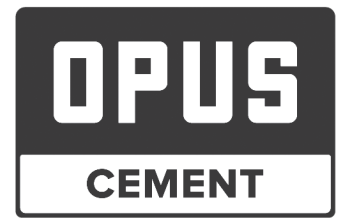


Terra introduces Opus: A road map to eco-friendly concrete



How will the Opus product suite reduce CO₂ emissions in the USA?

Terra's Opus Reagent is an engineered cementitious material with a much lower carbon footprint than Portland cement. Only 0.187 tons of CO₂ is emitted for manufacturing a ton of Opus Reagent compared to ~0.765 tons of CO₂ per ton of Portland cement (blended hydraulic cements may be lower).

The Opus Reagent is the foundation of all our products. Developing a suite of products allows a gradual increase of Opus content as the world gets ready for a new type of concrete. With every step, concrete emissions will be further reduced:



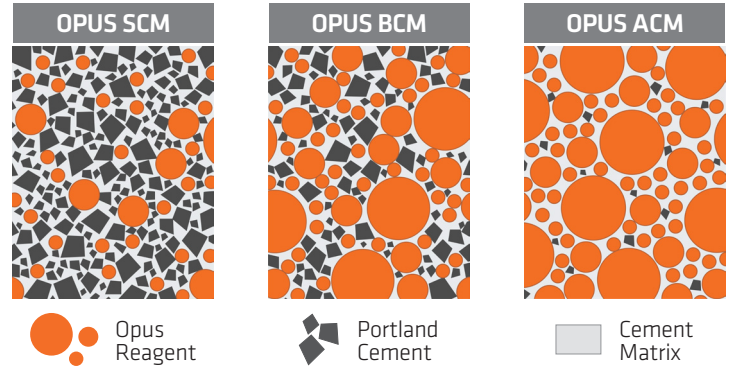
Step 1 - Opus SCM: An easy and established way to improve the environmental performance of concrete is to replace 10-30% of the cement content with a low-CO₂ Supplementary Cementitious Material (SCM). Depending on substitution level (10-30%), Opus SCM offers an **8-23% reduction in CO₂ emissions**.



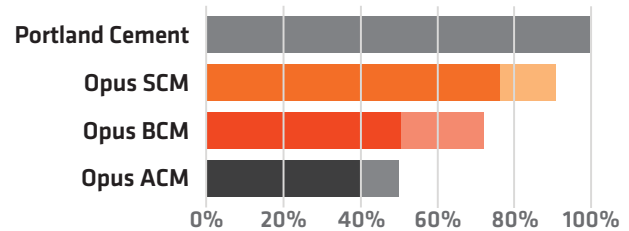
Step 2 - Opus BCM: Our blended hydraulic cement takes things a step further and allows an increase in cement replacement to 30-60% while maintaining performance and allowing a **27-48% CO₂ reduction**.



Step 3 - Opus ACM: Our proprietary geopolymer cement technology **reduces CO₂ emissions by 50-60+%** with no tradeoffs in performance.



The Opus product suite: lowering CO₂ emissions



The Opus impact for the USA further quantified

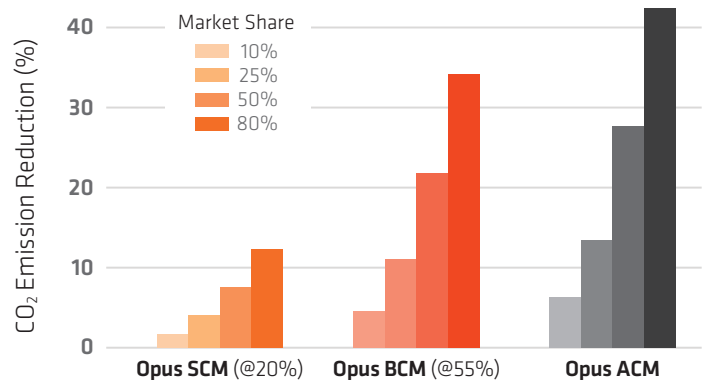
The bar chart to the right illustrates how emissions are reduced with a growing market share. In absolute numbers, for the entire USA, this translates to:

Market Share	CO ₂ emission savings (metric tons per year)		
	SCM (@20%)	BCM (@55%)	ACM
10%	1,023,060	2,978,910	3,723,638
25%	2,557,650	7,447,275	9,309,094
50%	5,115,300	14,894,550	18,618,188
80%	8,184,480	23,831,280	29,789,100

Using the **50% uptake** of ACM as reference case, the annual 18,618,188 metric tons of avoided CO₂ emissions equate to:

- taking 4,047,432 cars off the road
- the annual residential energy use of 6,578,865 people
- decreasing the USA's cement emissions by 28%

Opus product adoption & CO₂ reduction



The USA's cement CO₂ emissions can be significantly reduced with the help of the Opus product suite in the transition away from high Portland cement usage.



For additional information, please contact us:

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