

## **HI-PLAST**

**(Liquid Mortar Plasticizer.)**

### **DESCRIPTION**

Hi-Plast is a highly efficient plasticizer/water –reducing admixture for concrete/mortars. It is a grey liquid based on a processed lignosulphonate. It does not contain calcium chloride or any other chemicals, which could be harmful to the durability of reinforced concrete. It enables easier placing, compaction and finishing of concrete and may be used to reduce the water content whilst retaining the same workability resulting in higher strengths. It may also be used to reduce the overall cement content for specified strength and durability.

### **USES**

It avoids shrinkage and surface laitance.

It reduces permeability and improves durability.

Improves the cohesion of concrete mixes based on poor quality material having a higher water demand.

It has also been successfully used in lightweight aggregate concrete pump mixes.

### **PACKING**

Hi-Plast is a single component material packed in 5 liters, 20 liters and 50 liters plastic containers.

### **TECHNICAL DATA**

Color	: Grey
Form	: Liquid emulsion
Appln Temp	: >5°C
Service Temp	: 25°C to 60°C
Salt Scaling Resistance	: Excellent
Chloride Content	: 0.01% or less

### **MIXING / DOSAGE RATE**

Hi-Plast is supplied ready for use and should be added direct to the mix preferably with the gauging water. The

preferably with the gauging water. The concrete should then be mixed for sufficient time to ensure thorough dispersion.

The dosage rate is 200 ml Hi-Plast per 50 kg of cement. Slightly higher dosages may be necessary on some mix designs. The optimum dosage should be determined by trials with the proposed mix.

### **APPLICATIONS**

Hi-Plast can be incorporated in concrete to give one of the three following benefits (or a combination of these benefits).

1. As a water reducer

By keeping the workability of the concrete mix the same, a significant reduction (10-20%) in the quantity of gauging water added can be achieved by the incorporation of Hi-Plast, giving higher strength, more durable concrete.

2. As a workability aid.

Much increased workability can be achieved by the incorporation of Hi-Plast with no adjustment to the quantity of gauging liquid.

This produces mixes which are more readily placed and compacted to save time and labor and also produces denser concrete with reduced permeability.

3. Reduction of cement content.

By the incorporation of Hi-Plast it is possible to produce lower cost corresponding mixes (of comparable workability and 28 days strength) at lower cement contents (8-12% reduction for nominal 300 kg/m<sup>3</sup> mix). Such corresponding mixes with Hi-Plast exhibit improved durability under freeze/thaw cycling when compared with control mixes.

These benefits can be used to the full in both mass and reinforced concrete, in precast and ready mixed concrete, and in difficult placing conditions such as floor laying, where it is important to obtain maximum workability with a minimum water/cement ratio.

## TEST RESULTS

Hi-Plast when tested at a dosage rate of 200 ml / 50 kg cement as a Normal Water Reducing Admixture.

Table 1: Control Mix Properties

<u>Property</u> <u>Compliance Limits</u>	<u>Result</u>
Compacting Factor 0.88 - 0.90	0.90
Air Content < 2.0%	1.5%
Stiffening time - Initial Set	1 3/4 hours
Final Set	3 hours
Comprehensive Strength	
7 days	45.5 N/mm <sup>2</sup>
28 days	56.5 N/mm <sup>2</sup>
Cement Content 300 ± 5 kg/m <sup>3</sup>	299 kg/m <sup>3</sup>

Table 2: Performance Requirement for Test Mix concrete A

<u>Property</u> <u>Compliance Limits</u>	<u>Result</u>
Compacting Factor atleast 0.03 above control mix.	0.93
Air Content No more than 1.0% above control but<3%	1.8%
Comprehensive Strength	45.5 N/mm <sup>2</sup> - 100% At least 90% of control mix.
	57.0N/mm <sup>2</sup> - 100.9% At least 90% of control mix.

Table 3: Performance Requirement for Test Mix concrete B

<u>Property</u> <u>Compliance Limits</u>	<u>Result</u>
Compacting Factor Not more than 0.02 below control mix	0.88%
Air Content No more than 1.0% above control but<3%	1.8%
Stiffening time Initial set within 1 hour of control	2 1/4 hours
Final set within 1 hour of control	3 1/2 hours
Comprehensive strength	
7 days	52.0 N/mm <sup>2</sup> - 114.3% Atleast 90% of control mix
28 days	63.5 N/mm <sup>2</sup> - 112.4% Atleast 90% of control mix

## STORAGE

Store tightly sealed containers at room temperature. Self life of properly stored material is one year from the date of manufacture.

## LIMITATIONS

Do not apply Hi-Plast when the temperature is expected to below 5°C (40°F) with in 12 hours or when rain is imminent.

## CAUTIONS

HI-PLAST is non-toxic, non-flammable and non hazardous. However, any splashes on any part of the human body, must be washed with plenty of water.

## STANDARD COMPLIANCE

**HI PLAST** complies with **IS 9103 1999(2007)**

This Product is Formulated and Labeled and Commercial use only  
For Best Results and Safest Usage, User is Specialty Directed to Consult.

Product Warranty: All recommendations, statements and technical data contained herein are based on tests we believe to be reliable and correct, HIBOND warrants its products to be free of mfg. Defects and that, at the time and place of shipment, our material will meet current published physical properties when applied within HIBOND'S directions and tested in HIBOND'S standards. HIBOND'S facility is limited to replacement of material found to be defective. As HIBOND has no control over the use to which others may put its products. It is recommended that the product be tested to determine if suitable for a specific application and / or our information is valid in particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, applications and proper installation of each product. Nothing contained herein shall be construed to be a recommendation to use or as a license to operate under or to infringe any existing patents.