Technical Data Sheet

Hydramax 1006 is specifically designed for precast concrete. It is an admixture comprising of a combination of highly effective compounds, based on a non-chloride carrier, which enhance the efficiency of the Portland cement hydration.

The primary function of Hydramax 1006 is to change the interaction of the component parts of Portland cement-based concrete during hydration, resulting in enhanced properties of the finished precast concrete products. The enhanced hydration process, using Hydramax 1006, also has the potential to benefit production processes.

Description

Hydramax 1006 is a liquid admixture that significantly increases the hydration of the Portland cement. Typically, concrete hydrates 60 - 70% of cement particles. Hydramax 1006 can increase this up to 85%(1). Hydramax 1006 is most suitable for precast concrete.

Benefits

Concrete Performance

- **High strengths**

- Provides up to 25% increase in final compressive strengths(1).
- Provides up to 50% increase in final tensile strengths(1 & 2).
- Provides up to 50% increase in final flexural strengths(1 & 2).

- **Cement reduction**

- Provides potential reduction of approximately 20% in the amount of cement required for a mix design.

- **Durability**

- The denser matrix, combined with the chemical and mechanical binding of calcium hydroxide within the mix, results in greater resistance to:
  - Chemical attack
  - Abrasive forces
  - Freeze-thaw attack

- **Workability**

- Works as a high-range superplasticiser, replacing approximately 30% of the water required.
- Enables good flowability.
- Reduces risk of segregation.
- Results in minimum vibration being required.

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

• **Denser matrix**

- Decreases the number of pores and capillaries within the concrete matrix.

- **Provides quicker set times, helping potentially reduce the risk of concrete freezing.**
- **Reduces the potential of efflorescence occurring.**
- **Increases colour uniformity and intensity.**

Concrete Production

- **Gives faster release time from moulds.**
- **Results in less breakages during mould release.**
- **Reduces segregation as a result of providing greater workability.**
- **Allows faster placement as a result of providing greater workability**
- **Results in less vibration being required.**
- **Benefits logistics.**

Intended Use

All Portland cement-based concretes that require a high-range superplasticisers, in particular precast concrete building components.

Application

Trial mixes and appropriate testing should be carried out under project conditions to determine the correct dosage rate and effects of including Hydramax 1006 within the mix design.

Consult with your Hydramax 1006 Technical Representative for further advice and guidance on dosing of the product.

To determine the appropriate dosage rate of Hydramax 1006 for a particular mix design, the following steps should be undertaken to assist in the process:

1. Remove any amount of water reducing admixtures and superplasticisers from the current mix design, replacing them with the appropriate amount of clean water to maintain the desired characteristics of the concrete.
2. Then reduce the revised water quantity, detailed in step 1, by typically 30%. However, the water cement ratio must not go below 0.25.
3. Add Hydramax 1006 at the minimum dosage rate.
4. Mix thoroughly, ensuring homogeneity of the Hydramax additive.
5. Monitor slump, spread and flow of the mix, ensuring that they meet the desired requirements.
6. If the desired requirements are not being met, add Hydramax 1006 in small increments until the necessary results are being achieved (ensuring not to exceed the maximum dosage rate).

Note: Do not retemper the mix.

Dosage

• 1.5% - 2.5% by weight of Portland cement

or

• 1.3 litres to 2.1 litres per 100kg of Portland Cement

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

Product Data

Specific Gravity:	≈ 1.15 - 1.25
pH:	5.0 - 7.0
Appearance:	Slightly turbid, pinkish, liquid

Packaging and Storage

Shelf Life:	3 years from date of manufacture, when stored in original, unopened packaging.
Storage Conditions:	Store in sealed containers. Protect from extreme temperatures.
Packaging:	1022 litre IBCs, 200 litre drums and 20 litre bottles.

Handling and Health & Safety

The Manufacturer maintains comprehensive and up-to-date Safety Data Sheets on all its products. Each sheet contains health and safety information for the protection of workers and customers. The Manufacturer recommends you contact ACIL Ltd or your local Technical Representative to obtain the latest copies of Material Safety Data Sheets, which must be read prior to product storage or use.

Waste Disposal

Disposal must be undertaken in accordance with all local laws and regulations. Refer to the material safety data sheet for Hydramax 1006 for further information.

Warranty

ACIL Limited (company No. 11814313) warrants to the purchaser that the products supplied by it shall be free from material defect. Should any of the products be proven defective, the liability to ACIL Limited shall be limited to (at the choice of ACIL Limited) either replacement of the proven defective products ex-factory, or refund of the NETT ex-factory purchase price at the date the proven defective products were supplied. ACIL Limited will not be liable or responsible, to such an extent as permitted by law, for any consequential or direct damages, compensation, costs, expenses, losses or other liabilities that may occur as a result of the defective products. ACIL Limited makes no warranty as to the merchantability or fitness for a particular purpose and the terms of this warranty are in lieu of all other warranties expressed or implied by law.

Please note: This Technical Data Sheet is for general guidance only. It does not constitute as a detailed guide for a specific application. Due to the unique circumstances of every application, it is imperative that trial mixes, and appropriate testing, are carried out to help assess the impact the inclusion Hydramax 1006 has on a particular mix design, and whether it will meet with clients' expectations. Particular attention should be paid to set times, strengths, workability and the like. Independent advice should be sought on each application. The information contained within this Technical Data Sheet is to the best of ACIL Limited's knowledge and belief, accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness.

(1) Based on a Hydramax 1006 dosage rate of 2.5% of OPC by weight, added to a comparable mix containing no admixtures.

(2) For a 30 MPa concrete: Estimate for tensile/flexural strengths: 30 x 0.15 = 4.5 MPa. With Hydramax 1006 added to the same 30 MPa design, compressive strength increases by 25% (30 x 1.25 = 37.5 MPa) The corresponding tensile/flexural strengths increase by 50% (4.5 + 2.25 = 6.75 MPa). The comparative compressive strength to tensile/flexural strength ratio is 18% for the mix containing Hydramax 1006, compared to 15% for the mix not containing Hydramax 1006. (6.75 MPa/37.5 MPa = 18% v's 4.5 MPa/30 MPa = 15%).

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