

TECHNICAL DATA SHEET

HYSEAL® Concentrate



Crystalline Capillary Waterproofing Admixture

Description

HYSEAL CONCENTRATE is a permanent waterproofing admixture. When added to concrete or mortar, insoluble crystals are formed and developed in the water bearing capillaries of the mix, effectively blocking the passage of water and ensuring permanent water tightness throughout the life of the structure.

HYSEAL CONCENTRATE can also be used in production of waterproofing mortars and surface applied slurry systems.

Applications

HYSEAL CONCENTRATE has a wide use including:-

- **Water tanks and towers**
- **Reservoirs**
- **Swimming pools**
- **Water treatment works**
- **Dams**
- **Canals**
- **Harbours**
- **Concrete pipes**
- **Lift pits**
- **In-situ Concrete Basements**

Action

Moisture and free lime within the mix combine with the active chemicals in the HYSEAL CONCENTRATE to create a continuous barrier of insoluble crystals which penetrate deep into the capillary structure of the concrete. These capillaries and interstices are blocked to the passage of water, whilst permitting the transmission of air and water vapour, enabling the structure to breathe.

The rate of crystalline development varies with the variations in the mix design and curing regime of the concrete. However the crystalline development is usually sufficient to provide full waterproofing properties approximately 7-10 days after placement.

HYSEAL CONCENTRATE is equally effective against both negative and positive water or osmotic pressure.

After the initial crystallisation process has successfully waterproofed the structure, the active chemicals within HYSEAL CONCENTRATE remain dormant in the concrete to offer long-term protection. Any later contact with water will reactivate the sealing process.

Advantages

- **Provides excellent waterproofing properties by becoming an integral part of the structure to which it is included.**
- **Protects concrete and reinforcement against corrosive waterborne substances.**
- **Crystalline action reactivated by contact with water providing long-term additional protection.**
- **Effective against both positive and negative water pressure.**
- **Non-toxic or tainting.**
- **Permits early backfilling without requirement for protection boards.**
- **Maintenance free**
- **Proven world-wide track record.**
- **Bridges hairline cracks up to 0.4mm.**

Technical Data/Typical Properties

Composition: A blend of water activated chemicals, high grade silica aggregates and selected cements.

Form: Powder

Applicable Standards: As concrete admixture: EN 934 - 2 Table 9 (Water Resisting Admixture)

Potable water:

Results when tested in line with BS6920:2000 Testing of Non-Metallic Materials for Drinking Water

Odour and Flavour of Water

Extract	Test Water	Test	Descriptors
Final	Chlorine Free	Odour	None
		Flavour	None

Appearance of Water

Temperature of extraction 23+-2 deg C

	Colour Hazen Units	Turbidity Formazine Nephelometric Units
	First Extract	First Extract
Test Sample Extract	<0.4	<0.6
Reagent Blank	<0.4	<0.6
Test Sample Effect	<0.4	<0.6

Extraction of Substances that may be of concern to public health (Cytotoxicity)

Temperature of extraction 23 +- 2 deg C

The extract from the product and the blank were used to prepare culture media for use with a monkey kidney cell line (VERO ATCC CCL 81)

Attribute	Test Sample Extract	Reagent Blank	Zinc Sulphate Solution
Cell Morphology (Microscopy)	Satisfactory	Satisfactory	Cell Death
Culture Medium (colour)	Normal	Normal	Abnormal (Alkaline)
Monolayer confluence (approx %)	100%	100%	0%

On the basis of these results the extract of this product has been found to give non-cytotoxic response, and therefore it meets with the requirements of BS 6920-1 clauses 7 when extracted at 23 deg C.

Growth of Aquatic Microorganisms Temperature of Extraction: 30 deg C

HYSEAL CONCENTRATE is a permanent waterproofing

Container	Mean Dissolved Oxygen Difference (MDODO in mg/L)
Test Product (weeks 5 to 7)	-0.4
Negative reference (glass) (weeks 5 to 7)	0.2
Positive reference (wax) (weeks 5 to 7)	6.5
Special positive reference	6.7
Bactericidal/Bacteriostatic Effect	None
Negative control - Mean dissolved oxygen concentration (weeks 5 to 7)	8.0

Extraction of Metals

Temperature of extraction 23 +- 2 deg C

Extract Analytical

Aluminium, antimony, arsenic, barium, cadmium, chromium, iron, lead, manganese, mercury, nickel and selenium—inductively coupled plasma mass spectrometry or inductively coupled plasma optical emission spectrometry

Analytical Control Data— This technique is in continuous use for analysis of drinking water metals; this technique is fully validated to the requirements of " A Manual on Analytical Control of the water Industry" (NS30) and the requirements laid down by the Drinking water Inspectorate. The technique has comprehensive AQC protocols including control solutions and spike recovery testing with each sample for analysis.

On the basis of results achieved using the above analytical regime the product was found to conform to the requirements as laid down in BS 6921-1 : Clause 8 when extracted at 23 deg C.

Application

As Concrete Admixture

Dosing

HYSEAL CONCENTRATE may be added to the concrete either at the batching plant or added to the mixer at the job site.

However HYSEAL CONCENTRATE is best added to the dry mix to ensure even distribution prior to the addition of water.

If HYSEAL CONCENTRATE is added after the water mixing must continue for a further 10 minutes prior to placement of the mix.

Dosage: 800gram per Cubic Metre of Concrete

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Mix Design

HYSEAL CONCENTRATE can have a plasticising effect upon the mix together with an extension of setting times. Impact upon these properties will vary with mix design, climatic conditions etc. Removal of admixtures likely to retard the mix should be considered and trial mixes be undertaken to establish optimum mix design for the specific project.

Curing

Concrete containing HYSEAL CONCENTRATE must be prevented from drying out too rapidly and should be kept damp for at least 7 days.

Mist spraying with water and covering with polythene is effective when drying out would otherwise take place. Curing compounds are not recommended for use with HYSEAL CONCENTRATE technology.

Protect from weathering, sun, frost and wind for a similar minimum period.

Note

HYSEAL CONCENTRATE is not suitable for waterproofing dynamic cracks or movement joints.

HYSEAL CONCENTRATE is not guaranteed to heal post placement cracks in excess of 0.4mm

Surface applied Slurry/Mortar Coats

Please refer to Hyseal No1 Technical Data Sheet for details

Packaging

HYSEAL CONCENTRATE is supplied in 180kg Drums

Storage

Store as for cement, in dry, cool conditions.

Shelf Life

12 months if stored according to manufacturer's instructions in unopened containers.

Health and Safety

Refer to Safety Data Sheet for full details.

Mix UK Limited Ltd endeavour to ensure that any advice, recommendation or information we may give in product literature is accurate and correct. However, we have no control over the circumstances in which our product is used and it is therefore important that the end user satisfy himself by prior testing that the product is suitable for his specific application and that the actual conditions of use are suitable. Accordingly, no responsibility can be accepted, or any warranty given by ourselves, our representatives, agents or distributors, other than that the product as supplied by us will meet our written specification. Products are sold subject to our standard conditions of sale and each purchaser and end user should at all times ensure that he has consulted our latest product instructions and safety information.