Version: V03.50

# 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)*

Circle S Paving P/S # m00555
*(Producer/Supplier Name and Producer/Supplier Code)*

S4qc0361800300
*(Mix ID)*

Circle S Paving (Clinton, OK) - 200TPH PLANT ID # m00555-01
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| 5/8" Chips | Martin-Marietta (Snyder, OK) P/S # m002323802 | 22 |
| 3/8" Chips | Dolese Co (Cooperton, OK) P/S # m002723801 | 17 |
| Scrns. | Dolese Co (Cooperton, OK) P/S # m002723801 | 25 |
| Man. Sand | Martin-Marietta (Snyder, OK) P/S # m002323802 | 25 |
| Sand (Unlisted Source) | McLemore Pit @ Elk City,OK | 11 |

**Asphalt Cement:** Asphaltic Cement Type PG 76-28 OK, acem001, Coastal Energy (Clinton, OK), m01042
*(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-

| Sieve Size | 5/8" Chips | 3/8" Chips | Scrns. | Man. Sand | Sand (Unlisted Source) | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Producer/Supplier:** | Martin-Marietta (Snyder, OK) P/S # m002323802 | Dolese Co (Cooperton, OK) P/S # m002723801 | Dolese Co (Cooperton, OK) P/S # m002723801 | Martin-Marietta (Snyder, OK) P/S # m002323802 | McLemore Pit @ Elk City,OK | | | | | | | | |
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | 100 | | | | 100 | **100** | 100 | 100 | 0 |
| 1/2 in (12.5 mm) | 88 | 100 | 100 | 100 | 100 | | | | 97 | **97** | 90 | 100 | 7 |
| 3/8 in (9.5 mm) | 57 | 97 | 100 | 100 | 100 | | | | 90 | **90** | 83 | 97 | 7 |
| #4 (4.75 mm) | 4 | 12 | 98 | 96 | 99 | | | | 62 | **62** | 55 | 69 | 7 |
| #8 (2.36 mm) | 1 | 2 | 67 | 67 | 98 | | | | 45 | **45** | 40 | 50 | 5 |
| #16 (1.18 mm) | 1 | 1 | 44 | 39 | 97 | | | | 32 | **32** | 28 | 36 | 4 |
| #30 (.600 mm) | 1 | 1 | 31 | 22 | 88 | | | | 23 | **23** | 19 | 27 | 4 |
| #50 (.300 mm) | 1 | 1 | 23 | 10 | 40 | | | | 13 | **13** | 9 | 17 | 4 |
| #100 (.150 mm) | 1 | 1 | 18 | 3 | 14 | | | | 7 | **7** | 4 | 10 | 3 |
| #200 (.075 mm) | 1.0 | 1.0 | 14.3 | 1.2 | 5.6 | | | | 4.9 | **4.9** | 2.9 | 6.9 | 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 | 88.2 | 85.5 - 89.0 |
| Ndes | 80 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Contabro | | N/A | | % |
| Durability Index | 80 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | 0 | 10 | max. | % |
| Fractured Faces | 100/100 | 98/95 | min. | % |
| Insoluble Residue | 54.7 | 40 | min. | % |
| LA Abrasion | 26 | 40 | max. | % |
| Micro-Deval | 9.8 | 25 | max. | % |
| Permeability | 3.8 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 76 | 50 | min. | % |
| IOC | 0.40 | | | % |
| Gse | 2.669 | | | |
| Gsb | 2.623 | | | |
| Specimen Weight | 4805 | | | 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 | 2.354 | 2.474 | 95.1 | | 14.6 | | 66.4 | |
| 5.3 | 2.370 | 2.455 | 96.5 | 96.0 / 94.5 - 97.4 | 14.4 | 14.5 / 14.0 | 75.7 | 72 - 77 |
| 5.8 | 2.387 | 2.437 | 97.9 | | 14.3 | | 85.3 | |

| Dust Prop. |
|---|
| 1.2 |
| 1.0 |
| 0.9 |

**Dust Prop. Req.** 0.6 - 1.6

**ITS (PSI)** 99.8 75 min.
**TSR** 0.83 0.80 / 0.75 min. (Design / Field)
**Compacted Wt. (lbs/sy/1" thick) =** 108.3 @ 5.1 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 2.40 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:** 10/15/2018
*(mm/dd/yyyy)*