Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S3 (PG 76-28 OK) Mat'l. Code: asco007
*(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)*

S3c00931400300
*(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 | 30 |
| 1/2" Chips | Anchor Stone (Owasso, OK) P/S # m001156603 | 10 |
| Man. Sand | Anchor Stone (Owasso, OK) P/S # m001156603 | 35 |
| Sand | Anchor Sand, Delaware Ave. (Jenks, OK) P/S # m001137217 | 10 |
| Fine R.A.P. | Contractor / Project Site P/S # Contractor | 15 |

**Asphalt Additive, Anti-Strip:** AD-HERE HP-PLUS addi003 ARR-MAZ Products, LP (Winter Haven, FL) m00070
*(Product Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)*

**Asphalt Cement:** Asphaltic Cement Type PG 76-28 OK, acem001, 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 | Producer/Supplier: Anchor Stone (Owasso, OK) P/S # m001156603 — #67 Rock | Anchor Stone (Owasso, OK) P/S # m001156603 — 1/2" Chips | Anchor Stone (Owasso, OK) P/S # m001156603 — Man. Sand | Anchor Sand, Delaware Ave. (Jenks, OK) P/S # m001137217 — Sand | Contractor / Project Site P/S # Contractor — Fine R.A.P. | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 in (25 mm) | 100 | 100 | 100 | 100 | 100 | | | | 100 | ***100*** | *100* | *100* | *0* |
| 3/4 in (19 mm) | 99 | 100 | 100 | 100 | 100 | | | | 100 | ***100*** | *93* | *100* | *7* |
| 1/2 in (12.5 mm) | 65 | 100 | 100 | 100 | 99 | | | | 89 | ***89*** | *82* | *96* | *7* |
| 3/8 in (9.5 mm) | 26 | 97 | 100 | 100 | 97 | | | | 77 | ***77*** | *70* | *84* | *7* |
| #4 (4.75 mm) | 3 | 39 | 93 | 99 | 82 | | | | 60 | ***60*** | *53* | *67* | *7* |
| #8 (2.36 mm) | 2 | 11 | 65 | 88 | 62 | | | | 43 | ***43*** | *38* | *48* | *5* |
| #16 (1.18 mm) | 1 | 5 | 38 | 69 | 47 | | | | 28 | ***28*** | *24* | *32* | *4* |
| #30 (.600 mm) | 1 | 2 | 20 | 44 | 36 | | | | 17 | ***17*** | *13* | *21* | *4* |
| #50 (.300 mm) | 1 | 2 | 8 | 20 | 26 | | | | 9 | ***9*** | *5* | *13* | *4* |
| #100 (.150 mm) | 1 | 1 | 6 | 3 | 17 | | | | 5 | ***5*** | *2* | *8* | *3* |
| #200 (.075 mm) | 1.0 | 0.6 | 4.7 | 0.5 | 12.8 | | | | 4.0 | ***4.0*** | *2.0* | *6.0* | *2* |
| AC Content % | | | | | 5.6 | | | | 4.7 | ***4.7*** | *4.3* | *5.1* | *0.4* |
| Asphalt Additive, Anti-Strip % | | | | | | | | | 0.5 | | | | |

| | °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 | 8 | 88.5 | 85.5 - 89.0 |
| Ndes | 80 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 53 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | 0 | 10 | max. | % |
| Fractured Faces | 100/100 | 98/95 | min. | % |
| Insoluble Residue | | N/A | | % |
| LA Abrasion | 30.7 | 40 | max. | % |
| Micro-Deval | 22.6 | 25 | max. | % |
| Permeability | 11.9 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 70 | 50 | min. | % |
| IOC | 0.40 | | | % |
| Gse | 2.652 | | | |
| Gsb | 2.607 | | | |
| Specimen Weight | 4725 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required Design / Field | % VMA | % VMA Required Design / Field | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 4.3 | 2.351 | 2.479 | 94.8 | 96.0 / 94.5 - 97.4 | 13.7 | 13.5 / 13.0 | 62.0 | 70 - 75 |
| 4.8 | 2.370 | 2.460 | 96.3 | | 13.5 | | 72.6 | |
| 5.3 | 2.388 | 2.442 | 97.8 | | 13.3 | | 83.5 | |

| Dust Prop. | Dust Prop. Req. |
|---|---|
| 1.1 | 0.6 - 1.6 |
| 1.0 | |
| 0.9 | |

ITS (PSI) 149.1 75 min.
TSR 0.81 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 108.4 @ 4.7 % Asphalt Cement
3.9 % New Asphalt Cement

**Hamburg Rut Test Depth (mm)** 4.84 12.50 max. @ 20,000 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:** 5/27/2014
*(mm/dd/yyyy)*