

Transportation Engineering Laboratory (TEL)

Department of Civil Engineering (CED)

UNIVERSITY OF ENGINEERING & TECHNOLOGY (UET)

LAHORE – 54890 (PAKISTAN)



Phone: 092-42-9929202 Cable: UNIVENGTECH Fax: 092-42-9922566

Ref.-----

Date:-----

The Executive Engineer,
Highways Division,
Narowal.

Subject: **Testing of Bitumen**

Special Repair of Road from Narowal to Muridke Road, km No. 0.0 to 5.15,
(Length = 5.15 km) in District Narowal
(Sarkain Bahal Punjab Khushal Programme)

Dear Sir,

It is with reference to your letter No. 801/DB dated 09-05-2024.

Please find below the results of tests conducted on the bitumen sample provided to this laboratory on 26-07-2024 through your representative.

Sr.#	Laboratory Tests	Results
1	Penetration (ASTM D-5)	128 Units
2	Penetration of Residue (ASTM D-5)	118 Units
3	Ductility (ASTM D-113)	84 cm
4	Ductility of Residue (ASTM D-113)	80 cm
5	Flash Point (ASTM D-92)	269°C
6	Solubility (ASTM D-2042)	99.75%
7	Thin Film Oven Test Value (ASTM D-1754)	0.264%
8	Loss on Heating Value (ASTM D-6)	0.242%

If you have further query, please do not hesitate to contact the undersigned.

Best Regards,

Director
Transportation Engineering Laboratory

Note:

1. This test report is based solely on the particular sample(s) supplied by the client and should not be reproduced in parts.
2. Sampling has not been performed by Transportation Engineering Laboratory (TEL), UET and TEL-UET does not accept the responsibility that the sample(s) supplied is/are truly representative sample(s) of any batch or stock or entire project.
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5. This test report shall not be reproduced wholly or in parts unless negotiated.

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Ref.:-----

Date:-----

Mr. Muhammad Hassan Khan
Resident Engineer, NESPAK.

Subject: **Testing of Aggregate (Granular Sub-base)**
PCC/Drainage Scheme/Sewerage Scheme, UC No. 195 Hair, Lahore

Dear Sir,

It is with reference to your letter No. 3772/103/MHK/ADP/Hair/20 dated 03-07-2024.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve Size	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	98.60	87.79	67.90	48.84	39.02	27.53

2. Los Angeles Abrasion Value Test (ASTM C-131/535)

Grading Used	Los Angeles Abrasion Value (%)
A	28.42

3. Flakiness & Elongation Index (BS 812: Part 105)

Sieve Size		Individual Flakiness Index (%)	Weighted Flakiness Index (%)	Individual Elongation Index (%)	Weighted Elongation Index (%)
Passing (in.)	Retained (in.)				
2	1 1/2	22.33	0.43	10.80	0.21
1 1/2	1	12.30	1.83	15.43	2.30
1	3/4	7.69	2.11	10.38	2.85
3/4	1/2	10.25	2.69	11.21	2.95
1/2	3/8	10.95	1.48	13.08	1.77
3/8	1/4	15.61	2.47	19.61	3.11
Flakiness Index = 11.01%			Elongation Index = 13.19%		

If you have further query, please do not hesitate to contact the undersigned.

Best Regards,

Director
Transportation Engineering Laboratory

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