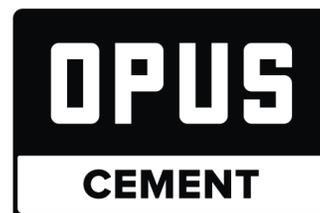


Terra introduces OPUS: A road map to eco-friendly concrete

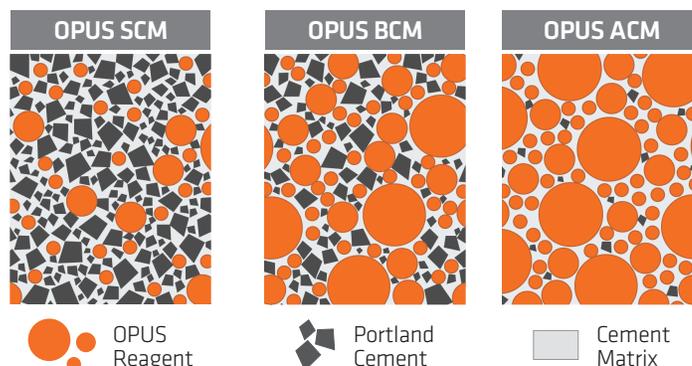


OPUS will reduce emissions in the USA. Every ton of OPUS Reagent replacing a ton of Portland cement, drives a 70% reduction in CO₂ & a 90% reduction in NOx emissions.

Terra's OPUS Reagent is an engineered cementitious material with a significantly lower carbon footprint than Portland cement. Only 0.283 tons of CO₂ is emitted for manufacturing a ton of OPUS Reagent compared to 0.922 tons of CO₂ per ton of Portland cement, driving a 70% reduction in CO₂. In addition, NOx emissions will be controlled, not to exceed 0.16 lbs/ton, while at a typical Portland cement plant NOx emissions range from 0.9 to over 3.0 lbs/ton.

Developed from plentiful & readily available silicate rocks, 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 prepares for a new type of geopolymer cement that will ultimately allow a complete Portland cement replacement. With every new product Terra brings to the market, emissions will be significantly reduced, while maintaining performance & cost competitiveness.

Reducing Portland cement content with OPUS



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). OPUS SCM's sole ingredient is Terra's OPUS Reagent.

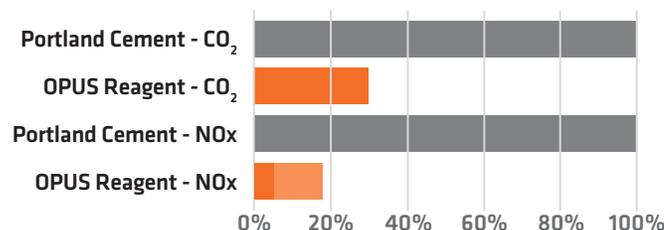


Step 2 - OPUS BCM: Our blended hydraulic cement takes things a step further and allows an increase in cement replacement to 40-50%. With our OPUS Reagent as the core ingredient, OPUS BCM also includes proprietary performance enhancing additives to achieve higher replacement levels without performance reduction.



Step 3 - OPUS ACM: Our proprietary geopolymer cement technology is a 100% replacement for Portland cement. OPUS ACM is expected to be available late 2024.

The OPUS Reagent: low CO₂ & NOx emissions



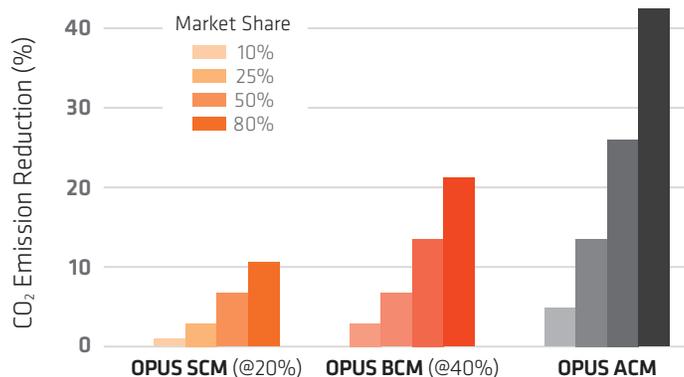
The OPUS impact for the USA further quantified

Market Share	CO ₂ emission savings (metric tons per year)		
	SCM (@20%)	BCM (@40%)	ACM
10%	1,137,420	2,274,840	4,505,607
25%	2,843,550	5,687,100	11,264,018
50%	5,687,100	11,374,200	22,528,036
80%	9,099,360	18,198,720	36,044,858

Using the **50% uptake** of ACM as reference case, the annual 22,528,036 metric tons of avoided CO₂ emissions equate to:

- taking 4,897,399 cars off the road
- the annual residential energy use of 7,960,437 people
- decreasing the USA's cement emissions by 27%

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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