Environmental

Concrete is the most abundant manufactured material on Earth.

Concrete in construction is an essential part of our world. It affects the quality of human life in a positive manner, having shaped so much of our built environment.

For all the positive benefits it provides for mankind, concrete has a negative image when considered in terms of sustainability and the environment. Cement, an essential part of concrete, is accountable for approximately 8% of the global total of CO2 output.

The frequent question concrete producers ask themselves when wishing to produce a more environmentally friendly product is, "How can we substitute the OPC in our mix design with another material?".

What if it was possible to significantly reduce the amount of Portland cement in the mix design and achieve the same 28-day strength? With Hydramax 1609® this is possible.

Hydramax 1609® improves the efficacy of the cement hydration process, increasing the amount of Portland cement that is hydrated at 28 days from typically 60% to 70%, up to 95%+(1).

The potential environmental benefits of including Hydramax 1609® within a mix design are:

- A reduction of approximately 20-25% of the OPC specified within a concrete mix design.
- Elimination of water reducing admixtures, as well an overall reduction in the amount of water required for the mix. This is as a result of the plasticising effect Hydramax 1609® will have on the concrete.
- The potential to aide with the overall design of a structure to make it more environmentally friendly. The increases in compressive, tensile and flexural strengths resulting from the inclusion of Hydramax 1609® in the concrete, give rise to the possibility of reducing the total amount of concrete used within the structure.
- If alternative reinforcement to steel is being considered, such as glass fibre, basalt etc... Hydramax 1609® can be included in the mix design to reduce the thickness of concrete elements, such as architectural facades. The reduction in weight of these elements can have a positive impact on the loading on the structure, thus enabling a more environmentally friendly design.

(1) Based on a Hydramax 1609® dosage rate of 2.5% of OPC by weight, added to a comparable mix containing no admixtures.

ACIL Limited, Unit 7, Britannia Way, Britannia Business Centre, Malvern, Worcestershire, WR14 1GZ, United Kingdom