

Alpha Marine

Concrete engineered to outlive the chemistry of the sea.

Grades	Exposure	RCPT	W/C Ratio	Certifications
M30-M50	Severe – Extreme	< 2000 C	≤ 0.40	BIS, IS 456, IS 12330

Key Features

- Sulphate-resistant (SRC) cement.** SRC per IS 12330 or OPC + 50%+ GGBS blend. C3A content controlled. Tested per IS 6909 sulphate exposure classes.
- Low W/C ratio (≤0.40).** Tightly controlled water-cement ratio. Often 0.32-0.38 for severe exposure. Verified per batch.
- Dense impermeable matrix.** High SCM replacement creates dense paste. Reduced porosity. Capillary network discontinuous.
- RCPT <2000 coulombs.** Rapid Chloride Permeability Test per ASTM C1202. Classification: \
- Water absorption <2%.** Tested per IS 1199 / ASTM C642. Indicates extremely low porosity. Resistance to water ingress.
- 100+ year durability design.** Service life modeling per fib Model Code. Designed for marine atmospheric, splash zone, and submerged exposure.

Technical Specifications

Parameter	Value
Compressive Strength (28-day)	30 – 50 N/mm ² (per grade)
Cement Type	SRC (IS 12330) or OPC + GGBS 50%+
Cement Content	360 – 400 kg/m ³
Mineral Admixture	GGBS 50-60% or Fly Ash 30-40%
W/C Ratio	0.32 – 0.40 (per exposure)
Coarse Aggregate	20mm + 10mm crushed granite, low chloride
Aggregate Chloride Content	< 0.04% by mass
Aggregate Sulphate Content	< 0.4% by mass
Chemical Admixture	Calcium nitrite (corrosion inhibitor) for splash zone
RCPT (28-day)	< 2000 coulombs (Very Low per ASTM C1202)
Water Absorption	< 2% per IS 1199
ISAT (10 min)	< 0.25 ml/m ² /sec
Setting Time (initial)	5 – 7 hours
Slump	100 – 150 mm
Code Reference	IS 456:2000, IS 12330, IS 6909, IS 8112, IS 12089

Applications

Coastal Structures. Hotels and resorts within 1km of coastline. Coastal residential developments. Coastal infrastructure.

Sewage Treatment Infrastructure. STPs, ETPs, sewage pipelines, manholes, treatment tanks. Continuous chemical exposure.

Marine Piles & Wharfs. Bored cast in-situ piles in marine environments. Wharfs, jetties, bulkheads, sheet piles.

Industrial Aggressive Environments. Chemical plants, fertilizer plants, paper mills, sulfate-rich groundwater zones, tanneries.

Available Grades

M30 — Standard sewage infrastructure, mild sulphate exposure.

M35 — Coastal residential, moderate aggressive exposure.

M40 — Severe sulphate exposure, splash zone marine.

M45 — Submerged marine, high chloride exposure.

M50 — Specialty extreme exposure, premium marine infrastructure.

Disclaimer: The specifications shown represent typical ranges. Actual mix designs are project-specific and subject to verification by Alpha Concrete's QC team. Quoted specifications must be confirmed against actual lab results before commercial commitment.