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## TecEco Invitation to Test Tec- Cement Technology

TecEco and a number of other institutions are obtaining some stunning and very significant results for tec-cements including greater tensile strength and more rapid compressive strength development even with a high proportion of added pozzolans. Greater strength using less binder and more supplementary pozzolanic material has enormous implications for cost and sustainability. We are therefore urgently seeking third parties to independently confirm this finding.

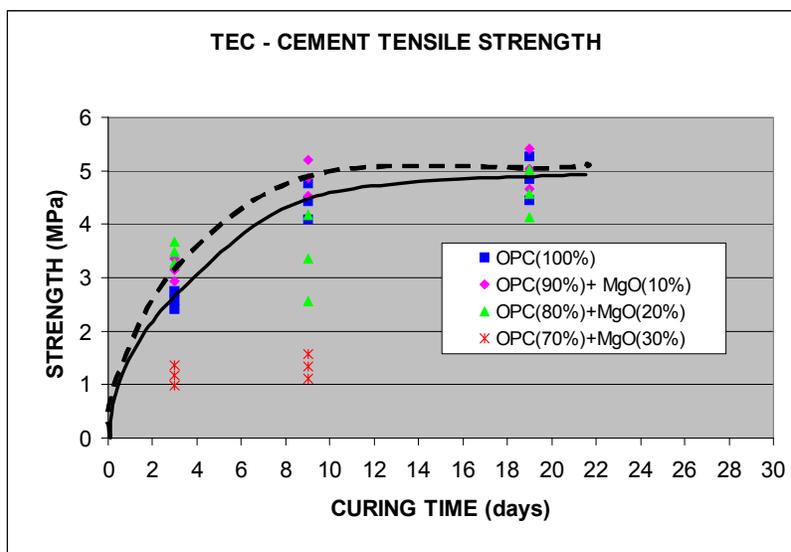
Tec-cements (Around 5 -10% MgO, 90 - 95% PC) contain more Portland cement than reactive magnesia. Reactive magnesia hydrates in the same rate order as Portland cement forming Brucite which uses up water reducing the voids:paste ratio, increasing density and possibly raising the short term pH as reactions with pozzolans are more affective. Some magnesium silicification is also being observed.

After all the Portlandite has been consumed Brucite controls the long term pH which is lower and due to it's low solubility, mobility and reactivity results in greater durability. Some mineral silicates also form such as possible olivine.

Other benefits include improvements in density, strength and rheology, reduced permeability and shrinkage and the use of a wider range of aggregates many of which are potentially wastes without reaction problems.

Please contact us if you are interested in independently testing our cements.

## TENSILE STRENGTH RESULTS

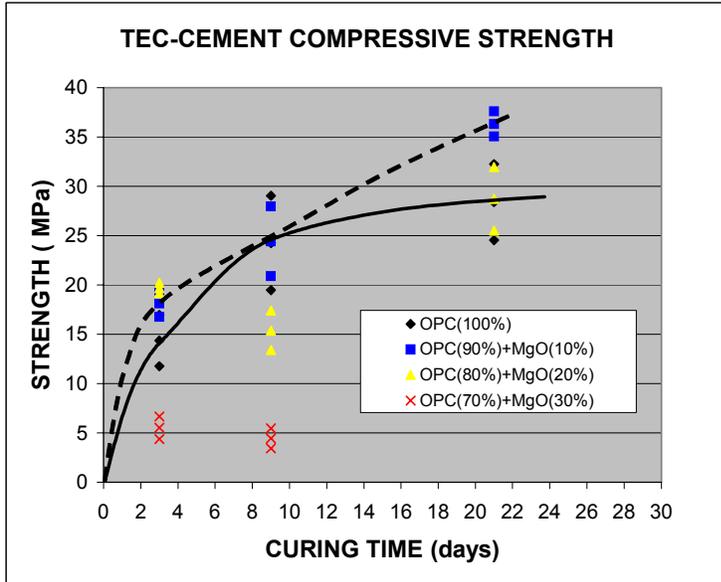


### Student - Oxford University

1 part cement :3 parts  
 standard sand with water  
 cement ratio 0.5

This mix was similar to what  
 is specified by BS EN 196 -  
 1 and used by the British  
 Research Establishment  
 (BRE - see below)

# COMPRESSIVE STRENGTH RESULTS



## Student - Oxford University

The same student at Oxford drew the graph on the left. The dashed line is a TecEco Tec-cement with no pfa.

1 part cement :3 parts standard sand with water cement ratio 0.5

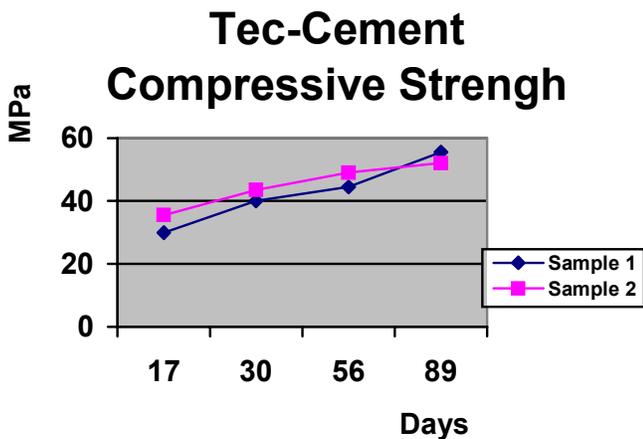
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## BRE (United Kingdom)

The British Research Establishment are currently researching our concretes and reported that a mix with as much fly ash as cement in accordance with BS EN 196 – 1 achieved 69 mpa at 90 days and was consistently well above that of the OPC control.

2.85PC/0.15MgO/3pfa(1 part) : 3 parts sand - Compressive strength of 69MPa at 90 days. Note that there was as much pfa as Portland cement plus magnesia

## TecEco Hobart



The mix was:

Portland Cement	245 Kg
Magnesia	30 Kg
Fly ash	70 Kg
Quarry Dust	215 Kg
White Sand	550 Kg
Blue metal (3 sizes)	1060 Kg

Water was 135 Kg / M<sup>3</sup> Without plasticiser 125 Kg was required to achieve the same workability. Unfortunately the latter mix was not tested. Normally about 380 Kgs of PC would be required for the above strength development.

Note that in all the above cases the strength development is a straight line from day 1.5 to at least ninety days! Where will this technology take us?????????????????