

Name of work: - Invitation of Rates for Supplying/Providing Innovative ready mix High Strength Polymer Modified Self Levelling Self Compacting, Self curing Cementitious Material /Grout (Quick fix) the emergency works to be carried out under control of Capital Project Division No.3, Gandhinagar as and when required on various roads in Gandhinagar District.

DETAILED TECHNICAL SPECIFICATIONS

Item No.1

"Supplying and providing innovative, ready-mix, high-strength, polymer-modified, self-levelling, self-compacting, and self-curing cementitious material/grout (Quick fix). The mix shall comprise cement, performance-enhancing chemical admixtures, and clean silica sand as an overburden/green product (having a minimum SiO₂ content of 97%, completely free from silt, clay, or any other harmful organic matter), well-graded with a maximum aggregate size up to 10 mm. The rate shall be fully inclusive of the cost of material, factory packaging in standard moisture-proof bags, environmental and green certifications, all applicable taxes, levies, and strict transit logistics including loading at the manufacturing plant/depot, safe transportation, and unloading/stacking at the designated project site store within Gandhinagar District and other 33 district executive engineer jurisdiction limit, Gujarat, as per the directions of the Engineer-in-Charge."

A.

Material Composition & Quality

• Pre-Blended Matrix:

• The material supplied as a ready-to-use innovative cementitious material (Quick fix) and coarse aggregate of size up to 10 mm mix at site as per manufacturers instructions or as per site requirement as directed by Engineer in charge.

• Eco-Friendly/Graded Green Silica sand Product:

The silica sand used must be sourced as an overburden of lignit, Graded green Silica sand product, ensuring sustainable development parameters with $\text{SiO}_2 > 97\%$ and silt content free.

B.

Mixing & Field Execution

• Water-to-Dry Mix Ratio:

• To eliminate field execution errors regarding the unknown cementitious material-to-silica ratio inside a pre-blended bag, the water addition shall be governed by the Water-to-Dry Powder mixed with coarse aggregate up to 10 mm size (or Water-to-Bag) ratio by weight. Water shall be added strictly as per the manufacturer's recommendation (e.g., "Add 'X' liters of clean water per 40 kg bag" i.e. X= Litre of water as recommended by manufacturer's guidelines) or as per specific site requirement using a mechanical mixer to ensure a homogenous, uniform lump-free flow mix.

Measurements for Payment:-

The payment shall be made on Total 40 Kg material comprising of One bag of 20Kg. innovative cementitious material(Quick fix)&one bag of 20Kg. well graded coarse aggregate up to 10 mm size (i.e. Total 40 Kg Material) excluding GST

Item No.2

Supplying and providing innovative, cementitious, polymer-modified, self-flowing, self-curing, and waterproofing surface paint mix (Quick Seal) for application on existing damaged wearing surfaces (cracks or hungry surfaces) of rigid pavements or flexible pavements. The product shall be manufactured using high-grade cement, performance-enhancing chemical admixtures, and well-graded silica sand sourced as an overburden/green product (having a minimum SiO₂ content of 97%, completely free from silt, clay, or any other harmful organic matter). The rate shall be fully inclusive of the cost of material, factory packaging, environmental and green certifications, all applicable taxes, levies, and strict transit logistics including loading at the manufacturing plant/depot, safe transportation, and unloading/stacking at the designated project site store within Gandhinagar and all other 33 District executive engineer jurisdiction limit, Gujarat, as per the directions of the Engineer-in-Charge.

A. **Material Properties & Surface Preparation**

• **Composition:**

The material must be a pre-packaged, polymer-modified cementitious system designed specifically as a protective surface paint/thin overlay for roads. Ready mix innovative cementitious material

• **Surface Preparation:**

The existing concrete (rigid) or asphalt (flexible) pavement surface must be thoroughly cleaned of all dust, oil, grease, loose particles, and laitance using air compressors or high-pressure water jets. The surface must be brought to a Saturated Surface Dry (SSD) condition before application.

• **Application:**

The material must be mix with water as quantity recommended by manufacturers guidelines or as per specific site requirement. The material must exhibit self-flowing properties to effectively penetrate and seal hairline cracks and open-textured ("hungry") surfaces smoothly.

3. ***Physical & Mechanical Properties (Rectified Table)***

Sr. No.	Material Property	Specified Value/ Performance Criteria	Test Method/ Standard	Test Summary
1	Flow / Consistency	Self-flowing / Spreadable coating consistency	ASTM C1437/EN 13395	Standardized for cementitious flowable mortar.
2	Compressive Strength @28 Days	As per design requirement (Min. 30N/mm ² Recommended)	IS 516 / ASTM C109	Pavement- specific tests with core cementitious strength benchmarks.
3	Water Absorption/ Porosity	≤2.0%	ASTM C642	Air Voids (ASTM D320). Measures waterproofing efficiency of hardened mortar.
4	Drying Time	Touch dry: ≤ 2 hours Traffic-ready: ≤ 8 hours	ASTM D1640/ Standard Methods	to ensure rapid setting ("Quick Seal") for minimum traffic disruption.

Measurements for Payment:-

The payment shall be made 20 kg of bag excluding GST

3. General Strategic & Commercial Recommendations

Supplying, providing, and laying innovative cementitious surface painting mix material. The material shall comprise high-grade cement, performance-enhancing chemical admixtures, and well-graded Green Sand (Silica Sand). The silica sand must possess a minimum SiO₂ content of 97% be completely free from silt, clay, or any other harmful natural matter, and fully conform to all relevant IS codes and technical performance criteria specified under this tender framework for concrete and road infrastructure applications.

• Environmental & Sourcing Pre-Qualifications

- The manufacturing firm must possess a valid Environmental Clearance (EC) from the competent regulatory authority and a certified Green Product / Eco-label certificate from a recognized national or international body.

To guarantee an uninterrupted supply chain for large-scale infrastructure execution, the bidding entity or its authorized manufacturer must provide documented evidence of an assured, long-term raw material sourcing tie-up or statutory mining lease for high-purity silica sand of overburden of lignite. The sourced material must be fully vetted and backed by a comprehensive physical and

chemical test certificate from an NABL-accredited laboratory confirming compliance with the $\text{SiO}_2 > 97\%$ and zero-silt thresholds.

* Curing & Traffic- Opening Time line

The curing and traffic-opening timeline shall be tightly optimized. Given that the system is a polymer-modified 'Quick Seal' formulation, the manufacturer must design the mix to accelerate early strength gain. The specification mandates that the treated surface must be ready for light vehicular traffic within 2 to 4 hours, and fully open to heavy commercial traffic within a maximum of 8 hours post-application. This ensures minimal disruption to urban traffic flow."

Dated signature of contractor.

Executive Engineer,
Capital Project Division No.3,
Gandhinagar,