Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S5 (PG 64-22 OK) Mat'l. Code: asco015
*(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)*

S5pv0441500500
*(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 | General Materials Inc (Oklahoma City, OK) P/S # m009215515 | 15 |

**Asphalt Cement:** Asphaltic Cement Type PG 64-22 OK, acem003, Valero (Ardmore, OK), m00352
*(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: | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | Dolese Co (Davis, OK) P/S # m002745002 | General Materials Inc (Oklahoma City, OK) P/S # m009215515 | | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/2" Chips | Man. Sand | Scrns. | Sand | | | | | | | | | |
| 1/2 in (12.5 mm) | 100 | 100 | 100 | 100 | | | | | 100 | 100 | 100 | 100 | 0 |
| 3/8 in (9.5 mm) | 85 | 100 | 100 | 100 | | | | | 96 | 96 | 89 | 100 | 7 |
| #4 (4.75 mm) | 23 | 100 | 95 | 97 | | | | | 76 | 76 | 69 | 83 | 7 |
| #8 (2.36 mm) | 6 | 75 | 65 | 95 | | | | | 55 | 55 | 50 | 60 | 5 |
| #16 (1.18 mm) | 4 | 49 | 42 | 93 | | | | | 41 | 41 | 37 | 45 | 4 |
| #30 (.600 mm) | 4 | 32 | 30 | 89 | | | | | 32 | 32 | 28 | 36 | 4 |
| #50 (.300 mm) | 3 | 21 | 22 | 67 | | | | | 23 | 23 | 19 | 27 | 4 |
| #100 (.150 mm) | 3 | 11 | 17 | 19 | | | | | 12 | 12 | 9 | 15 | 3 |
| #200 (.075 mm) | 2.0 | 4.9 | 14.2 | 2.1 | | | | | 6.6 | 6.6 | 4.6 | 8.6 | 2 |
| AC Content % | | | | | | | | | 5.7 | 5.7 | 5.3 | 6.1 | 0.4 |

| | °F (°C) | Required |
|---|---|---|
| Mix temperature @ discharge from mixer: | 305 (152) | ± 20 °F (± 10 °C) |
| Optimum roadway compaction temperature: | 290 (143) | |
| 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 | 6 | 88.7 | 85.5 - 91.5 |
| Ndes | 50 | | 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 | 85/80 | min. | % |
| Insoluble Residue | 65.9 | 30 | min. | % |
| LA Abrasion | 16 | 40 | max. | % |
| Micro-Deval | 7.2 | N/A | | % |
| Permeability | 0.8 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 69 | 40 | min. | % |
| IOC | 0.32 | | | % |
| Gse | 2.731 | | | |
| Gsb | 2.668 | | | |
| Specimen Weight | 4750 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required | % VMA | % VMA Required | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 5.3 | 2.353 | 2.505 | 93.9 | Design / Field | 16.5 | Design / Field | 63.0 | |
| 5.8 | 2.395 | 2.485 | 96.4 | 96.0 / 94.5 - 97.4 | 15.4 | 15.5 / 15.0 | 76.6 | 73 - 78 |
| 6.3 | 2.395 | 2.466 | 97.1 | | 15.9 | | 81.8 | |

| Dust Prop. |
|---|
| 1.5 |
| 1.3 |
| 1.2 |

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

**ITS (PSI)** 87.4 N/A min.
**TSR** 0.81 0.80 / 0.75 min. (Design / Field)
**Compacted Wt. (lbs/sy/1" thick) =** 109.5 @ 5.7 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 1.84 12.50 max. @ 10,000 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:** 9/8/2015
*(mm/dd/yyyy)*