?

Spread the word!

SDGs

Despite its scalability, effectiveness, and efficiency, LC3 isn't being utilized to its fullest potential. Aside from relatively small scale projects in developing countries, there has been no significant applications.

More body of research and credibility (safety, durability, etc.) on cement alternatives like these could help with our global green efforts. Environmental organizations and local businesses/communities can spearhead change.

Industrialization, construction, consumption, etc. isn't going to slow down any time soon. Even if LC3 isn't the perfect solution, as long as this sparks and stresses change, it will lead us towards a more sustainable future.

***Clinker:** Crushed limestone and minerals heated at high temperatures; high quantity required for cement; also the main source of carbon emission.

Implementation

Our Goal

Rather than introducing a new technology, we're introducing a preexisting one in the hopes of sparking conversations and bringing the issues behind cement production under the spotlight of the sustainability conversation.

Our local ecosystem here at UIUC and its surrounding communities could become the starting place of such conversations and we need your help. Promoting further research, small-scale projects, and the implementation into our local infrastructures is our deed, and those with power and knowledge can act on our behalf.



Why Businesses Should Care

1. LC3 can be cost-effective and profitable with accessibility to clay
2. Production cost of LC3 has potential to be 25% lower due to energy and material savings
3. Green alternatives and solutions should be prioritized considering the changing politics, green policies, and restrictions that may come about.

Caveats and Things to Consider

Establishing the safety and credibility of LC3 or any alternative is crucial. In addition, seeing how it will fit into our unique ecosystems will require a lot of time and effort from experts and stakeholders.

Remember that we are all stakeholders when it comes to shaping our communities and our planet.



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