

A GREEN REVOLUTION FOR FUTURE CONSTRUCTION



Robo Silicon, for the first time in India, introduced “Manufactured Sand” as a viable, cost-effective and an eco-friendly alternative to the precious and fast depleting natural resource – river sand.

Robo Silicon is the first company to brand its sand as “ROBOSAND”. It is manufactured just the way nature has done for million years. RoboSand™ is created by a rock-hit-rock crushing technique using state-of-the-art plant and machinery with world-class technology.

Created from specific natural rock, it is crushed by three-stage configuration consisting of a Jaw Crusher followed by a Cone Crusher and finally a Vertical Shaft Impactor (VSI) to obtain sand that is consistent in its cubical particle shapes and gradation.

RoboSand™ 0-4.75mm is suitable for all concrete preparations and is used across all segments such as Independent Houses, Builders, RMC Plants, Concrete Batching Plants and Infrastructure Concrete Works.

Get the RoboSand™ Advantage

- The cubical particle shape helps make concrete more cohesive.
- A perfect gradation ensures fewer voids and increases the compressive strength.
- A well balanced physical and chemical property ensures more durable buildings.
- RoboSand™ is produced under controlled conditions with raw material from a single source resulting in a very consistent quality with no seasonal fluctuations.
- The complete absence of deleterious materials eliminates wastage and works out economical for use in concrete.
- An optimum level of fines content helps overcome deficiencies of concrete such as segregation, bleeding, voids and honeycombing.
- Easy availability of RoboSand™ in huge quantities around the year leads to completion of construction projects on time.
- RoboSand™ is an eco-friendly product and its usage helps conserve nature by preventing depletion of ground water levels.

Properties

Compliance Standards : RoboSand™ conforms to IS 383 – Zone I / Zone II specifications

Organic Material Content	Nil
Compatibility with cements	Use with any type of Portland Cement and blended cement for various mix designs
Setting Time	Normal - as performed by river sand
Workability	Good
Yield	Rich Mix
Standard Mix design* for M20 Concrete per Cu.M.	Cement : 300 kgs + RoboSand™ : 693 kgs + 20mm : 749 kgs + 10mm : 543 kgs
W/C ratio	0.49 + Free water : 182 litres



*For illustrative purpose only

Application for Producing Good Quality Concrete

- RoboSand™ can be used both for Site Mix Concrete (SMC) & Ready Mix Concrete (RMC).
- Thorough mixing of the Cement, RoboSand™, 20mm and 10mm materials is essential for the production of concrete.
- Machine mixing is recommended for important concrete works.
- The sequence for loading is : place half quantity of coarse aggregates followed by fine aggregates and complete quantity of cement and the balance quantity of coarse aggregate and fine aggregates evenly spread.
- The drum must be pre-wetted with 25% water and the balance poured over the dry mix simultaneously.
- The mixing time for manufactured aggregates is longer and minimum revolutions are 25 to 30 per batch.
- The use of vibrator is mandatory to prevent fines from surfacing to the top and forming a layer.



! Precautions

🕒 Post concreting activity

- The surface has to be inspected after 12 hours of concreting to seal hair cracks with cement paste.
- Curing for the first 36 hours is crucial and water bonds must be monitored.

🧑 Health and Safety

- Aggregate material is non-combustible and non-explosive.
- Airborne particles may cause irritation to eye and washing with water is recommended.
- A nose mask may be worn to prevent inhaling of dust.
- The use of hand gloves is recommended for masons to prevent dry skin and discomfort.

📦 Storage and Handling

- The material at site has to be stocked in flat beds of maximum height not exceeding 1mt to maintain proper gradation and prevent down-sliding of heavier fractions to the bottom of stock pile.
- The material may be covered by tarpaulin during rainy season.

Note: Follow the water-cement ratio as per design for better result

Comparison with River Sand

Features	RiverSand	RoboSand™
Source	Fragile river beds	Produced with special machines
Shape	Rounded	Cubical
Quality	Contains marine/ organic impurities	Zero impurities
Purity	Contains deleterious materials	Clean
Economy	Expensive	Competitive
Availability	Uncertain	On Demand