Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S5 (PG 76-28 OK) Mat'l. Code: asco013
*(Material Full Name and Material Code)*

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

MPC Materials P/S # m00906
*(Producer/Supplier Name and Producer/Supplier Code)*

S5pv0261200300
*(Mix ID)*

MPC Materials - Markwell (Newcastle) PLANT ID # m00906-01
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| 1/2" Chips | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | 28 |
| Man. Sand | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | 25 |
| Scrns. | Dolese Co (Davis, OK) P/S # m002745002 | 32 |
| Sand (Unlisted Source) | General Materials, Inc (OKC, OK) m001911402 | 15 |

**Asphalt Cement:** Asphaltic Cement Type PG 76-28 OK, acem001, Valero (Ardmore, OK), m00352
*(Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)*

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-Oklahoma D.O.T. Materials-

| Sieve Size | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 (1/2" Chips) | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 (Man. Sand) | Dolese Co (Davis, OK) P/S # m002745002 (Scrns.) | General Materials, Inc (OKC, OK) m001911402 (Sand (Unlisted Source)) | | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 in (12.5 mm) | 100 | 100 | 100 | 100 | | | | | 100 | 100 | 100 | 100 | 0 |
| 3/8 in (9.5 mm) | 93 | 100 | 100 | 100 | | | | | 98 | 98 | 91 | 100 | 7 |
| #4 (4.75 mm) | 27 | 100 | 92 | 100 | | | | | 77 | 77 | 70 | 84 | 7 |
| #8 (2.36 mm) | 5 | 69 | 62 | 99 | | | | | 53 | 53 | 48 | 58 | 5 |
| #16 (1.18 mm) | 3 | 39 | 40 | 98 | | | | | 38 | 38 | 34 | 42 | 4 |
| #30 (.600 mm) | 3 | 23 | 27 | 91 | | | | | 29 | 29 | 25 | 33 | 4 |
| #50 (.300 mm) | 2 | 14 | 20 | 59 | | | | | 19 | 19 | 15 | 23 | 4 |
| #100 (.150 mm) | 2 | 7 | 16 | 14 | | | | | 10 | 10 | 7 | 13 | 3 |
| #200 (.075 mm) | 2.0 | 3.6 | 13.1 | 1.6 | | | | | 5.9 | 5.9 | 3.9 | 7.9 | 2 |
| AC Content % | | | | | | | | | 5.4 | 5.4 | 5.0 | 5.8 | 0.4 |
| | | | | | | | | | 2.0 | | | | |

| | °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 | 88.1 | 85.5 - 89.0 |
| Ndes | 80 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 75 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | 0 | 10 | max. | % |
| Fractured Faces | 100/100 | 98/95 | min. | % |
| Insoluble Residue | 66.5 | 40 | min. | % |
| LA Abrasion | 25.3 | 40 | max. | % |
| Micro-Deval | 16.2 | 25 | max. | % |
| Permeability | 0.5 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 77 | 50 | min. | % |
| IOC | 0.37 | | | % |
| Gse | 2.697 | | | |
| Gsb | 2.667 | | | |
| Specimen Weight | 4855 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required Design / Field | % VMA | % VMA Required Design / Field | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 5.3 | 2.375 | 2.478 | 95.8 | 96.0 / 94.5 - 97.4 | 15.7 | 15.5 / 15.0 | 73.2 | 73 - 78 |
| 5.8 | 2.387 | 2.459 | 97.1 | | 15.7 | | 81.5 | |
| 6.3 | 2.398 | 2.440 | 98.3 | | 15.8 | | 89.2 | |

| Dust Prop. |
|---|
| 1.2 |
| 1.1 |
| 1.0 |

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

**ITS (PSI)** 123.8 75 min.
**TSR** 0.81 0.80 / 0.75 min. (Design / Field)
**Compacted Wt. (lbs/sy/1" thick) =** 108.8 @ 5.4 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 9.00 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:** 8/10/2012
*(mm/dd/yyyy)*