

# India's Future

The Next Generation Technology  
OF CONSTRUCTION  
HARD & SHINE CHEMICALS



# HARD & SHINE SILICON HARDENER ACCELERATING ADMIXTURE

Accelerated set times | Increases compressive strengths | Mix economics

## STRENGTH GAIN CHART OF SILICON HARDENER

ADMIXTURE DOSAGE 0.9% OF CEMENT (450grams for 50Kgs of cement)

STRENGTH GAIN OF CONCRETE MADE USING SILICON HARDENER IN Mpa (or) N/mm<sup>2</sup>

GRADE OF CONCRETE	MIX DESIGN	2ND DAY	4TH DAY	7TH DAY	14TH DAY	28TH DAY
M5	1:5:10	3	4.5	6	7	8
M7.5	1:4:8	4	5.5	7.5	8.5	10
M10	1:3:6	5	7	8	9	12
M15	1:2:4	8	9.5	11	13	18
Strength gain of normal Concrete without admixture & with water curing as per IS.		16%	40%	65%	90%	99%

Note : \* Above mentioned results are as per lab trails, results may vary +/- 5-10% depending on the aggregates, binder quality and working condition.  
\* Results taken from the cube test (150mmx150mm cube) average result of 9 cubes without curing.  
\* Multiple trials taken to conclude the results

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## Products Categories



Precast  
Admixture



Concrete  
Admixture



Water  
Proofing



Building  
Repairs



Sealants



Tile  
Fixing



Grouts &  
Anchors



Customized  
concrete  
admixture

## SILICON HARDENER

WITH 5 Advantages

- 1 Fast Setting
- 2 Early Demould / shifting
- 3 Zero Damages
- 4 Early Strength
- 5 Early Dispatch



**HARD & SHINE CHEMICALS**

Changing The Way The World Does Concrete

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**S**ILICON HARDENER is a set-accelerating admixture formulated to provide accelerated set during low ambient temperatures whilst increasing early and final strengths.

SILICON HARDENER is an aqueous liquid solution that is manufactured under controlled conditions to produce a consistent product which ensures uniform and predictable performance when used.

SILICON HARDENER contains no Triethanolamine

## ADVANTAGES

- SILICON HARDENER offers significant advantages as a concrete set accelerator.
- SILICON HARDENER will reduce the setting time of concrete thus enabling earlier finishing times to be achieved, especially at low ambient temperature, when concrete temperatures are low. Finishing times can be reduced by up to 3 hours when SILICON HARDENER is used.
- SILICON HARDENER will increase early and latter age compressive strengths. Early strengths can be increased by over 25% compared to non-accelerated concrete. Increased early strengths will enable the earlier removal of form work.
- When SILICON HARDENER is used in concrete, that is designed with pozzolans such as fly ash and slag, acceptable finishing times and early strengths are achieved, thus optimizing costs.

## PRODUCT ADVANTAGES

- Accelerated set times
- Increases compressive strengths
- Mix economics

## BENEFITS

- Controlled, predictable acceleration of set during low ambient temperatures.
- Early form removal or early use of concrete.
- Bleed reduction due to the greatly improved setting times.
- Denser, less permeable concrete.
- Effective over a wide range of cementitious contents and mix designs.
- Used in conjunction with Type GB cements (and mixes that contain fly ash) to offset slow setting times.
- Temperature of hot water used in winter mixes can be reduced to an optimum level.

## SPECIFICATION TYPE

- SILICON HARDENER complies to the requirements of Australian Standard as:
  - 1478 Type Ac. (Appendix C4, class C (i))
  - ASTM C-494 Type C

## COMPATIBILITY

SILICON HARDENER is compatible with all Portland cement systems, including fly ash, slag and limestone blends.

It is also compatible with all known admixture types currently available, but should be added to the mix separately, and not premixed prior to addition.

## ADDITION RATES

SILICON HARDENER addition rate will normally range from 400 – 500ml for 50kg total cementitious, depending on mix properties required. In order to determine the optimum dose rate of SILICON HARDENER, either on its own or in conjunction with other GCP admixtures, trials are recommended.

## TYPICAL APPLICATIONS

**Silicon hardener can be used in virtually all concrete and masonry**

**Applications to achieve economic advantage, such as:**

- Flatwork and house slabs
- Pumped concrete
- Concrete floors poured inside on plastic with limited or no air flow
- Concrete roads
- Liquid fill
- Applications using grace microfibers.
- Manufacture of concrete blocks, bricks, pavers and roof tiles, flyash Based precast products.

## PACKAGING AND STORAGE

SILICON HARDENER is delivered in 70KG JAR, 205KG drums, 1,000KGS IBC tank. Shelf life is minimum 24 months.

## Safety Information

A Material Safety Data Sheet is available on request. SILICON HARDENER is not flammable.