Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S3 (PG 70-28 OK) Mat'l. Code: asco08
*(Material Full Name and Material Code)*

Binder - Recycled ID: B2
*(Design Type and Design Type ID)*

Tulsa Asphalt Co P/S # m00355
*(Producer/Supplier Name and Producer/Supplier Code)*

S3c00931300700
*(Mix ID)*

Tulsa Asphalt Co #2 (Tulsa, OK) 300TPH PLANT ID # m00355-02
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| #67 Rock | Anchor Stone (Owasso, OK) P/S # m001156603 | 28 |
| 1/2" Chips | Anchor Stone (Owasso, OK) P/S # m001156603 | 10 |
| Man. Sand | Anchor Stone (Owasso, OK) P/S # m001156603 | 25 |
| Sand | Anchor Sand, Delaware Ave. (Jenks, OK) P/S # m001137217 | 11 |
| Fine R.A.P. | Contractor / Project Site P/S # Contractor | 25 |
| B. H. Fines | Contractor / Project Site P/S # Contractor | 1 |

**Asphalt Cement:** Asphaltic Cement Type PG 70-28 OK, acem002, Asphalt Terminals and Transp LLC (Muskogee, OK), m00783
*(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 | #67 Rock | 1/2" Chips | Man. Sand | Sand | Fine R.A.P. | B. H. Fines | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Producer/Supplier:** | Anchor Stone (Owasso, OK) P/S # m001156603 | Anchor Stone (Owasso, OK) P/S # m001156603 | Anchor Stone (Owasso, OK) P/S # m001156603 | Anchor Sand, Delaware Ave. (Jenks, OK) P/S # m001137217 | Contractor / Project Site P/S # Contractor | Contractor / Project Site P/S # Contractor | | | | | | | |
| 1 in (25 mm) | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | **100** | 100 | 100 | 0 |
| 3/4 in (19 mm) | 99 | 100 | 100 | 100 | 100 | 100 | | | 100 | **100** | 93 | 100 | 7 |
| 1/2 in (12.5 mm) | 62 | 100 | 100 | 100 | 100 | 100 | | | 89 | **89** | 82 | 96 | 7 |
| 3/8 in (9.5 mm) | 26 | 98 | 100 | 100 | 99 | 100 | | | 79 | **79** | 72 | 86 | 7 |
| #4 (4.75 mm) | 3 | 41 | 93 | 98 | 87 | 100 | | | 62 | **62** | 55 | 69 | 7 |
| #8 (2.36 mm) | 2 | 5 | 66 | 87 | 64 | 100 | | | 44 | **44** | 39 | 49 | 5 |
| #16 (1.18 mm) | 2 | 3 | 40 | 70 | 48 | 100 | | | 32 | **32** | 28 | 36 | 4 |
| #30 (.600 mm) | 2 | 2 | 21 | 46 | 37 | 100 | | | 21 | **21** | 17 | 25 | 4 |
| #50 (.300 mm) | 2 | 1 | 10 | 17 | 27 | 100 | | | 13 | **13** | 9 | 17 | 4 |
| #100 (.150 mm) | 2 | 1 | 5 | 2 | 18 | 100 | | | 8 | **8** | 5 | 11 | 3 |
| #200 (.075 mm) | 1.0 | 0.7 | 3.3 | 0.3 | 13.4 | 100.0 | | | 5.6 | **5.6** | 3.6 | 7.6 | 2 |
| AC Content % | | | | | 5.2 | | | | 4.7 | **4.7** | 4.3 | 5.1 | 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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**Tests on Compressed Mixtures (@ Design AC)**

| | # Gyr. | % Density of Gmm | % Density Required |
|---|---|---|---|
| Nini | 7 | 89.8 | 85.5 - 90.5 |
| Ndes | 65 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 40 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | | 10 | max. | % |
| Fractured Faces | 100/100 | 95/90 | min. | % |
| Insoluble Residue | 3.1 | N/A | | % |
| LA Abrasion | 32 | 40 | max. | % |
| Micro-Deval | 20.8 | N/A | | % |
| Permeability | 8.3 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 70 | 45 | min. | % |
| IOC | 0.26 | | | % |
| Gse | 2.661 | | | |
| Gsb | 2.626 | | | |
| Specimen Weight | 4750 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required Design / Field | % VMA | % VMA Required Design / Field | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 4.7 | 2.370 | 2.471 | 95.9 | 96.0 / 94.5 - 97.4 | 14.0 | 13.5 / 13.0 | 70.7 | 70 - 75 |
| 5.2 | 2.380 | 2.453 | 97.0 | | 14.1 | | 78.7 | |
| 5.7 | 2.422 | 2.434 | 99.5 | | 13.0 | | 96.2 | |

| Dust Prop. | Dust Prop. Req. |
|---|---|
| 1.3 | 0.6 - 1.6 |
| 1.2 | |
| 1.1 | |

ITS (PSI) 102.1 N/A min.
TSR 0.81 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 108.7 @ 4.7 % Asphalt Cement
3.4 % New Asphalt Cement

**Hamburg Rut Test Depth (mm)** 7.89 12.50 max. @ 15,000 cycles

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

**Comments:**

**Last Modified By:** Schratwieser, Edward P. eschratw
*(User Name and User ID)*

**Date:** 6/14/2013
*(mm/dd/yyyy)*