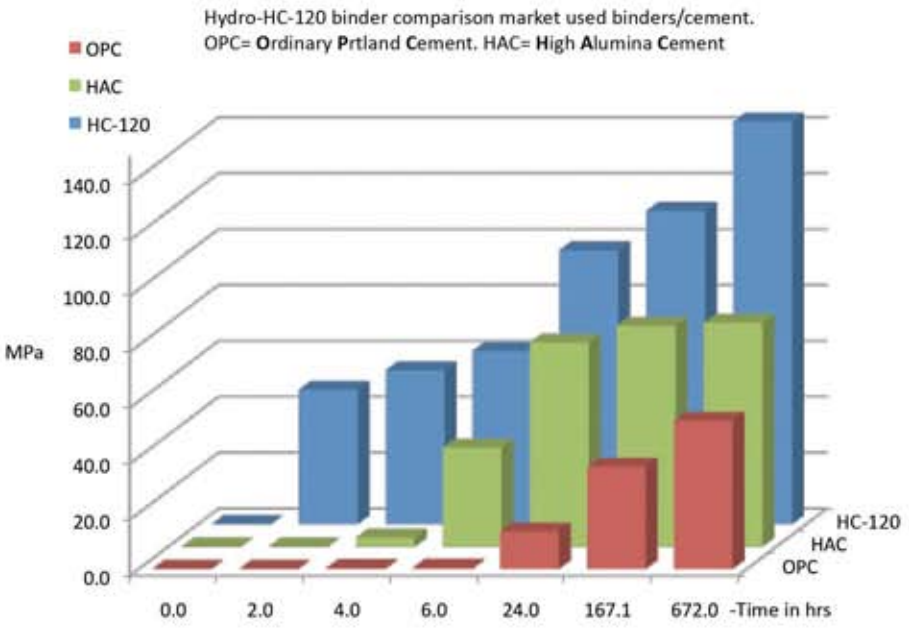
TDS

HC-120 FAST SET HIGH PERFORMANCE BINDER

HC -120 is a hydraulic binder designed to provide exceptional early strength performance to be used in concrete mixes. HC-120 can be used in a range of applications including mining and construction. From grout to self levelling applications from shotcrete to super strong concrete, HC binders are unbeaten in their performance. Flux Design Australia is facilitating high performance cementitious products for the mining and construction industries. Much of our new high performance, low environmental impact binder has a reduced carbon footprint compared to western carbon cement manufacture by over 30%. HC-binders are self expanding, develop low heat and do not need any extra chemicals to work; so reducing your footprint even further.

HC-120 in comparisson to using Portland cement in its normal function, the quality of the Portland is almost insignificant. HC-120 can be used to construct binders which both out perform CAC, are higher performance, have a very low carbon burden, and, are relatively cheap. Also by using the 'core' model it is possible to make these materials remain dimensionally stable, expand slightly, or shrink slightly. The highest shrinkage rate of current available (cheap) binders is an SL cement, expansion is up to 400 microstrain. The typical shrinkage with HC-120 is 208 microstrain after 408 days of drying.



Finally the 28Day results are in. HAC, is fast but dies off after a few days. OPC is very slow but still creeps along. HC-120 system is still going...

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Technical Advantages:

The HC combination of binders keep the heat below 40ºC.; given the unknown dosing rate of clients, a precise combined heat range can not be given, but in general it will be a be proportional to the reduction/replacement in OPC in the mixes. A reduction in hydration temperature is another environmental / product advantage unmatched by other alternatives. HC binders can be formulated to suit your workflow up to 4hrs 'in intraffic' is possible if you can not use an on-site mixing facilty.

As a binder in it's own right, it doesn't crack, it lends itself to positive expansion. It generates monosulphate crystals, which are robust, and shaped differently to ettringite.

HC is also sulphate resistant, and considered impervious to water.
HC binders provide an eco-friendly application, and unmatched performance results.
HC binders also reduce environmental impact, due to a reduced water powder ratio.
W:P ratio is around 0.2-0.23 : 1. Because the binder addition develops a very low heat during curing, watering down not necessary, thus reducing further water, time, and recourse.
As a result of the low water consumption and low heat curing, the final product if used correctly and fit for purpose, will out-perform any cementitious products in the market.
HC binders can develop a very high compressive strength of 120MPa after 28days and beyond. As a singular product, strength gains of 50MPa at 2 hours, 70MPa at 12 hours, and over 90MPa at 24 hours can be achieved.

Corrosion and steel protection provided by a reduction in alkalinity will adds to the list of (environmental) benefits. The binder has low pH, measured at 10 on the Litmus scale.
Perfectly suited for time restrained work loads such as road works, airport runways, formwork or castings and emergency work.

Application in the field:

If a company making blocks for building used Portland cement to bind their products, the sequence would be clean moulds, cast blocks, leave to next day to demould, place in storage to cure and clean and recast the moulds. In this scenario the block maker can make as many blocks as he has moulds each day. If the HC were substituted he would clean moulds, cast blocks, leave for two hours to demould and ship the recently cast blocks. He would then be able to re-clean moulds, cast a second batch of blocks, leave for two hours to demould and ship these too. In this scenario the block maker can make two or three times as many blocks as he has moulds each day, thus increasing efficiency and profits.
Further, as the blocks are constructed of a material which is unaffected by drying conditions, even tropical conditions and strong sun light will not damage the hydration process. Maximum performance can be attained at a consistent level.

Additionally, the HC-120 binder system is impervious to both marine and sulphates which is abound in volcanic derived soils.

PRODUCTS

HC-120

Our prime product.
Pure binder, minimum strenght in 28 days 120 MPA it will surprise you how high it will go how fast it can get there! All this without any extra additives that are costly or environmetally questionable and unexceptable!

HC-80

Pure super strength binder max strength in 28 days 80 MPa. Perfect replcement for your high-end normal MPa needes way above the best CSA binders/concrete. Your number one choice in concrete works.

HC-100

Ready mix. Specially formulated and mixed as a self leveller all inclusive product replacing Cement. Our ready-2-mix product is the ideal product to replace the cement . The best choice to do concrete benchtops or any concrete product that requires high-end formwork and smooth finish in a flash.
Water to Cement ratio = 0.18-0.2.7:1 depending on desired performance outcome. The less water, the higher and faster the strength gain in the initial hydration period.

Working time around 30 minutes @ 23ºC. Modified set times are available but require laboratory assistance based on mix designs. Up to 4 hours delay can be achieved.

Available Packaging for all HC-binders
20kg, 1000 kg, 1200 kg
Compressive Strength for HC-120 @ AS1012.9
2hr-50MPa - 4hr-58MPa -6hr-62MPa - 12 hr-70MPa
24hr-90MPa - 7days-112MPa- 28days minimum 120MPa
Shrinkage AS1478.2 = 208 micronstrain@408 days
pH Value = 10 pH

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