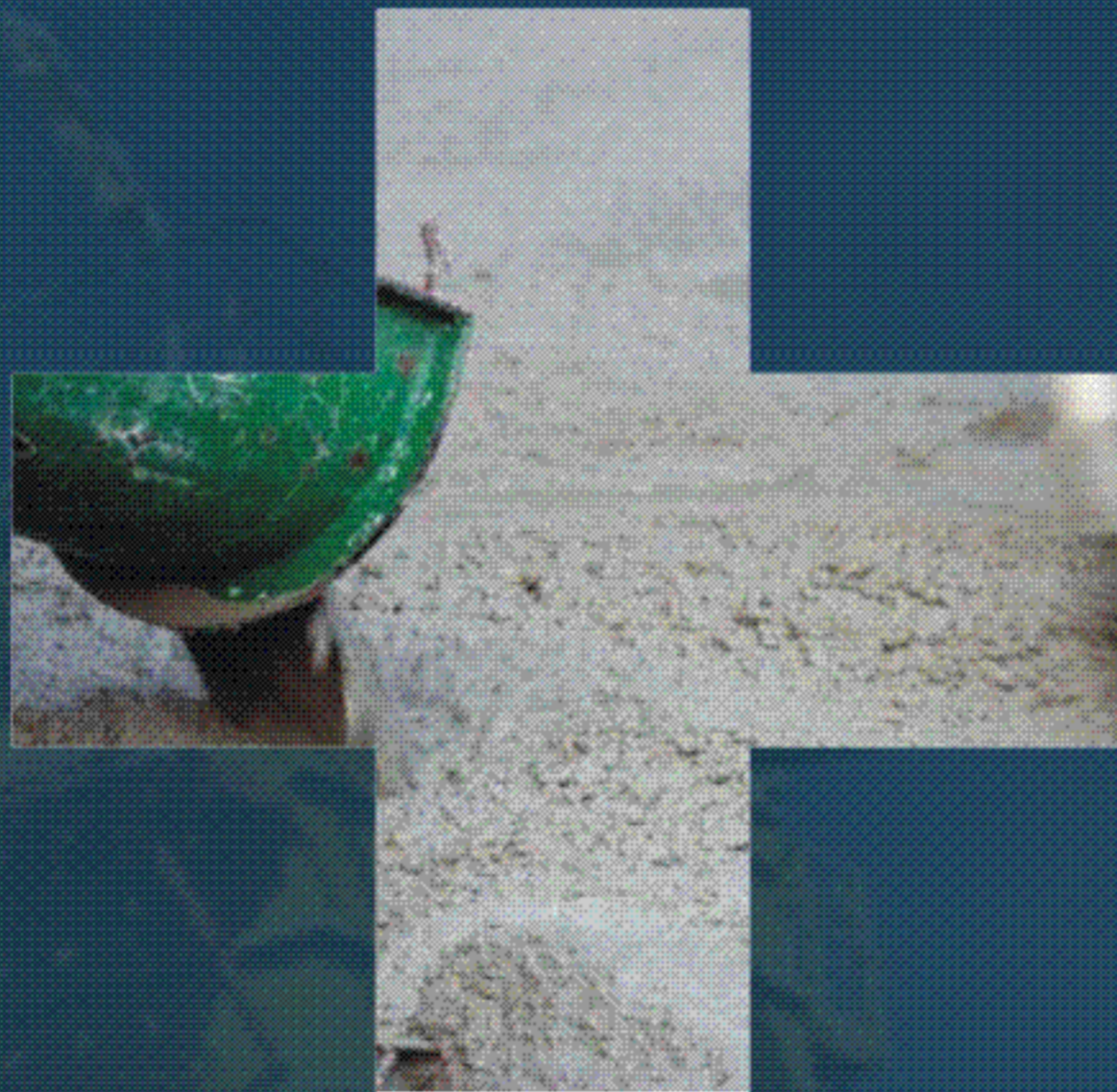
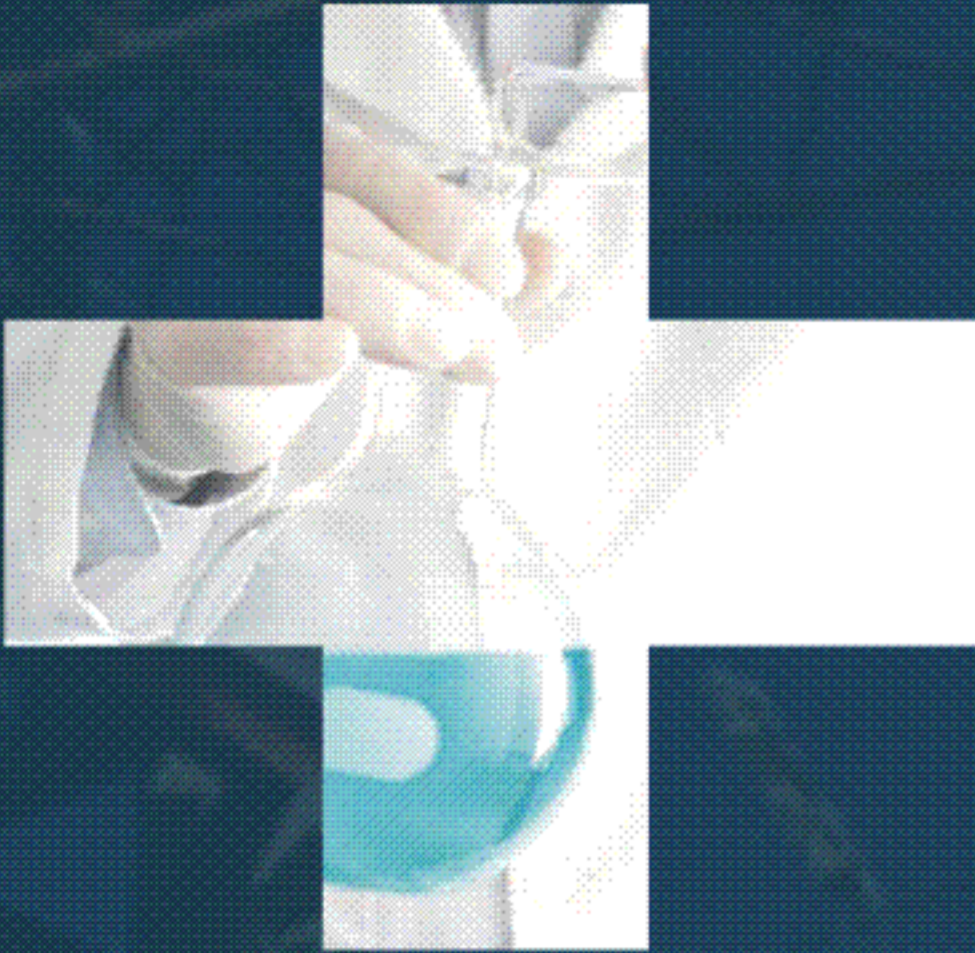


STAREX Cement Additive

Strength Enhancing Grinding Aid



The logo for UNISOL, featuring the word "UNISOL" in a bold, sans-serif font. The letter "O" is replaced by a stylized water droplet icon. To the left of the text is a graphic element consisting of a series of small, grey, stepped squares that resemble a staircase or a digital staircase.

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STAREX: Strength Enhancing Cement Grinding-Aid

Introduction

- Powder-form grinding-aid that enhances early age strength of cement
- Reduces / removes electrostatic attraction between broken particles in the mill, thus making more energy available for grinding
- Allows the tri-calcium silicate reaction to begin sooner than normal, thus resulting in significantly higher early age strength of cement

Advantages

- Higher cement strength by 30% at 1-day, 20% at 3-day, 10% at 7-day and 5-7% at 28-day
- Increased fly-ash / slag content in cement by 5-10%
- Increased cement mill output by 5-10%
- Improved cement blaine

Dosage

- Recommended dosage varies between 0.03% and 0.05% by mass of total cement feed
- Exact dosage should be determined by way of lab and plant scale tests

Dosing Equipment

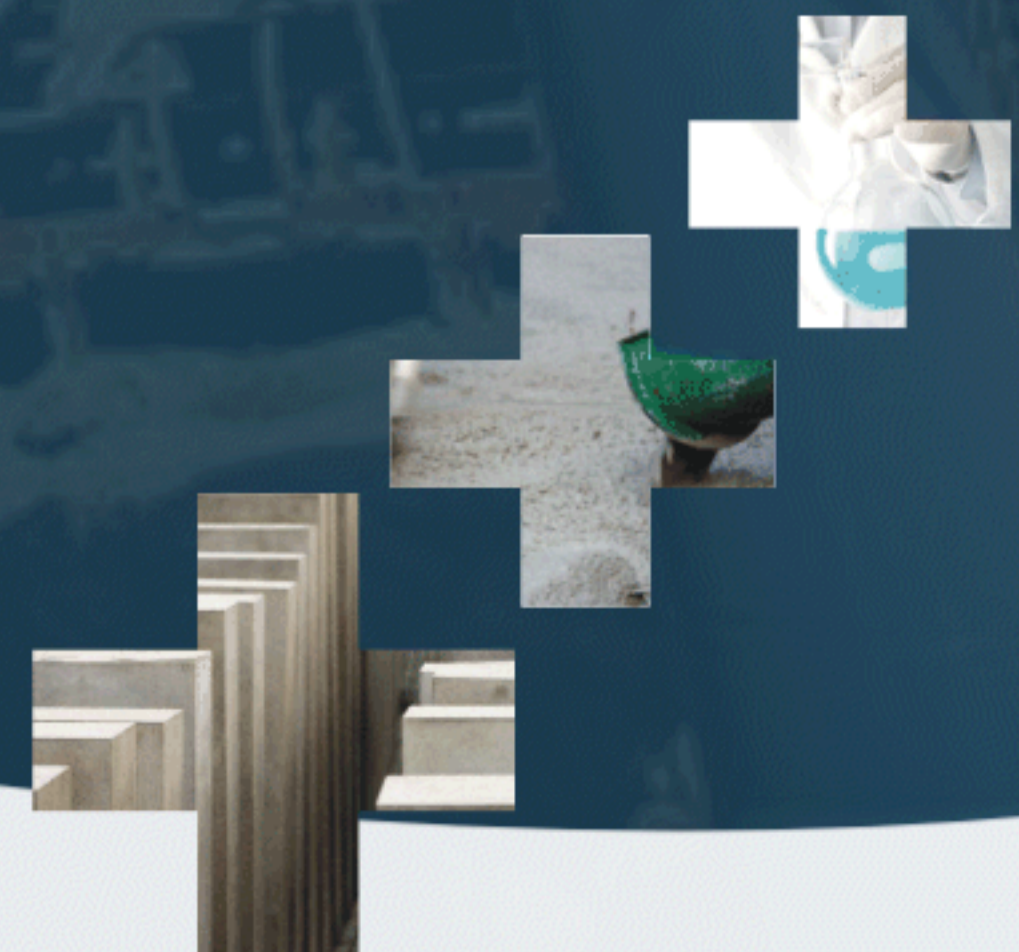
- Dosing should be done through STAREX dispensers that are equipped with calibrated dosing systems, suitable for the mill output required

Packaging

- Packed and supplied in 25-KG powder bags

Chemical Composition

- Organic Salts: 50%
- Amorphous Silica: 30%
- Salts of Ammonia: 20%



Test Results from Different Cement Plants in India

- Plant A in Andhra Pradesh (tested with PPC containing 25% fly ash)

Parameter	Value without STAREX	Value with STAREX dosage @ 0.05%
1-day strength	10 MPa	14 MPa
3-day strength	28 MPa	32 MPa
7-day strength	33 MPa	39 MPa
28-day strength	51 MPa	54 MPa
Mill Output	100 TPH	107 TPH

- Plant B in Rajasthan (tested with PPC containing 26% fly ash)

Parameter	Value without STAREX	Value with STAREX dosage @ 0.05%
1-day strength	12 MPa	15 MPa
3-day strength	26 MPa	30 MPa
7-day strength	37 MPa	40 MPa
28-day strength	48 MPa	50 MPa
Mill Output	120 TPH	128 TPH

- Plant B in Orissa (tested with PSC containing 50% slag)

Parameter	Value without STAREX	Value with STAREX dosage @ 0.05%
1-day strength	8 MPa	11 MPa
3-day strength	21 MPa	24 MPa
7-day strength	34 MPa	37 MPa
28-day strength	46 MPa	48 MPa
Mill Output	15 TPH	16 TPH

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