TECHNICAL DATA FOR BS SKYCAST PC 100

High Early Strength Superplasticizer for Precast Concrete Production

Description of BS Skycast PC 100

BS Skycast PC 100 is a **precast-optimized, high early strength superplasticizer** designed to improve mould turnover, early-age stability, and surface quality in precast concrete production.

It delivers **rapid early strength development with controlled workability**, enabling **earlier and safer demoulding without compromising edge integrity or long-term performance**. The chloride-free polycarboxylate-based formulation is suitable for reinforced and prestressed precast elements.

In short:
BS Skycast PC 100 is not designed to increase laboratory strength alone—it is designed to **increase daily precast output with fewer rejects and safer handling**.

Advantages of BS Skycast PC 100

1) Accelerates early strength for faster demoulding
2) High water reduction for denser concrete
3) Improves workability without segregation
4) Reduces edge damage during demoulding
5) Chloride-free for reinforced and prestressed use

Areas of Application of BS Skycast PC 100

BS Skycast PC 100 is recommended for:

- Structural precast elements – beams, columns, slabs, panels
- Hollow core, deck systems, U-channels, drainage units
- Pavers, interlocking blocks, curbs, sidewalks
- Terrazzo and coloured precast products
- Fly ash bricks, AAC blocks, RCC pipes, cement articles

Where This Product Acts in the Precast Cycle

BS Skycast PC 100 is active across the most critical stages of precast production:

- **Batching & Mixing:** High cement dispersion and controlled water reduction
- **Casting & Vibration:** Improved flow and mould filling without segregation
- **Green Concrete Stage:** Accelerated strength gain and stable early matrix
- **Demould Stage:** Earlier, safer demoulding with reduced edge damage
- **Handling & Curing:** Improved resistance to chipping during lifting and stacking

Core Problems Addressed

BS Skycast PC 100 is designed to solve the following dominant precast problems:

1. **Delayed mould opening due to insufficient early strength**
2. **Edge and corner breakage during demoulding and handling**
3. **Inconsistent workability affecting finish and repeatability**

Technical Performance (Expected)

Parameter	Typical Effect*
Mould opening time	Reduced by 1–3 hours
Early strength (24 hrs)	20–40% higher vs control
Edge / corner damage	Significantly reduced
Surface finish	Denser, cleaner surfaces
Reject probability	Reduced with stable batching

*Actual performance depends on mix consistency, vibration energy, mould condition, and cement type. Plant trials are mandatory.

Dosage Guidance

By Weight of Cement (% bwoc)

Dosage Band	% bwoc	Use Guidance
Safe	0.30 – 0.60%	Initial trials, low-risk
Standard (Recommended)	**0.60 – 1.20%**	Most precast applications
Aggressive (Trial only)	1.20 – 1.80%	High early strength demand

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By Cement Bag (50 kg)

Dosage Band	gm / bag
Safe	150 – 300 g
Standard (Recommended)	**300 – 600 g**
Aggressive (Trial only)	600 – 900 g

Important: Always finalize dosage based on plant trials and mould geometry.

Application Instructions (Precast-Specific)

1. Load aggregates and cement into the mixer.
2. Add **80–85% of total mixing water and mix for 2–3 minutes**.
3. Add the measured quantity of BS Skycast PC 100 with remaining water.
4. Continue mixing for a minimum **of 2 minutes** to ensure full dispersion.
5. Place and compact concrete immediately.

Do Not:

- Add directly to dry cement or aggregates
- Overdose without trial validation
- Treat the product as a curing substitute

Failure Modes & Corrective Action

Symptom	Likely Cause	Corrective Action
Delayed setting	**Overdosage**	**Reduce dosage by 15–25%**
Sticky or glossy surface	**Excess water + high dosage**	**Reduce water by 3–5%**
Uneven finish	**Insufficient mixing**	**Increase mixing duration**

Compatibility Notes (Precast Reality)

- **Cement:** OPC 43 & 53 grade, PPC, PSC
- **Pigments:** Compatible (conduct shade trials)
- **Fibers:** Compatible with glass and steel fibers
- **Other Admixtures:** Compatible with shrinkage reducers and accelerators (trial recommended)
- **Steam / Accelerated Curing:** Compatible with dosage optimization

Typical Technical Properties

Property	Value
Appearance	Light yellow to brown liquid
Density	1.05 – 1.15 kg/L
pH	5 – 8
Chloride Content	< 0.1%
Alkali Content	Low

Trial Protocol

Minimum 10 consecutive casting cycles

- Record:
  - Demould time
  - Edge and corner condition
  - Visual surface finish
  - Handling damage
- Accept only if **cycle time improves and rejects reduce**

Storage and Shelf Life

- Store indoors, protected from sunlight and frost
- Recommended storage temperature: above +5 °C
- Shelf life: **12 months** in sealed containers

Disclaimer

The information in this sheet is provided for general guidance and is based on current knowledge and experience. Due to the variety of possible application methods and site conditions, no responsibility is assumed for results obtained under specific circumstances.

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