

## ENVIROCore<sup>100</sup>

Ground Granulated Blast Furnace Slag (GGBFS) to provide heightened durability for high wear and harsh areas including marine and highly acidity or alkaline environments with a lower embodied carbon impact.

### ENVIROCore<sup>100</sup>

Granulated Blast Furnace Slag (GBFS) is an industrial by-product from the steel-manufacturing process. It is obtained through rapid cooling of molten iron ore slag, which creates a hydraulic material that is naturally cementitious and high in calcium silicate hydrates (C-S-H), a compound that increases the strength and durability of concrete. The GBFS is then ground within our NZ Supplementary cementitious facility to produce our ground granulated slag product, ENVIROCore<sup>100</sup>.

Concrete produced with ENVIROCore<sup>100</sup> has a lower heat of hydration, reducing the risk of cracking, and continues to gain strength over an extended period of time, resulting in higher ultimate strengths.

ENVIROCore<sup>100</sup> assists with reducing the risk of damage caused by alkali-silica reactivity, while providing higher resistance to chemically aggressive environments.

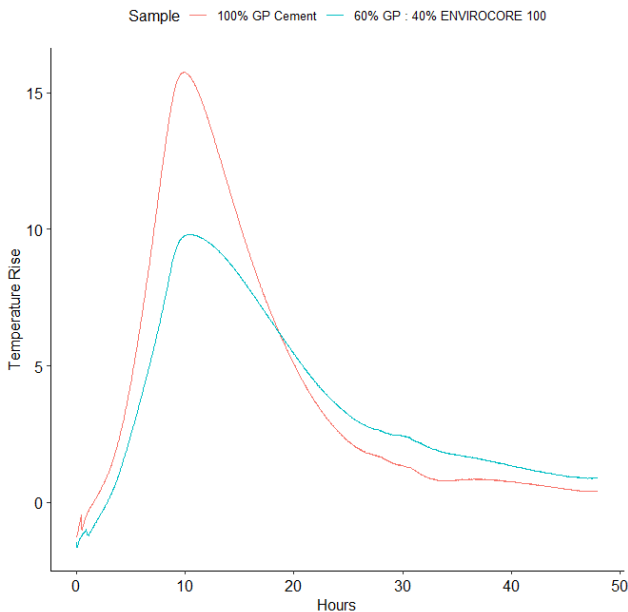
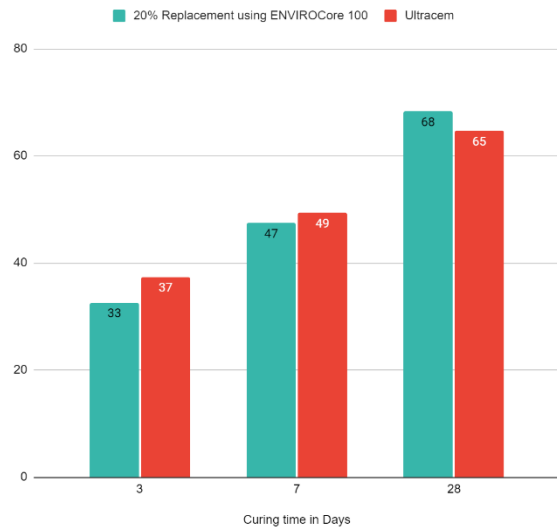
ENVIROCore<sup>100</sup> meets the requirements of Australian Standards AS3582.2:2016 Supplementary Cementitious material part 2: Slag – Ground Granulated Blast Furnace.

Typical Results		AS3582.2 Requirements
Fineness passing 45µm:	98%	
Insoluble Residue:	0.1%	
Loss on Ignition:	<0.1%	
Sulfate (as SO <sub>3</sub> ):	<0.5%	
Sulfide Sulfur (S) :	0.7%	Maximum 1.5%
Magnesia (MgO):	6.5%	Maximum 15.0%
Alumina (Al <sub>2</sub> O <sub>3</sub> ):	14.5%	Maximum 18.0%
Total Iron (Fe <sub>2</sub> O <sub>3</sub> ):	0.5%	
Manganese (MnO):	0.2%	
Chloride Ion:	<0.001%	Maximum 0.1%
Total Alkali:	0.57%	
Relative Density:	2.90	
Relative Water:	105%	
Strength Index:	98%	

## Strength performance

When ENVIROCore 100 is used to replace type GP cements, a relatively small impact on strength performance within the first 7 days is to be expected, however 28 day strengths and beyond are expected to be equal or improved to a standard general purpose cement, with strength continuing to improve beyond the 28 day parameter.

Mortar Results



## Thermal properties within Mixes

In large structures, such as pile caps, foundation blocks, massive columns, and large slabs, the occurrence of cracks can be attributed to thermal shrinkage. These cracks emerge when there is a notable temperature difference within the concrete body, which is primarily due to the relatively low thermal conductivity of concrete. The release of heat during the hydration process frequently leads to temperature variations, resulting in a significant increase in the core temperature. Consequently, when the concrete section reaches temperature equilibrium, internal stresses are generated because areas with higher temperatures contract more than those with lower temperatures. If these stresses surpass the tensile strength of the concrete, cracks will develop.

To mitigate the risk of cracking, the utilization of ENVIROCore<sup>100</sup> as a supplementary cementitious material (SCM) is recommended. This SCM has the ability to lower the mixing temperature, thereby reducing the likelihood of crack formation.

## Handling, Storage & Safety

### Handling & Storage

The shelf life of Holcim ENVIROCore is dependent on the storage conditions. It is necessary to be stored in dry conditions and protected from rain, dew, or any other moisture source to prevent lump formation.

### Availability:

ENVIROCore is available in bulk tanker.

### Safety Datasheet:

Our safety data sheet can be downloaded from our website <https://www.holcim.co.nz>

