



DEVBHOOMI TESTING LABORATORY DEHRADUN

NABL Accredited, Govt. Approved, MSME Registered, & ISO : 9001:2015 & 14001: 2015 Certified Laboratory

Neelkanth Enclave, Harbhajwala, Telpur Chowk, Shimla By Pass Road, Dehradun 248171

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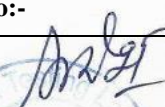
TEST REPORT

Description of Sample: Design Mix M-40	Report No.: DTL/DDN/2024/2910/23
Sample Id.: 29102024/23	Date of Report: 10/11/2024
Sample Quantity: As per Requirement	Date of Receipt: 29/10/2024
Sample Condition: Receipt as OK	Start Date of Testing: 30/10/2024
Sample Plan & Sampling Method: NA	Date of Completion: 10/11/2024
Environment Condition (Temp. & Humidity): NA.	Page 1 of 4
Addition to, Deviation or Exclusion from the Method: NA	
Bond No: 09/BR/RFB-EPC/UGRIDP/2023 Dated: 18/09/2024	
N.O.W.: 1. Construction of 24M Span Intermediate Lane Motor Bridge & its approach in KM-2 of Ujjawalpur to Gwad Dungri Jaspur Motor Road: 2. Construction of 48M Span Intermediate Lane Motor Bridge & its approach over Meeng Gadera in KM-1 of Gadhani Motor Road. 3. Construction of 48M Span Intermediate Lane Motor Bridge & its approach in KM-2 of Gairsan to Village Devlkot Motor Road in District Chamoli under EPC Mode.	
Contractor: M/S Umashankar Singh Rawat,	
Issued to: Umashankar Singh Rawat, Tharali Chamoli, Uttarakhand.	

Design Mix Test Data of M-40 (As per IS-10262-2009, IS-456-2000)

S. No.	1. Test Data: -	Test Value	Method of Test
i	Specific Gravity of Shree OPC-43 Cement	3.15	IS: 4031 (P-XI)-1988
ii	Specific Gravity of Coarse Aggregate	2.67	IS: 2386 (P-III)-1963
iii	Specific Gravity of Fine Aggregate	2.62	IS: 2386 (P-III)-1963
iv	Specific Gravity of Admixture	1.08	IS: 9103-1963
v	Water Absorption of Coarse Aggregate, % w/w	0.60	IS: 2386 (P-III)-1963
vi	Water Absorption of Fine Aggregate, % w/w	1.20	IS: 2386 (P-III)-1963
vii	Free Surface Moisture of Coarse Aggregate, % w/w	Nil	IS: 2386 (P-III)-1963
viii	Free Surface Moisture of Fine Aggregate, % w/w	Nil	IS: 2386 (P-III)-1963

2. Sieve Analysis of 20mm Aggregate.

S. No.	Parameter Sieve Analysis	Test Value % Passing	Requirements as per IS:383-2016	Method of Test Ref. to:-
i	40 mm	100	100	IS-2386(Part-I)-1963  Technical Manager
ii	20 mm	92.6	85-100	
iii	10 mm	6.8	0-20	
iv	4.75 mm	0.9	0-5	

Checked & Issued by
Authorised Signatory

1. The result Listed refer only to the tested sample & applicable parameters endorsement of products is neither inferred nor implied.
2. Total liability of our lab is limited to the invoiced amount.
3. Sample not drawn by lab and sample will be destroyed after 30 days from the date of issue of test report.
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3. Sieve Analysis of 10mm Aggregate.				
S. No.	Parameter Sieve Analysis	Test Value % Passing	Requirements as per IS:383-2016	Method of Test Ref. to:-
i	12.5 mm	100	100	IS-2386(Part-1)-1963
ii	10 mm	96.2	85-100	
iii	4.75 mm	12.4	0-20	
iv	2.36 mm	1.8	0-5	

4. Fraction of Coarse Agg.	
Fraction-I (20mm) – 60 %	
Fraction-II (10mm) – 40 %	

5. Grading of Fine Aggregate				
S. No.	Parameter Sieve Analysis	Test Value % Passing	Requirement as per IS-383-2016	Method of Test Ref. to:-
i	10 mm	100	100	IS-2386(Part-1)-1963
ii	4.75 mm	94.7	90-100	
iii	2.36 mm	81.3	75-100	
iv	1.18 mm	64.5	55-90	
v	600 micron	42.2	35-59	
vi	300 micron	19.3	8-30	
vii	150 micron	4.2	0-10	
Fine Aggregate sample confirming to Grade Zone – II nd				
Fineness Modulus		2.94		



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6. Design Stipulations for M-40:-

i	Characteristic Comp. Stg. required in the field at 28 days	40 N/mm ² (Min.)
ii	Maximum size of aggregate, mm	20
iii	Workability (Slump), mm	100-150
iv	Degree of Quality Control	Good
v	Target mean strength, after 28 days	48.2 N/mm ² (min.)
vi	Admixture	Super plasticizer

7. Typical Test Result For M-40

Quantities of material per cubic Meter Of concrete in S.S.D. Condition

Concrete characteristics workability

Mix No.	Cement Kg	Water kg	Fine Aggregate Kg (40.0%)	Coarse Agg. Fraction-I 60% , Kg	Coarse Agg. Fraction -II 40% , Kg	Admixture (0.6%),kg	Slump, mm	Comp.Stgth. by accelerated Boiling method, as per IS: 9013 N/mm ²	Eqvt Comp. Stgth. At 28 days, as per IS 9013, N/mm ²
1.	390 (W/C 0.40)	156.0	752.464	690.142	460.094	2.34 %	120	24.9	48.93

8. Mix Proportion: - Cement : Water : Fa : Ca : Admixture
1 : 0.40 : 1.929 : 2.949 : 0.006

Material Required for the mix/bag of cement (50kg) for M-40

a.	Cement	50.000 Kg.
b.	Fine Aggregate	96.450 Kg
c.	Coarse Aggregate	147.450 Kg.
d.	Fraction-I, 20mm	88.470 Kg.
e.	Fraction-II, 10mm	58.980 Kg.
f.	Admixture (Super Plasticizer)	0.300 Kg.

[Signature]
Technical Manager
Devbhoomi Testing Laboratory
Dehradun

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d. Water	
i.	For water-cement Ratio of 0.40 quantity = 20.00 ltr. of water
ii.	Extra quantity of water to be added = (+) 0.885 kg as water absorption of coarse agg is 0.60 % w/w
	= (+) 1.157 kg as water absorption of fine agg. is 1.20 % w/w
iii	Actual quantity of water = 20.0+0.885+1.157 = 22.042 Kg

e. Actual quantity of Coarse Agg. & Fine Agg. Required		
	Fraction-I, 20mm	88.470-0.531=87.939 Kg
	Fraction-II, 10mm	58.980-0.354=58.626 Kg
	Fine Aggregate	96.450-1.157=95.293 Kg
9. Therefore, the actual quantities of different constituents required for the mix/bag of cement:-		
	Water	22.042 Kg.
	Cement	50.000 Kg.
	Fine Aggregate	95.293 Kg.
Coarse Aggregate:-		
	Fraction –I, 20mm	87.939 Kg.
	Fraction –II, 10mm	58.626 Kg.
	Admixture	0.300 Kg
Remarks: Quantity of water may be decreased or increased considering the free surface moisture of Aggregate.		

*****End of Report*****



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