Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 64-22 OK) Mat'l. Code: asco012
*(Material Full Name and Material Code)*

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

Haskell Lemon Const Co (Asphalt) P/S # m00428
*(Producer/Supplier Name and Producer/Supplier Code)*

S4qc0381380500
*(Mix ID)*

Haskell Lemon (Shawnee, OK) - 300TPH PLANT ID # m00428-06
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| 5/8" Chips | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | 35 |
| C-33 Scrns. | Martin-Marietta (Mill Creek, OK) P/S # m002303502 | 22 |
| Scrns. | Dolese Co (Davis, OK) P/S # m002745002 | 28 |
| Sand | General Materials Inc (Oklahoma City, OK) P/S # m009215515 | 15 |

**Asphalt Cement:** Asphaltic Cement Type PG 64-22 OK, acem003, Lion Oil Co. (Muskogee, OK), m00511
*(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 — 5/8" Chips | C-33 Scrns. — Martin-Marietta (Mill Creek, OK) P/S # m002303502 | Scrns. — Dolese Co (Davis, OK) P/S # m002745002 | Sand — General Materials Inc (Oklahoma City, OK) P/S # m009215515 | | | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | | | | | 100 | **100** | 100 | 100 | 0 |
| 1/2 in (12.5 mm) | 91 | 100 | 100 | 100 | | | | | 97 | **97** | 90 | 100 | 7 |
| 3/8 in (9.5 mm) | 70 | 100 | 100 | 100 | | | | | 90 | **90** | 83 | 97 | 7 |
| #4 (4.75 mm) | 34 | 99 | 86 | 100 | | | | | 73 | **73** | 66 | 80 | 7 |
| #8 (2.36 mm) | 10 | 80 | 53 | 99 | | | | | 51 | **51** | 46 | 56 | 5 |
| #16 (1.18 mm) | 8 | 48 | 34 | 98 | | | | | 38 | **38** | 34 | 42 | 4 |
| #30 (.600 mm) | 5 | 25 | 24 | 94 | | | | | 28 | **28** | 24 | 32 | 4 |
| #50 (.300 mm) | 4 | 8 | 17 | 74 | | | | | 19 | **19** | 15 | 23 | 4 |
| #100 (.150 mm) | 3 | 3 | 14 | 25 | | | | | 9 | **9** | 6 | 12 | 3 |
| #200 (.075 mm) | 2.8 | 1.6 | 11.3 | 1.2 | | | | | 4.7 | **4.7** | 2.7 | 6.7 | 2 |
| AC Content % | | | | | | | | | 5.2 | **5.2** | 4.8 | 5.6 | 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 | 90.4 | 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 | 86.6 | 30 | min. | % |
| LA Abrasion | 25.3 | 40 | max. | % |
| Micro-Deval | 16.2 | N/A | | % |
| Permeability | 7.5 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 85 | 40 | min. | % |
| IOC | 0.42 | | | % |
| Gse | 2.695 | | | |
| Gsb | 2.640 | | | |
| Specimen Weight | 4840 | | | 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 | 2.344 | 2.515 | 93.2 | 96.0 / 94.5 - 97.4 | 15.0 | 14.5 / 14.0 | 54.7 | 72 - 77 |
| 4.8 | 2.366 | 2.495 | 94.8 | | 14.7 | | 64.6 | |
| 5.3 | 2.384 | 2.476 | 96.3 | | 14.5 | | 74.5 | |

| Dust Prop. |
|---|
| 1.3 |
| 1.1 |
| 1.0 |

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

**ITS (PSI)** 105 N/A min.

**TSR** 0.80 0.80 / 0.75 min. (Design / Field)

**Compacted Wt. (lbs/sy/1" thick) =** 109.1 @ 5.2 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 5.28 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:** 6/13/2013
*(mm/dd/yyyy)*