
INFORMATION MEMORANDUM
ON PRODUCT "NAVOSIL HIGH GRADE (HG)"

NAVOZZO MATERIALS PRIVATE LIMITED

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CHAPTER 1: NAVOSIL HG

A. INTRODUCTION

Navosil HG is a high-performance engineered silica additive developed using repurposed mining waste and proprietary, patented activators. The material is micronized and precisely classified to ensure consistent quality and performance, and it conforms to **ASTM C1797** and **ASTM C618** standards.

Navosil HG is a direct replacement for micro silica in high-strength concrete applications (**M50–M150+**). It delivers comparable or superior compressive strength while providing significant cost advantages over conventional micro silica. At dosages of **5% ~ 10%** by weight of cementitious materials, it enhances concrete performance by reducing water permeability ($\sim 4.8\text{mm}$), minimizing drying shrinkage (0.004%), and improving long-term durability without requiring changes to existing mix designs.

For ready-mix concrete manufacturers targeting high-grade applications, Navosil HG delivers direct cost savings of **₹80 ~ ₹120** per cubic meter compared to micro silica, with cost reductions of **1.5% ~ 3.0%** on total mix design while maintaining equivalent or superior strength performance.

Designed with sustainability at its core, Navosil HG supports a circular economy by converting mining waste into a premium construction additive. By replacing imported micro silica with an indigenous low-cost alternative derived from natural materials and employing a sustainable manufacturing process, it enables the production of high-performance concrete with reduced embodied carbon and lower total material costs.



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B. TECHNOLOGICAL OVERVIEW

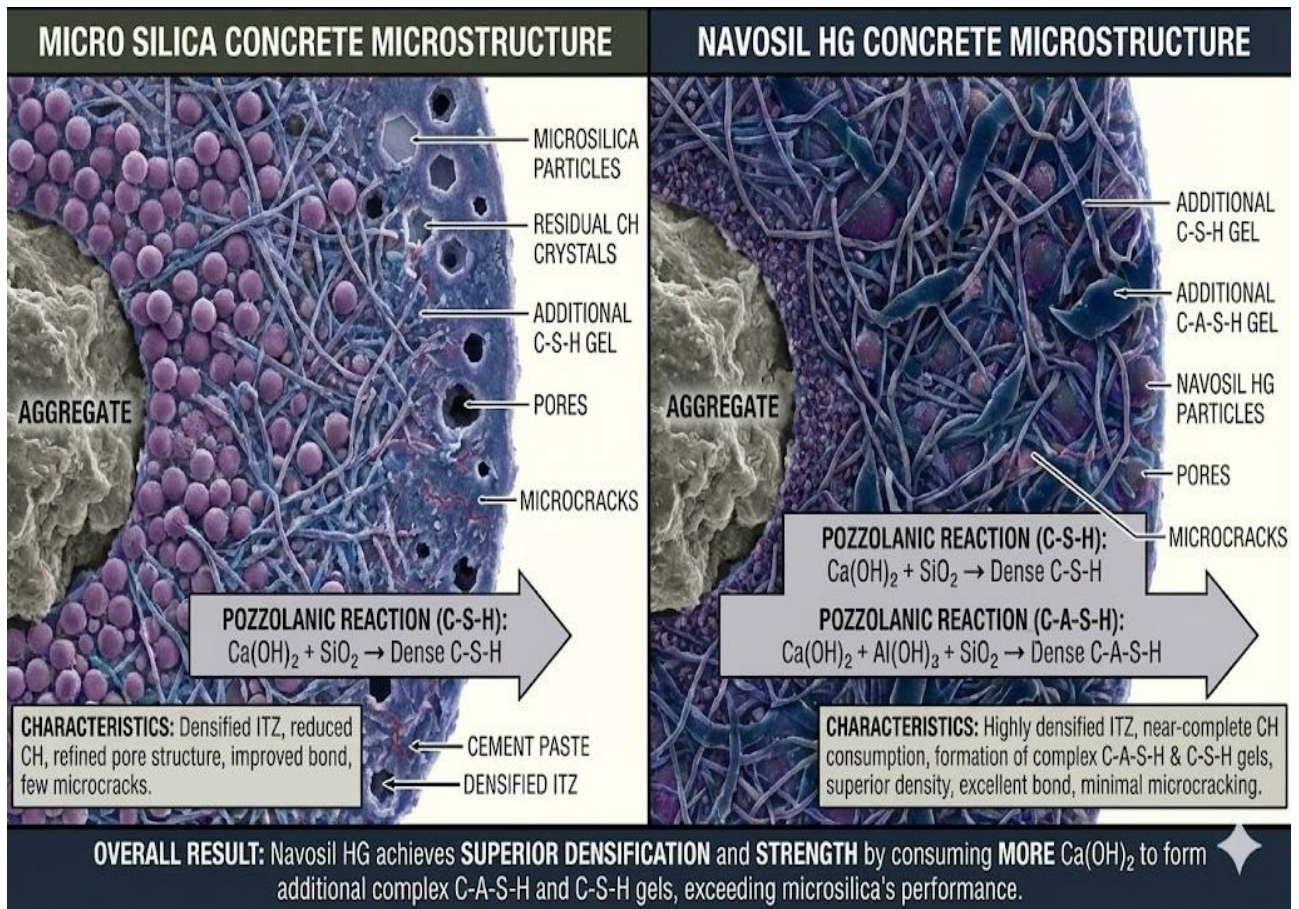
Navosil HG is an engineered silica, performance-enhancing concrete additive designed to enhance and refine the microstructure of concrete through controlled secondary cementitious reactions.

The reactive Silica and Alumina present in **Navosil HG** actively participate in hydration chemistry by reacting with Calcium Hydroxide $[Ca(OH)_2]$ released during cement hydration. This reaction leads to the formation of additional Calcium-Alumino-Silicate-Hydrate (C-A-S-H) gel, rather than conventional C-S-H alone, with the reactive Alumina promoting a denser and more stable hydration product and enhanced matrix densification and strength development.

Conversely, the reactive Silica present in **Micro Silica** reacts with calcium hydroxide to form Calcium-Silicate-Hydrate (C-S-H) gel and, owing to its ultrafine particle size (around 0.1–0.15 μm , roughly 100 times finer than cement), also acts as a micro filler that physically fills interstitial voids and capillary pores.

By incorporating Navosil HG, a larger fraction of the Calcium Hydroxide liberated from Portland cement hydration is consumed because both C-S-H and C-A-S-H are formed, whereas the Micro Silica route primarily forms C-S-H. The formation of C-A-S-H gel in Navosil HG refines the pore structure and interfacial transition zone (ITZ), significantly reducing concrete porosity and permeability through the superior stability of the Alumino-Silicate hydration product. As a result, concrete incorporating Navosil HG exhibits lower water ingress and restricted chloride ion penetration, thereby reducing susceptibility to chloride-induced corrosion of embedded reinforcing steel and improving long-term durability.

Illustration showing pozzolanic reactions in Navosil HG:



C. PERFORMANCE PROFILE: NAVOSIL HG

Navosil HG significantly densifies the concrete matrix, resulting in exceptional resistance to fluid and ion ingress. This capability is critical for ensuring the longevity of structures exposed to harsh environments by reinforcing the binder matrix against physical and chemical attacks.

(For More Information Refer to ["Chapter 5: Test Reports"](#) Section)

1. Durability and Impermeability:

Chloride Ion Penetration (RCPT) (Refer to Annexure C)

The concrete demonstrated "Very Low" chloride ion penetrability during Rapid Chloride Permeability Tests. The total charge passed was recorded between **945 and 972 Coulombs**. These values fall strictly within the 100–1000 Coulomb range, which is classified as **"Very Low" permeability** according to ASTM C1202 standards (Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration). This indicates that Navosil HG significantly refines the pore structure of the concrete, disconnecting the capillary networks that typically allow corrosive agents to reach the steel rebar.

Water Permeability (Refer to Annexure H)

The material's ability to create a watertight matrix was confirmed through water permeability testing, where penetration depths were significantly below industry limits. The mix containing **GGBFS showed an average penetration depth of 4.3 mm**, while the **Fly Ash variant recorded an average depth of 4.8 mm** (average of 4.9 and 4.6). These results are well within the maximum limit of 25.0 mm set by MORT&H specifications. Navosil HG reduced penetration to less than 20% of the allowable limit, confirming the creation of a highly impermeable, watertight microstructure suitable for hydraulic structures, basements, and tunnels.

Chloride Migration (RCMT) (Refer to Annexure M and N)

Further testing confirmed the material's resistance to diffusive chloride transport over time. In Non-Steady State Migration experiments, **the coefficient (D_{nssm}) was recorded as low as $2.11 \times 10^{-12} m^2/s$ for the GGBFS-blend mix.** The result of the Navosil HG and GGBS creates a synergistic effect that virtually halts chloride transport, extending the structure's service life by decades. **The Fly Ash-blend mix also performed well, achieving a coefficient of $7.25 \times 10^{-12} m^2/s$,** proving the concrete's ability to block chloride ingress.

2. Chemical Resistance and Stability:**Sulfate Resistance (Refer to Annexure I to L)**

Navosil HG ensures high stability in chemically aggressive environments, specifically against sulfate attack. During long-term exposure tests spanning six months (ASTM C 1012: Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution), the concrete showed negligible volume change throughout the testing period. **The GGBFS mix recorded an expansion of only 0.035%, and the Fly Ash mix showed similarly low expansion at 0.032%,** ensuring structural integrity in marine or sulfate-rich soil conditions. These values confirm that the addition of Navosil HG consumes the Calcium Hydroxide in the cement matrix (which is vulnerable to sulfates) and converts it into durable C-S-H and C-A-S-H gels, effectively shielding the concrete against sulfate-induced degradation.

Alkali-Silica Reactivity (ASR) (Refer to Annexure D to G)

ASR is a deleterious reaction between the alkaline cement paste and reactive silica in aggregates, often causing severe internal cracking. **Mortar Bar Tests (16 days accelerated test as per IS 2386 Part VII Amendment, limit >0.20% indicates reactive) revealed minimal expansion of 0.003% to 0.004%,** indicating the material is non-reactive and stable. This is supported by chemical analysis showing a low **alkali content (Na_2O equivalent) of 0.58%.** This dual validation proves that Navosil HG suppresses ASR, allowing the safe use of

potentially reactive aggregates without risking the structural integrity of the project.

3. Volume Stability:

Drying Shrinkage (Refer to Annexure O)

Navosil HG contributes to superior dimensional stability, reducing the risk of shrinkage cracks that can compromise durability. Testing demonstrated **exceptionally low drying shrinkage of just 0.004% at 28 days**, confirming the material retains its volume tightly during the critical drying and curing phases. By controlling shrinkage, the risk of surface crazing and through-cracks is minimized, ensuring the structural quality of the concrete surface.

D. BENEFITS OF USING NAVOSIL HG

- Delivers equivalent or superior compressive strength to micro silica at significantly lower cost in **M50–M150+** grades.
- Provides **1.5% ~ 3.0% (₹80~₹120)** savings per cubic meter compared to micro silica.
- Forms **C-A-S-H gel and pozzolanic products**, creating a denser, refined cementitious matrix with enhanced long-term strength.
- Reduces **water permeability** by **~81.2% (4.7 mm vs. 25 mm limit)**.
- Restrict chloride penetration and **minimize drying shrinkage (~0.004%)**, substantially limiting corrosion risk and improving dimensional stability.
- Enhances **resistance to sulphate attack** and alkali-aggregate reactions.
- Uses repurposed mining waste in low-energy production to cut carbon emissions and promote a circular economy by reducing landfill use.

E. APPLICATION & DOSAGE

Navosil HG is incorporated into concrete in the same manner as other additives are used in ready-mix concrete (RMC) production and high-performance mixes for grades **M50–M150+**. It can be dosed manually or through automated batching systems without any special handling or changes to existing plant operations.

Typical recommended dosages of Navosil HG are in the range of about **5% to 10% by weight of the total cementitious content**. It can be used at the same replacement percentage (by weight of cementitious material) as micro silica in high-strength concrete mixes.

Chapter 2: PHYSICAL SPECIFICATION

PHYSICAL PROPERTIES

Sr. No.	Property	Specification
1.	Color	Grey Powder
2.	Specific Gravity	2.4 ~ 2.6
3.	Retention on 45 Micron Sieve	0% ~ 1%
4.	Bulk Density (Loose)	0.7 ~ 0.8 g/cm ³
5.	pH (10% Solution, 28°C)	8 ~ 10
6.	Moisture Content (% by mass)	< 1.0%
7.	Optimum Dosage Recommendation	5.0% ~ 10.0% (By cementitious mass)
8.	Packaging Size	25 kg / 50 kg
9.	Shelf Life	6 months

CHAPTER 3: STANDARDS

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ASTM C1797 (Extract) – Standard Specification for Ground Calcium Carbonate and Aggregate Mineral Fillers for use in Hydraulic Cement Concrete

C1797 – 23

TABLE 1 Chemical and Physical Requirements

Parameter	Type A	Type B	Type C
CaCO ₃ , % by mass	≥ 92	≥ 70	NA
Sum of CaCO ₃ + MgCO ₃ , % by mass	≥ 95	≥ 90	NA
Methylene blue value (mg/g)	≤ 3	≤ 5	≤ 5
Total Organic Carbon Content % by mass	≤ 0.5	≤ 0.5	≤ 0.5
Particle size distribution, minimum % by mass passing			
300-µm (No. 50) sieve	100	100	100
150-µm (No. 100) sieve	100	85	
75-µm (No. 200) sieve	95	70	65
45-µm (No. 325) sieve	90	65	
Fineness (m ² /kg) ^D	Report ^A	Report ^A	Report ^A
Moisture Content (%) ^B by mass	≤ 1	≤ 1	≤ 1
Strength Activity Index, % of control at 28d ^C	≥ 75	≥ 75	≥ 75
Water Requirement, maximum % by mass of control	120	120	120

^A The purchaser has the authority to approve a change in the fineness or to add a range if needed.
^B The moisture content is listed for materials that can be pneumatically transferred. If material is not pneumatically transferred, then the purchaser can waive the moisture content requirement.
^C The purpose of testing the Strength Activity Index is to evaluate whether the material has any detrimental effect when used in concrete.
^D There is no specification limit but the value is reported to provide information to the purchaser. The proportioning of a concrete mixture may be dependent on the fineness of the material to be used. If there is a change in fineness, the purchaser should be notified so that appropriate adjustments can be made to the concrete mixtures.

Specific to Navosil HG

4.2 Type C is typically a byproduct from the crushing of quarried stone, with mineral composition that depend on the stone from which it is derived. The chemical and physical properties shall comply with the requirements of [Table 1](#).

4.3 The Type classification shall be stated by the supplier of the product.

NOTE 3—ACI CT-13 defines mineral filler as a finely divided mineral product at least 65 % of which passes the ~~75-µm~~ **75 µm** (No. 200) sieve. This specification establishes requirements for GCC and AMF materials that meet this definition.

5. General Requirements [ai/catalog/standards/sist/47a29cd5-d122-4d96-a96b-c9b3dce0156e/astm-c1797-23](#)

5.1 The chemical and physical requirements for Type A, Type B, and Type C shall conform to the requirements in [Table 1](#).

5.2 The purchaser has the authority to request measurement by a specified method of the chloride ion content of the material.

6. Sampling

6.1 Obtain a sample from each lot for testing in accordance with Practice [C50/C50M](#) or Practice [D75/D75M](#).

7. Test Methods

7.1 Calcium carbonate and magnesium carbonate content – Test Methods [C25](#) or [Annex A1](#).

7.2 Methylene Blue Value – AASHTO T330 or Test Method [C1777](#).

NOTE 4—The specification values are based on testing research using AASHTO T330 while ASTM [C1777](#) was under development. Data comparison between AASHTO T330 and [C1777](#) will be made when sufficient data sets become available.

7.3 Total Organic Carbon (TOC) Content – Specification [C595/C595M-15](#) Annex A3.

7.4 Particle Size Distribution (PSD) – Test Method [C110](#) for Types A and B. Test Method [C136/C136M](#) and Test Method [C117](#) for Type C.

ASTM C618n (Extract): Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

Specific to Navosil HG



TABLE 1 Chemical Requirements

	Class		
	N	F	C
Silicon dioxide (SiO ₂) plus aluminum oxide (Al ₂ O ₃) plus iron oxide (Fe ₂ O ₃), min, %	70.0	50.0	50.0
Calcium oxide (CaO), %	report only	18.0 max.	>18.0
Sulfur trioxide (SO ₃), max, %	4.0	5.0	5.0
Moisture content, max, %	3.0	3.0	3.0
Loss on ignition, max, %	10.0	6.0 ^A	6.0

^AThe use of Class F pozzolan containing up to 12.0 % loss on ignition may be approved by the user if either acceptable performance records or laboratory test results are made available.

TABLE 2 Physical Requirements

	Class		
	N	F	C
<i>Fineness:</i> Amount retained when wet-sieved on 45 µm (No. 325) sieve, max, %	34	34	34
<i>Strength activity index:</i> ^A			
With portland cement, at 7 days, min, percent of control	75 ^B	75 ^B	75 ^B
With portland cement, at 28 days, min, percent of control	75 ^B	75 ^B	75 ^B
Water requirement, max, percent of control	115	105	105
<i>Soundness:</i> ^C			
Autoclave expansion or contraction, max, %	0.8	0.8	0.8
<i>Uniformity requirements:</i> The density and fineness of individual samples shall not vary from the average established by the ten preceding tests, or by all preceding tests if the number is less than ten, by more than:			
Density, max variation from average, %	5	5	5
Percent retained on 45-µm (No. 325), max variation, percentage points from average	5	5	5

^A The *strength* activity index with portland cement is not to be considered a measure of the compressive strength of concrete containing the fly ash or natural pozzolan. The mass of fly ash or natural pozzolan specified for the test to determine the *strength* activity index with portland cement is not considered to be the proportion recommended for the concrete to be used in the work. The optimum amount of fly ash or natural pozzolan for any specific project is determined by the required properties of the concrete and other constituents of the concrete and is to be established by testing. *Strength* activity index with portland cement is a measure of reactivity with a given cement and is subject to variation depending on the source of both the fly ash or natural pozzolan and the cement.

^B Meeting the 7 day or 28 day *strength* activity index will indicate specification compliance.

^C If the fly ash or natural pozzolan will constitute more than 20 % by mass of the cementitious material in the project mixture, the test specimens for autoclave expansion shall contain that anticipated percentage. Excessive autoclave expansion is highly significant in cases where water to cementitious material ratios are low, for example, in block or shotcrete mixtures.

NOTE 3—The chemical component determinations and the limits placed on each do not predict the performance of the fly ash or natural pozzolan with hydraulic cement in concrete, but collectively help describe composition and uniformity of the material.

7. Physical Properties

7.1 Fly ash and natural pozzolans shall conform to the physical requirements prescribed in Table 2. Supplementary optional physical requirements are shown in Table 3.

8. Methods of Sampling and Testing

8.1 Sample and test the fly ash or natural pozzolan in accordance with the requirements of Test Methods C311/ C311M.

8.2 Use cement of the type proposed for use in the work and, if available, from the mill proposed as the source of the cement, in all tests requiring the use of hydraulic cement.

9. Storage and Inspection

9.1 The fly ash or natural pozzolan shall be stored in such a manner as to permit easy access for proper inspection and identification of each shipment.

9.2 Inspection of the material shall be made as agreed upon by the purchaser and the seller as part of the purchase contract.

10. Rejection

10.1 The purchaser has the right to reject material that fails to conform to the requirements of this specification. Rejection shall be reported to the producer or supplier promptly and in writing.

10.2 The purchaser has the right to reject packages varying more than 5 % from the stated weight. The purchaser also has the right to reject the entire shipment if the average weight of the packages in any shipment, as shown by weighing 50 packages taken at random, is less than that specified.

10.3 The purchaser has the right to require that material in storage prior to shipment for a period longer than 6 months after testing be retested. The purchaser has the right to reject such material if it fails to meet the fineness requirements.

11. Packaging and Package Marking

11.1 When the fly ash or natural pozzolan is delivered in packages, the class, name, and brand of the producer, and the

Specific to Navosil HG



TABLE 3 Supplementary Optional Physical Requirements

NOTE 1—These optional requirements apply only when specifically requested

	Class		
	N	F	C
Increase of drying shrinkage of mortar bars at 28 days, max, difference, in %, over control ^A	0.03	0.03	0.03
Uniformity Requirements: In addition, when air-entraining concrete is specified, the quantity of air-entraining agent required to produce an air content of 18.0 vol % of mortar shall not vary from the average established by the ten preceding tests or by all preceding tests if less than ten, by more than, %	20	20	20
Effectiveness in Contributing to Sulfate Resistance: ^B Procedure A: Expansion of test mixture: For moderate sulfate exposure after 6 months exposure, max, % For high sulfate exposure after 6 months exposure, max, %	0.10 0.05	0.10 0.05	0.10 0.05
Procedure B: Expansion of test mixture as a percentage of sulfate resistance cement control after at least 6 months exposure, max,%	100	100	100

^A Determination of compliance or noncompliance with the requirement relating to increase in drying shrinkage will be made only at the request of the purchaser.
^B Fly ash or natural pozzolan shall be considered effective only when the fly ash or natural pozzolan is used at percentages, by mass, of the total cementitious material within 2 % of those that are successful in the test mixtures or between two percentages that are successful, and when the C₂A content of the project cement is less than, or equal to, that which was used in the test mixtures. See Appendix X2 of Test Method C311/C311M.

weight of the material contained therein, shall be plainly marked on each package. Similar information shall be provided in the shipping invoices accompanying the shipment of packaged or bulk material.

12. Supplier’s Certification

12.1 Upon request of the purchaser, in the contract or the order, a supplier’s report shall be furnished stating the results of tests made on samples of the material and certifying the product conforms to all applicable requirements of this specification. In addition, the report shall include the percentages of

magnesium oxide (MgO), sodium oxide (Na₂O), potassium oxide (K₂O), and calcium oxide (CaO), all determined as described in Test Methods C311/C311M. The report shall also include the total alkali content of the material, expressed as equivalent percentage of sodium oxide (Na₂Oe).

NOTE 4—Guidance on preparing the supplier’s report is provided in Appendix X1.

13. Keywords

13.1 fly ash; natural pozzolan; pozzolans

APPENDIXES

(Nonmandatory Information)

X1. SUPPLIER’S CERTIFICATION REPORT

X1.1 To provide uniformity for reporting the results of tests performed on pozzolans under this specification, and affirming

compliance to the applicable limits of this standard, an example report of analysis is shown in Fig. X1.1.

X2. EFFECTIVENESS OF FLY ASH OR NATURAL POZZOLAN IN PREVENTING EXCESSIVE EXPANSION OF CONCRETE DUE TO ALKALI SILICA REACTION

X2.1 If properly proportioned in concrete mixtures, both fly ash and natural pozzolan have been shown to prevent excessive expansion due to alkali silica reaction. The quantity of fly ash or natural pozzolan required to mitigate alkali silica reaction, measured in terms of portland cement replacement, is depen-

dent on the properties of the fly ash or pozzolan, reactivity of the aggregate and the alkali loading of the concrete. For information on ASR mitigation, including test methods, see Guide C1778.

CHAPTER 4: CASE STUDIES

Navosil HG Case Study M50

In this case, there is a direct, like-for-like volume replacement of **27.5 Kg** of Micro Silica with Navosil HG.

Mix 1	Navosil HG M50 Case Study					
S.N.	Particulars	Control Mix*	Navosil HG Mix	Changes	Price / Kg (Ex-GST)	Cost Variation
1	Wonder OPC 53	400.00	400.00	0.00	₹5.25	₹ 0.00
2	Fly Ash	150.00	150.00	0.00	₹1.43	₹ 0.00
3	Microsilica	27.50		27.5	₹22.00	₹ 605.00
4	Navosil HG		27.50	(27.5)	₹18.00	(₹495.00)
	Aggregate:					
1	20 MM	612.00	612.00	0.00	₹0.50	₹ 0.00
2	10 MM	408.00	408.00	0.00	₹0.50	₹ 0.00
3	Sand	810.00	810.00	0.00	₹0.60	₹ 0.00
	Admixture	4.20	4.20	0.00	₹40.00	₹ 0.00
	Water	185.00	185.00	0.00	₹0.112	₹0.00
	W/C	0.32	0.32			
	Total	2596.70	2596.70	0.00		₹ 110.00
	Savings %					2.68%

Concrete Compressive strength						
DATE OF TRIAL	TRIAL No.	TRIAL MIX	1 Day	3 Days	7 Days	28 Days
			AVERAGE	AVERAGE	AVERAGE	AVERAGE
24/03/2025	1	CONTROL	31.08	40.35	50.11	65.80
	2	Navosil HG	32.00	44.25	50.89	64.08

Navosil HG Case Study M60

In this case, there is a direct, like-for-like volume replacement of **30 Kg** of Micro Silica with Navosil HG.

Mix 1	Navosil HG M60 Case Study					
S.N.	Particulars	Control Mix*	Navosil HG Mix	Changes	Price / Kg (Ex-GST)	Cost Variation
1	Wonder OPC 53	450.00	450.00	0.00	₹5.25	₹ 0.00
2	Fly Ash	150.00	150.00	0.00	₹1.43	₹ 0.00
3	Microsilica	30.00		30.00	₹22.00	₹ 660.00
4	Navosil HG		30.00	(30.00)	₹18.00	(₹540.00)
	Aggregate:					
1	20 MM	612.00	612.00	0.00	₹0.50	₹ 0.00
2	10 MM	408.00	408.00	0.00	₹0.50	₹ 0.00
3	Sand	810.00	810.00	0.00	₹0.60	₹ 0.00
	Admixture	2.50	2.50	0.00	₹40.00	₹ 0.00
	Water	180.00	170.00	(10.00)	₹0.112	₹1.12
	W/C	0.29	0.27			
	Total	2642.50	2652.50	(10.00)		₹ 121.12
	Savings %					2.78%

Concrete Compressive strength						
DATE OF TRIAL	TRIAL No.	TRIAL MIX	1 Day	3 Days	7 Days	28 Days
			AVERAGE	AVERAGE	AVERAGE	AVERAGE
23/10/2025	1	CONTROL	29.81	45.44	55.53	67.39
	2	Navosil HG	16.90	48.44	56.13	70.04

CHAPTER 5: TEST REPORTS

Navozzo Materials Private Limited

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Annexure A

BUREAU VERITAS (INDIA) PRIVATE LIMITED
Construction Services Laboratory
43, 45, 46 & 47, Ground, 1st Floor, 1st Main,
Pete Chennappa Indl. Estate, Magadi Road, Kamakshipalya, Bangalore 560 079

Test order No.: BL/2500/5/2025/R
Dated: 27.05.2025

Navozzo Materials Private Limited
New No 26, Old No 073, Five Furlong Road,
Guindy, Chennai -600 032.

Project : Navosil

TEST REPORT ON CONCRETE TRIAL MIX

Mix Ingredients	Grade/Source #	Quantity of Concrete Making Materials	
		M60	M60
Cement content (kg/m ³)	53 Grade OPC	400	400
Flyash (kg/m ³)		-	100
GGBS (kg/m ³)		100	-
Navosil (kg/m ³)	-	25	25
Manufactured Sand (kg/m ³)		666.0	656.0
20mm Coarse Aggregate (kg/m ³)		667.0	657.0
12.5mm Coarse Aggregate (kg/m ³)		443.0	436.0
Admixture (kg/m ³)	Auramix 400	2.00	1.75
Free Water (kg/m ³)		150.0	150.0
Slump obtained @ 2 hrs (mm)		120	120
Compressive Strength (N/sq.mm)	1 day	24.0	22.9
	3 days	38.3	36.5
	7 days	58.9	51.4
	28 days	72.8	70.5
	56 days	74.6	71.9
Flexural Strength	3 days	1.98	1.80
	7 days	4.55	4.11
	28 days	5.60	5.23

Special Remarks : Trial mix was carried out as per the mix proportions suggested in your Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & E-mail dated 27.08.2025 and using materials as supplied by you.

NOTE: We have used Navosil 5% by Weight of Cementitious Material.

As specified by the customer.

REMARKS: (1) All the concrete making materials should conform to relevant Indian Standards.

(2) Correction for water absorption / surface moisture to be applied at site.

(3) Performance of admixture shall be checked and verified periodically at site.

(4) The above trial mix should be tried in the field using the proposed materials and finalized by observing the actual performance of the concrete mix. Suitable modifications may be necessary to suit field conditions in the light of experience as well as for the particular materials used at the site in each case.

Note : 1. The results relate only to the items tested.

2. Report shall not be reproduced, except in full, without the written approval of the laboratory.

3. Any correction invalidates this report.

for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**

Construction Services Laboratory

Praveen Nayak S
29/5/2025
PRAVEEN NAYAK S
Manager - Lab
Authorized Signatory

TEST REPORT

Report No.: BVIPL:LSB: BL/2500/5/2025/R
Test order dated: 27.05.2025

Date: 28.08.2025

Page: 1 of 1

Navozzo Materials Private Limited
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Guindy, Chennai – 600 032.

TEST REPORT ON NAVOSIL SAMPLE

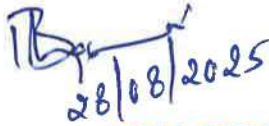
Source of sample : Sample supplied by the customer
Customer's Reference : E-mail dated 09.04.2025 & 27.08.2025.
Condition of sample : Satisfactory
UIN No. : 25024957
Project # : Navosil
Period of test : 29.05.2025 to 30.05.2025
Test Method : IS: 4032 – 1985 (RA 2019)

Sl No	Test Conducted	Test Results (% by mass)	
		Id 1	Id 2
1	Sulphuric Anhydride SO ₃ (% by mass)	0.03	0.01

As furnished by the customer.

- Note:**
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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory


28/08/2025

BHAGWAN.S
Assistant Manager - Chemical Lab
Authorized Signatory

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Annexure C

TEST REPORT



Report No.:BVIPL:RCPT: BL/2500/5/2025/R
 Test Order Dated: 27.05.2025

Date:28.08.2025
 Page: 1 of 1
 ULR-TC600625000013540F
CHEMICAL TESTING
 Building Materials

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

**TEST RESULTS ON ELECTRICAL INDICATION OF CONCRETE'S ABILITY TO RESIST
 CHLORIDE ION PENETRATION (RCPT)**

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 &
 E-mail dated 27.08.2025
 Condition of Samples : Satisfactory
 UIN No : 25024957
 Project # : Navosil
 Mix Details (M60 GGBS) : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³,
 M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³,
 12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³,
 Free Water - 150 kg/m³
 Mix Details (M60 FLYASH) : Cement OPC 53 Grade -400 kg/m³, Flyash - 100 kg/m³, Navosil -25 kg/m³,
 M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³,
 12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) - 1.75 kg/m³,
 Free Water - 150 kg/m³
 Period of test : 04.06.2025 to 29.07.2025
 Test Method : ASTM C 1202-2022

Sl. No.	Identification	Total Charge passed (Coulombs)
1	M60 OPC 53, 400 + 100, Date of Casting - 04.06.2025	945
2	M60 OPC 53, 400 + 100, Date of Casting - 04.06.2025	972

Requirement as per ASTM C-1202-22, Table I, Chloride ion penetrability based on charge passed.

Charge passed (Coulombs)	Chloride Ion penetrability
> 4000	High
2000 - 4000	Moderate
1000 - 2000	Low
100 - 1000	Very low
< 100	Negligible

As furnished by the customer

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**for BUREAU VERITAS (INDIA) PRIVATE LIMITED
 Construction Services Laboratory**

END OF THE REPORT

Bhagwan S
 28/08/2025

BHAGWAN S



TEST REPORT

TC-6006

Report No.:BVIPL:AMBM: BL/2500/5/2025/3/R
 Test Order Dated: 27.05.2025

Date:28.08.2025

Page: 1 of 1

ULR-TC600625000013363F

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

MECHANICAL TESTING
 Building, Infrastructure &
 Construction Materials

PHYSICAL TEST REPORT ON FRESH CONCRETE SAMPLE

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & 27.08.2025
 Condition of samples : Satisfactory
 UIN No. : 25024957
 Project # : Navosil
 Mix Details : Cement OPC 53 Grade -400 kg/m³, Flyash - 100 kg/m³, Navosil -25 kg/m³,
 M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³,
 12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) - 1.75 kg/m³,
 Free Water - 150 kg/m³
 Grade of Concrete # : M60 Flyash
 Mix Ratio adopted : 1 part of cement to 2.25 part graded aggregate by mass
 Water Cement ratio : 0.47
 Period of test : 04.06.2025 to 20.06.2025

TEST RESULTS

I. MORTAR BAR TEST :

Sl. No.	Test Conducted	Test Results (%)		Test Method
		Individual	Average	
1.	Length change in percent at each reading of the specimens (16 days test)	0.003	0.004	IS: 2386 (Part 7) – 1963 (RA 2021)
		0.005		
		0.004		

II. AUTO CLAVE EXPANSION TEST:

Sl. No.	Test Conducted	Test Results (%)	Test Method
1.	Auto Clave Expansion (%)	0.031	IS 4031 (Part 3) – 1988 (RA 2019)

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
 Construction Services Laboratory

Praveen Nayak S
 28/8/2025

END OF THE REPORT

PRAVEEN NAYAK S
 Manager - Lab
 Authorized Signatory



TEST REPORT

Report No.:BVIPL:AMBM: BL/2500/5/2025/4/R
Test Order Dated: 27.05.2025

Date:28.08.2025
Page: 1 of 1
ULR-TC600625000013364F

Navozzo Materials Private Limited
New No 26, Old No 073, Five Furlong Road,
Guindy, Chennai -600 032.

CHEMICAL TESTING
Building Materials

CHEMICAL TEST REPORT ON CEMENT SAMPLE

Source of Sample : Sample supplied by the customer
Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & 27.08.2025
Condition of samples : Satisfactory
UIN No. : 25024957
Project # : Navosil
Mix Details : Cement OPC 53 Grade -400 kg/m³, Flyash - 100 kg/m³, Navosil -25 kg/m³,
M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³,
12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) - 1.75 kg/m³,
Free Water – 150 kg/m³
Grade of Concrete # : M60 Flyash
Period of test : 04.06.2025 to 20.06.2025

TEST RESULTS

I. CEMENT :

Sl. No.	Test Conducted	Test Results (% by mass)	Test Method
1.	Alkali Content Na ₂ O K ₂ O Na ₂ O Equivalent	0.14 0.53 0.58	IS 4032 – 1985 (Reaffirmed 2019)

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory


28/08/2025
BHAGWAN. S
Assistant Manager - Chemical Lab
Authorized Signatory

****END OF THE REPORT****



Report No.:BVIPL:AMBM: BL/2500/5/2025/2/R
Test Order Dated: 27.05.2025

Date:28.08.2025
Page: 1 of 1
ULR-TC600625000013362F

Navozzo Materials Private Limited
New No 26, Old No 073, Five Furlong Road,
Guindy, Chennai -600 032.

CHEMICAL TESTING
Building Materials

CHEMICAL TEST REPORT ON CEMENT SAMPLE

Source of Sample : Sample supplied by the customer
Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & 27.08.2025
Condition of samples : Satisfactory
UIN No. : 25024957
Project # : Navosil
Mix Details : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³,
M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³,
12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³,
Free Water - 150 kg/m³
Grade of Concrete # : M60 GGBS
Period of test : 04.06.2025 to 20.06.2025

TEST RESULTS

I. CEMENT :

Sl. No.	Test Conducted	Test Results (% by mass)	Test Method
1.	Alkali Content Na ₂ O K ₂ O Na ₂ O Equivalent	0.14 0.53 0.58	IS 4032 - 1985 (Reaffirmed 2019)

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory


28/08/2025
BHAGWAN.S
Assistant Manager - Chemical Lab
Authorized Signatory

****END OF THE REPORT****

Annexure G

TEST REPORT



TC-6006

Report No.:BVIPL:AMBM: BL/2500/5/2025/1/R
 Test Order Dated: 27.05.2025

Date:28.08.2025

Page: 1 of 1

ULR-TC600625000013361F

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

MECHANICAL TESTING
 Building, Infrastructure &
 Construction Materials

PHYSICAL TEST REPORT ON FRESH CONCRETE SAMPLE

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & 27.08.2025
 Condition of samples : Satisfactory
 UIN No. : 25024957
 Project # : Navosil
 Mix Details : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³,
 M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³,
 12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³,
 Free Water - 150 kg/m³
 Grade of Concrete # : M60 GGBS
 Mix Ratio adopted : 1 part of cement to 2.25 part graded aggregate by mass
 Water Cement ratio : 0.47
 Period of test : 04.06.2025 to 20.06.2025

TEST RESULTS

I. MORTAR BAR TEST :

Sl. No.	Test Conducted	Test Results (%)		Test Method
		Individual	Average	
1.	Length change in percent at each reading of the specimens (16 days test)	0.002	0.003	IS: 2386 (Part 7) – 1963 (RA 2021)
		0.004		
		0.005		

II. AUTO CLAVE EXPANSION TEST:

Sl. No.	Test Conducted	Test Results (%)	Test Method
1.	Auto Clave Expansion (%)	0.031	IS 4031 (Part 3) – 1988 (RA 2019)

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**

Construction Services Laboratory

Praveen Nayak S

END OF THE REPORT

28/8/2025
PRAVEEN NAYAK S
 Manager - Lab
 Authorized Signatory

Annexure H



TEST REPORT

Report No.:BVIPL:CC: BL/2500/5/2025/R
Test Order Dated: 27.05.2025

Date:28.08.2025
Page: 1 of 1

Navozzo Materials Private Limited
New No 26, Old No 073, Five Furlong Road,
Guindy, Chennai -600 032.

WATER PERMEABILITY TEST REPORT ON CONCRETE CUBE SAMPLE

Source of Sample : Sample Supplied by the Customer
Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & 27.08.2025.
Condition of Samples : Satisfactory
UIN No : 25024957
Project # : Navosil
Mix Details (M60 GGBS) : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³,
M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³,
12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³,
Free Water - 150 kg/m³
Mix Details (M60 FLYASH) : Cement OPC 53 Grade -400 kg/m³, Flyash - 100 kg/m³, Navosil -25 kg/m³,
M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³,
12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) - 1.75 kg/m³,
Free Water - 150 kg/m³
Period of test : 02.07.2025 to 05.07.2025
Test Method : EN-12390 (Part 8)-2008

Sl. No.	Test Conducted	Test Result		Requirement as per MORT&H 5 th Revision Clause 1717.7.5
		M60 GGBS	M60 Flyash	
1	Permeability at 5 bar for 72 hrs. Depth of Penetration (mm)	4.0	4.9	Maximum 25.0 mm
		4.2	4.8	
		4.4	4.6	

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Construction Services Laboratory

Praveen Nayak S

28/8/2025

PRAVEEN NAYAK S

Manager - Lab

Authorized Signatory

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TEST REPORT

Report No.: BVIPL:HCMESS: BL/2500/5/2025/1
 Test order dated: 27.05.2025

Date: 13.11.2025
 Page: 1 of 2

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

TEST REPORT ON LENGTH CHANGE OF COMBINATION OF (ORDINARY PORTLAND CEMENT AND NAVOSIL (NATURAL POZZOLAN) MORTARS EXPOSED TO A SULFATE SOLUTION

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & E-mail dated 27.08.2025
 Condition of Samples : Satisfactory
 UIN No : 25024957
 Project # : Navosil
 Date of Casting : 04.06.2025
 Mix Details (M60 GGBS) : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³, M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³, 12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³, Free Water - 150 kg/m³
 Mix Ratio adopted : 1 part of cement to 2.75 parts of Sand by mass
 Period of test : 09.06.2025 to 06.11.2025
 Test Method : ASTM C 1012 / M - 24

Sl. No.	Test Conducted	Test Results (%)	
		Individual	Average
1.	Length change in percent at each reading of the specimens (7 days test)	0.026	0.026
		0.028	
		0.025	
2.	Length change in percent at each reading of the specimens (14 days test)	0.029	0.027
		0.027	
		0.025	
3.	Length change in percent at each reading of the specimens (21 days test)	0.027	0.028
		0.029	
		0.028	
4.	Length change in percent at each reading of the specimens (1 Month)	0.030	0.030
		0.030	
		0.032	

Praveen Nayak S

13/11/2025

PRAVEEN NAYAK S

Manager - Lab

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Contd....

Annexure J



TEST REPORT

Report No.: BVIPL:HCMESS: BL/2500/5/2025/1
 Test order dated: 27.05.2025

Date: 13.11.2025
 Page: 2 of 2

Sl. No.	Test Conducted	Test Results (%)	
		Individual	Average
5.	Length change in percent at each reading of the specimens (2 Months)	0.031	0.031
		0.032	
		0.031	
6.	Length change in percent at each reading of the specimens (3 Months)	0.033	0.032
		0.033	
		0.028	
7.	Length change in percent at each reading of the specimens (4 Months)	0.034	0.033
		0.034	
		0.032	
8.	Length change in percent at each reading of the specimens (5 Months)	0.034	0.034
		0.034	
		0.036	
9.	Length change in percent at each reading of the specimens (6 Months)	0.035	0.035
		0.035	
		0.035	

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory

Praveen Nayak S

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Manager - Lab
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TEST REPORT

Report No.: BVIPL:HCMESS: BL/2500/5/2025/2
 Test order dated: 27.05.2025

Date: 13.11.2025
 Page: 1 of 2

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

TEST REPORT ON LENGTH CHANGE OF COMBINATION OF (ORDINARY PORTLAND CEMENT AND NAVOSIL (NATURAL POZZOLAN) MORTORS EXPOSED TO A SULFATE SOLUTION

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & E-mail dated 27.08.2025
 Condition of Samples : Satisfactory
 UIN No : 25024957
 Project # : Navosil
 Date of Casting : 04.06.2025
 Mix Details (M60 FLYASH) : Cement OPC 53 Grade -400 kg/m³, Flyash - 100 kg/m³, Navosil -25 kg/m³, M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³, 12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) - 1.75 kg/m³, Free Water - 150 kg/m³
 Mix Ratio adopted : 1 part of cement to 2.75 parts of Sand by mass
 Period of test : 09.06.2025 to 06.11.2025
 Test Method : ASTM C 1012 / M - 24

Sl. No.	Test Conducted	Test Results (%)	
		Individual	Average
1.	Length change in percent at each reading of the specimens (7 days test)	0.024	0.024
		0.023	
		0.022	
2.	Length change in percent at each reading of the specimens (14 days test)	0.025	0.025
		0.025	
		0.026	
3.	Length change in percent at each reading of the specimens (21 days test)	0.026	0.026
		0.028	
		0.026	
4.	Length change in percent at each reading of the specimens (1 Month)	0.028	0.027
		0.027	
		0.027	

Praveen Nayak S

Contd....

13/11/2025
PRAVEEN NAYAK S
 Manager - Lab
 Authorized Signatory

Annexure L

TEST REPORT



Report No.: BVIPL:HCMES: BL/2500/5/2025/2
 Test order dated: 27.05.2025

Date: 13.11.2025
 Page: 2 of 2

Sl. No.	Test Conducted	Test Results (%)	
		Individual	Average
5.	Length change in percent at each reading of the specimens (2 Months)	0.028	0.028
		0.027	
		0.030	
6.	Length change in percent at each reading of the specimens (3 Months)	0.030	0.029
		0.029	
		0.029	
7.	Length change in percent at each reading of the specimens (4 Months)	0.031	0.030
		0.030	
		0.028	
8.	Length change in percent at each reading of the specimens (5 Months)	0.031	0.031
		0.032	
		0.031	
9.	Length change in percent at each reading of the specimens (6 Months)	0.032	0.032
		0.033	
		0.032	

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
 Construction Services Laboratory

Praveen Nayak S

13/11/2025

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Manager - Lab
 Authorized Signatory

Annexure M



TEST REPORT

Report No.: BVIPL:HCMESS: BL/2500/5/2025/1
 Test order dated: 27.05.2025

Date: 21.07.2025
 Page: 1 of 1

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

CHLORIDE MIGRATION COEFFICIENT FROM NON-STEADY STATE MIGRATION EXPERIMENT (RCMT)

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & E-mail dated 27.08.2025
 Condition of Samples : Satisfactory
 UIN No : 25024957
 Project # : Navosil
 Date of Casting : 04.06.2025
 Mix Details (M60 GGBS) : Cement OPC 53 Grade -400 kg/m³, GGBS- 100 kg/m³, Navosil -25 kg/m³, M Sand- 666 kg/m³, 20mm Coarse Aggregate - 667 kg/m³, 12.5mm Coarse Aggregate - 443 kg/m³, Admixture(Auramix 400) - 2 kg/m³, Free Water - 150 kg/m³
 Period of test : 04.07.2025 to 07.07.2025
 Test Method : NT BUILD 492

Sl. No	Specimen Thickness (mm)	Test Duration (hrs)	Applied Voltage (V)	Initial Current (mA) @30V	Temperature in anolyte solution °C		Average Penetration Depth (mm)	Non Steady - State Migration Co-efficient (Dnssm), X10 ⁻¹² m ² /s	Average Migration Coefficient (Dnssm), X10 ⁻¹² m ² /s
					Initial	Final			
1	43.59	24.0	35.0	30.0	26.9	27.1	6.58	2.11	2.11
2	48.74	24.0	40.0	30.0	25.5	26.6	6.31	1.96	
3	48.38	24.0	40.0	30.0	26.7	26.8	7.25	2.27	

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory

Bhagwan S
 21/07/2025

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BHAGWAN. S
 Assistant Manager - Chemical Lab
 Authorized Signatory

Annexure N



TEST REPORT

Report No.: BVIPL:HCMESS: BL/2500/5/2025/2
 Test order dated: 27.05.2025

Date: 21.07.2025
 Page: 1 of 1

Navozzo Materials Private Limited
 New No 26, Old No 073, Five Furlong Road,
 Guindy, Chennai -600 032.

CHLORIDE MIGRATION COEFFICIENT FROM NON-STEADY STATE MIGRATION EXPERIMENT (RCMT)

Source of Sample : Sample supplied by the customer
 Customer's Reference : Invoice Serial Number NCV/001/2025-26 dated 21.05.2025 & E-mail dated 27.08.2025
 Condition of Samples : Satisfactory
 UIN No : 25024957
 Project # : Navosil
 Date of Casting : 04.06.2025
 Mix Details (M60 FLYASH) : Cement OPC 53 Grade -400 kg/m³, Flyash – 100 kg/m³, Navosil -25 kg/m³, M Sand- 656 kg/m³, 20mm Coarse Aggregate - 657 kg/m³, 12.5mm Coarse Aggregate - 436 kg/m³, Admixture(Auramix 400) – 1.75 kg/m³, Free Water – 150 kg/m³
 Period of test : 04.07.2025 to 07.07.2025
 Test Method : NT BUILD 492

Sl. No	Specimen Thickness (mm)	Test Duration (hrs)	Applied Voltage (V)	Initial Current (mA) @30V	Temperature in anolyte solution °C		Average Penetration Depth (mm)	Non Steady - State Migration Co-efficient (Dnssm), X10 ⁻¹² m ² /s	Average Migration Coefficient (Dnssm), X10 ⁻¹² m ² /s
					Initial	Final			
1	48.06	24.0	30.0	30.0	26.5	26.2	13.63	5.95	7.25
2	47.35	24.0	30.0	30.0	26.5	26.1	20.43	9.04	
3	46.22	24.0	35.0	30.0	26.5	26.4	18.29	6.75	

As furnished by the customer

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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory

Bhagwan S
 21/07/2025

BHAGWAN. S
 Assistant Manager - Chemical Lab
 Authorized Signatory

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TEST REPORT

Report No.:BVIPL:HC: BL/902/2/2024
Test order dated: 08.02.2024

Date:16.03.2024
Page: 1 of 1

Navoday Sciences Private Limited
1st Floor, No. 12, Race View Colony,
3rd Street, Guindy Chennai -600 032(TN)

TEST REPORT ON DRYING SHRINKAGE FOR CONCRETE SAMPLE

Source of Sample : Sample supplied by the customer
Customer's Reference : Invoice Serial Number NCV/122/2023-24 dated 01.02.2024
Condition of samples : Satisfactory
UIN No. : 24005607
Project : Not Furnished
Product Name # : Navosil Microsilica
Cement Grade # : OPC 53
Specimen Size : 75mm x 75mm x 300mm
Period of test : 13.02.2024 to 15.03.2024

TEST RESULTS

I. DRYING SHRINKAGE:

Sl No	Identification #	# Drying Shrinkage @ 28 Days (%)		Test Method
		Individual	Average	
1	Cement(450) + Flyash (150) + Navosil Microsilica (30)	0.003	0.004	IS:516 (Part 6) 2020
2		0.005		
3		0.004		

As furnished by the customer.

- Note:**
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for **BUREAU VERITAS (INDIA) PRIVATE LIMITED**
Construction Services Laboratory

Praveen Nayak.S
16/03/2024

PRAVEEN NAYAK. S

Quality Manager

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