

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:-----

Engr. Tanveer Afzal
GM Blue Bricks,
Lahore.

Subject: **Bitumen Extraction Test**
Project: Smart City, Lahore

Dear Sir,

It is with reference to your letter No. BTS/LAB/00119 dated 11-07-2024.
Please find below the results of the test conducted on the sample provided to this laboratory through your representative.

BITUMEN EXTRACTION TEST:

| | | | | | | | | | |
|---|-----|-------|-------|-------|-------|-------|--------------|------|--|
| Bitumen Extraction Value (ASTM D-2172) | | | | | | | 4.36% | | |
| Gradation Analysis | | | | | | | | | |
| Sieve No. | 1" | 3/4" | 1/2" | 3/8" | #4 | #8 | #50 | #200 | |
| % Passing | 100 | 96.12 | 83.64 | 63.81 | 47.69 | 28.22 | 8.89 | 3.37 | |

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.
3. While TEL-UET agrees to take every reasonable precaution to ensure validity of its test results, it assumes no liability thereof beyond the amount of the fee charged for the analysis or test.
4. The party shall assume full responsibility for the ethical use of the results in the test reports and the TEL-UET shall be held free from any and all claims which may result from the use of such data by client or others.
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Date:-----

The Assistant Executive Engineer-I,
Central Civil Division,
Pak P.W.D., Sialkot.

Subject: **Bitumen Extraction Test**
Construction of Road from Kotla Bhimber Road at Maranian Chowk to
Marianian Tehsil Kharian, District Gujrat – IV (01/10)

Dear Sir,

It is with reference to your letter No. AEE-I/CCD/SKT/29 dated 10-04-2023.
Please find below the results of the test conducted on the sample provided to this laboratory
on 08-07-2024 through your representative.

BITUMEN EXTRACTION TEST:

| | | | | | | | | | |
|---|--------|-------|-------|-------|-------|-------|-------|--------------|------|
| Bitumen Extraction Value (ASTM D-2172) | | | | | | | | 3.82% | |
| Gradation Analysis | | | | | | | | | |
| Sieve No. | 1 1/2" | 1" | 3/4" | 1/2" | 3/8" | #4 | #8 | #50 | #200 |
| % Passing | 100 | 95.14 | 77.02 | 60.29 | 46.11 | 32.64 | 17.85 | 5.83 | 2.03 |

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Ref.:-----

Date:-----

The Executive Representative,
Ghulam Mustafa & Sons.

Subject: **Bitumen Extraction Test**
Recarpeting of Road and Rehabilitation of Guard Room CA No. CEAF-
CZ/04/2023 at PAF Base Rafiqui

Dear Sir,

It is with reference to your letter No. Nil dated 29-04-2024.
Please find below the results of the test conducted on the sample provided to this laboratory
on 08-07-2024 through your representative.

BITUMEN EXTRACTION TEST:

| | | | | | | | | | |
|---|-----|-------|-------|-------|-------|-------|--------------|------|--|
| Bitumen Extraction Value (ASTM D-2172) | | | | | | | 4.40% | | |
| Gradation Analysis | | | | | | | | | |
| Sieve No. | 1" | 3/4" | 1/2" | 3/8" | #4 | #8 | #50 | #200 | |
| % Passing | 100 | 96.17 | 84.23 | 65.34 | 48.21 | 29.61 | 11.25 | 4.49 | |

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Ref.-----

Date:-----

Mr. Saquib Akram
Resident Engineer,
NESPAK, Lahore.

Subject: **Testing of Coarse Aggregate**
Improvement of Khokar Chowk, Abdul Haque Road, Johar Town, Lahore

Dear Sir,

It is with reference to your letter No. 3772/103/KC/SA/04/08 dated 29-01-2024.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 26-06-2024 through your representative.

1. Sodium Sulphate Soundness (ASTM C-88)

| Sieve Size | Weight of Fraction Before Test (gm) | Weight of Fraction After Test (gm) | Percentage Passing Designated Sieve After Test | Weighted Percentage Loss |
|-------------|-------------------------------------|------------------------------------|--|--------------------------|
| 1/2" + 3/8" | 1003.4 | 992.3 | 1.11 | 0.57 |
| | Total = 0.57% | | | |

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

| Grading Used | Los Angeles Abrasion Value (%) |
|--------------|--------------------------------|
| B | 17.98 |

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.) | | | | |
| 3/4 | 1/2 | 4.16 | 0.69 | 8.18 | 1.36 |
| 1/2 | 3/8 | 10.99 | 4.19 | 11.15 | 4.25 |
| 3/8 | 1/4 | 14.32 | 6.48 | 15.84 | 7.17 |
| Flakiness Index = 11.36% | | | Elongation Index = 12.78% | | |

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TEL-UET