



# 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

Mob: +91-7217360360, +91-7579118238, 8859392493, 9760764229

Email: devbhoomilab@gmail.com

## TEST REPORT

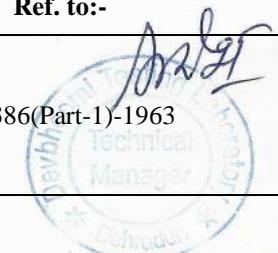
<b>Description of Sample:</b> Design Mix M-15	<b>Report No.:</b> DTL/DDN/2024/2910/25
<b>Sample Id.:</b> 29102024/25	<b>Date of Report:</b> 13/04/2025
<b>Sample Quantity:</b> As per Requirement	<b>Date of Receipt:</b> 02/04/2025
<b>Sample Condition:</b> Receipt as OK	<b>Start Date of Testing:</b> 03/04/2025
<b>Sample Plan &amp; Sampling Method:</b> NA	<b>Date of Completion:</b> 13/04/2025
<b>Environment Condition (Temp. &amp; Humidity):</b> NA.	
<b>Addition to, Deviation or Exclusion from the Method:</b> NA	
<b>Bond No:</b> 09/BR/RFB-EPC/UGRIDP/2023	<b>Dated:</b> 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.	
<b>Contractor:</b> M/S Umashankar Singh Rawat,	
<b>Issued to:</b>  Umashankar Singh Rawat, Tharali Chamoli, Uttarakhand.	<b>Page 1 of 4</b>

### Design Mix Test Data of M-30

(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	
ii	20 mm	92.6	85-100	
iii	10 mm	6.8	0-20	
iv	4.75 mm	0.9	0-5	IS-2386(Part-1)-1963 

Checked & Issued by  
Authorised Signatory

- The result Listed refer only to the tested sample & applicable parameters endorsement of products is neither inferred nor implied.
- Total liability of our lab is limited to the invoiced amount.
- 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<sup>nd</sup>

Fineness Modulus	2.94
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Devbhoomi  
Technical Manager  
Dehradun

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### 6. Design Stipulations for M-15:-

<b>i</b>	Characteristic Comp. Stg. required in the field at 28 days	15 N/mm <sup>2</sup> (Min.)
<b>ii</b>	Maximum size of aggregate, mm	20
<b>iii</b>	Workability (Slump), mm	25-75
<b>iv</b>	Degree of Quality Control	Good
<b>v</b>	Target mean strength, after 28 days	<b>20.80 N/mm<sup>2</sup> (min.)</b>
<b>vi</b>	Admixture	Super plasticizer

### 7. Typical Test Result For M-15

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.Stgh.by accelerated Boiling method, as per IS: 9013 N/mm <sup>2</sup>	Eqvt Comp. Stgh. At 28 days, as per IS 9013, N/mm <sup>2</sup>
1.	290 (W/C 0.59)	171.10	770.490	706.674	471.116	1.74	50	8.40	21.87

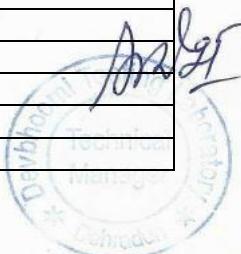
### 8. Mix Proportion: - Cement : Water : Fa : Ca : Admixture

1	: 0.59	: 2.655	: 4.061	: 0.006
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### Material Required for the mix/bag of cement (50kg) for M-30

a.	Cement	50.000 Kg.
b.	Fine Aggregate	132.750 Kg
c.	Coarse Aggregate	203.050 Kg.
d.	Fraction-I, 20mm	121.830 Kg.
e.	Fraction-II, 10mm	81.220 Kg.
f.	Admixture (Super Plasticizer)	0.300 Kg.

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### d. Water

i.	For water-cement Ratio of 0.59 quantity = 29.5 ltr. of water
ii.	Extra quantity of water to be added = (+) 1.218 kg as water absorption of coarse agg is 0.60 % w/w
	= (+) 1.593 kg as water absorption of fine agg. is 1.20 % w/w
III	Actual quantity of water = 21+1.218+1.593= 32.311 Kg

### e. Actual quantity of Coarse Agg. & Fine Agg. Required

Fraction-I, 20mm	121.830-0.731=121.099 Kg
Fraction-II, 10mm	81.220-0.487=80.733 Kg
Fine Aggregate	132.750-1.593=131.157 Kg

### 9. Therefore, the actual quantities of different constituents required for the mix/bag of cement:-

Water	32.311 Kg.
Cement	50.000 Kg.
Fine Aggregate	131.157 Kg.

### Coarse Aggregate:-

Fraction -I, 20mm	121.099 Kg.
Fraction -II, 10mm	80.733 Kg.
Admixture	0.300 Kg

Remarks: Quantity of water may be decreased or increased considering the free surface moisture of Aggregate.

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



Devbhoomi  
Technical  
Manager  
Dehradun

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