Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 76-28 OK) Mat'l. Code: asco010
*(Material Full Name and Material Code)*

Insoluble ID: I1
*(Design Type and Design Type ID)*

Glover & Associates Inc. P/S # m00745
*(Producer/Supplier Name and Producer/Supplier Code)*

S4pv0261701000
*(Mix ID)*

Glover & Assoc. Asphalt Co.- (McAllester,OK) PLANT ID # m00745-01
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| 5/8" Chips | Martin-Marietta (Mill Creek, OK) P/S # m002303502 | 25 |
| 3/8" Chips | Dolese Co (Hartshorne, OK) P/S # m002756101 | 15 |
| Man. Sand | Martin-Marietta (Mill Creek, OK) P/S # m002303502 | 15 |
| Scrns. | Dolese Co (Hartshorne, OK) P/S # m002756101 | 30 |
| Sand | Muskogee Sand - West Plant (Muskogee, OK) P/S # m007067309 | 15 |

**Asphalt Cement:** Asphaltic Cement Type PG 76-28 OK, acem001, Lion Oil Co. (Muskogee, OK), m00511
*(Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)*

Requires Form 93-E0 signed by the Department for production use.
-Oklahoma D.O.T. Materials-

| Producer/Supplier: | Martin-Marietta (Mill Creek, OK) P/S # m002303502 | Dolese Co (Hartshorne, OK) P/S # m002756101 | Martin-Marietta (Mill Creek, OK) P/S # m002303502 | Dolese Co (Hartshorne, OK) P/S # m002756101 | Muskogee Sand - West Plant (Muskogee, OK) P/S # m007067309 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sieve Size | 5/8" Chips | 3/8" Chips | Man. Sand | Scrns. | Sand | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | 100 | | | | 100 | 100 | 100 | 100 | 0 |
| 1/2 in (12.5 mm) | 78 | 100 | 100 | 100 | 100 | | | | 95 | 95 | 88 | 100 | 7 |
| 3/8 in (9.5 mm) | 48 | 94 | 100 | 100 | 100 | | | | 86 | 86 | 79 | 93 | 7 |
| #4 (4.75 mm) | 6 | 16 | 99 | 100 | 99 | | | | 64 | 64 | 57 | 71 | 7 |
| #8 (2.36 mm) | 2 | 3 | 82 | 62 | 96 | | | | 46 | 46 | 41 | 51 | 5 |
| #16 (1.18 mm) | 2 | 2 | 53 | 38 | 89 | | | | 34 | 34 | 30 | 38 | 4 |
| #30 (.600 mm) | 1 | 2 | 29 | 26 | 71 | | | | 23 | 23 | 19 | 27 | 4 |
| #50 (.300 mm) | 1 | 2 | 12 | 19 | 31 | | | | 13 | 13 | 9 | 17 | 4 |
| #100 (.150 mm) | 1 | 2 | 4 | 14 | 4 | | | | 6 | 6 | 3 | 9 | 3 |
| #200 (.075 mm) | 1.0 | 1.1 | 1.8 | 10.2 | 0.6 | | | | 3.8 | 3.8 | 1.8 | 5.8 | 2 |
| AC Content % | | | | | | | | | 5.1 | 5.1 | 4.7 | 5.5 | 0.4 |

| | °F (°C) | Required |
|---|---|---|
| Mix temperature @ discharge from mixer: | 325 (163) | ± 20 °F (± 10 °C) |
| Optimum roadway compaction temperature: | 305 (152) | |
| Laboratory mixing temperature: | 325 (163) | |
| Laboratory compaction temperature: | 300 (149) | |

| Tests on Asphalt Cement | Found |
|---|---|
| Specific Gravity @ 77 °F | 1.0100 |

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-Oklahoma D.O.T. Materials-

**Tests on Compressed Mixtures (@ Design AC)**

| | # Gyr. | % Density of Gmm | % Density Required |
|---|---|---|---|
| Nini | 8 | 89.2 | 85.5 - 89.0 |
| Ndes | 80 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 76 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | 0 | 10 | max. | % |
| Fractured Faces | 100/100 | 98/95 | min. | % |
| Insoluble Residue | 55.9 | 40 | min. | % |
| LA Abrasion | 31 | 40 | max. | % |
| Micro-Deval | 12.6 | 25 | max. | % |
| Permeability | 0.7 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 81 | 50 | min. | % |
| IOC | 0.49 | | | % |
| Gse | 2.650 | | | |
| Gsb | 2.620 | | | |
| Specimen Weight | 4795 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required Design / Field | % VMA | % VMA Required Design / Field | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 4.8 | 2.334 | 2.458 | 95.0 | | 15.2 | | 67.1 | |
| 5.3 | 2.363 | 2.440 | 96.8 | 96.0 / 94.5 - 97.4 | 14.6 | 14.5 / 14.0 | 78.1 | 72 - 77 |
| 5.8 | 2.374 | 2.422 | 98.0 | | 14.6 | | 86.3 | |

| Dust Prop. | Dust Prop. Req. |
|---|---|
| 0.9 | |
| 0.8 | 0.6 - 1.6 |
| 0.7 | |

ITS (PSI) 99.4 75 min.
TSR 0.80 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 107.7 @ 5.1 % Asphalt Cement

Hamburg Rut Test Depth (mm) 2.77 12.50 max. @ 20,000 cycles

MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09

**Comments:**

**Last Modified By:** Smith, Jerry D. jsmith
*(User Name and User ID)*

**Date:** 6/21/2017
*(mm/dd/yyyy)*