Version: V03.40

# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 70-28 OK) Mat'l. Code: asco011
*(Material Full Name and Material Code)*

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

Evans & Assoc Const Co P/S # m00557
*(Producer/Supplier Name and Producer/Supplier Code)*

S4pv0111400500
*(Mix ID)*

Evans & Assoc Const Co (Ponca City, OK) - 400TPH PLANT ID # m00557-01
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| 3/4" Chips | APAC-Central #066 @ Pawhuska, OK P/S # m001505703 | 21 |
| CM-5 | Mine Chat @ Tri City Area P/S # MineChat | 24 |
| Man. Sand | APAC-Central #066 @ Pawhuska, OK P/S # m001505703 | 10 |
| Scrns. | APAC-Central #066 @ Pawhuska, OK P/S # m001505703 | 15 |
| Sand | Sober Sand Co. (Ponca City, OK) P/S # m005373601 | 15 |
| Drag Sand | Blevins Asphalt Const. Co. (Ottawa Co., OK) P/S # m009195810 | 15 |

**Asphalt Cement:** Asphaltic Cement Type PG 70-28 OK, acem002, Valero (Halstead, KS), m00964
*(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: APAC-Central #066 @ Pawhuska, OK P/S # m001505703 — 3/4" Chips | Mine Chat @ Tri City Area P/S # MineChat — CM-5 | APAC-Central #066 @ Pawhuska, OK P/S # m001505703 — Man. Sand | APAC-Central #066 @ Pawhuska, OK P/S # m001505703 — Scrns. | Sober Sand Co. (Ponca City, OK) P/S # m005373601 — Sand | Blevins Asphalt Const. Co. (Ottawa Co., OK) P/S # m009195810 — Drag Sand | | | Comb. Agg. | JMF | Min. | Max. | % Tol. (±) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | **100** | 100 | 100 | 0 |
| 1/2 in (12.5 mm) | 72 | 100 | 100 | 100 | 100 | 100 | | | 94 | **94** | 87 | 100 | 7 |
| 3/8 in (9.5 mm) | 40 | 100 | 100 | 100 | 100 | 100 | | | 87 | **87** | 80 | 94 | 7 |
| #4 (4.75 mm) | 6 | 40 | 97 | 97 | 96 | 99 | | | 64 | **64** | 57 | 71 | 7 |
| #8 (2.36 mm) | 2 | 5 | 60 | 72 | 84 | 86 | | | 44 | **44** | 39 | 49 | 5 |
| #16 (1.18 mm) | 1 | 3 | 33 | 48 | 66 | 50 | | | 29 | **29** | 25 | 33 | 4 |
| #30 (.600 mm) | 1 | 2 | 20 | 34 | 48 | 28 | | | 19 | **19** | 15 | 23 | 4 |
| #50 (.300 mm) | 1 | 1 | 10 | 25 | 25 | 14 | | | 11 | **11** | 7 | 15 | 4 |
| #100 (.150 mm) | 1 | 1 | 6 | 20 | 7 | 8 | | | 6 | **6** | 3 | 9 | 3 |
| #200 (.075 mm) | 1.4 | 1.4 | 5.4 | 17.4 | 3.4 | 6.4 | | | 5.3 | **5.3** | 3.3 | 7.3 | 2 |
| AC Content % | | | | | | | | | 5.4 | **5.4** | 5.0 | 5.8 | 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 | 88.2 | 85.5 - 90.5 |
| Ndes | 65 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 76 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | 0 | 10 | max. | % |
| Fractured Faces | 100/100 | 95/90 | min. | % |
| Insoluble Residue | 43.9 | 40 | min. | % |
| LA Abrasion | 26.3 | 40 | max. | % |
| Micro-Deval | 16.3 | N/A | | % |
| Permeability | 6.4 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 88 | 45 | min. | % |
| IOC | 0.29 | | | % |
| Gse | 2.631 | | | |
| Gsb | 2.581 | | | |
| 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 |
|---|---|---|---|---|---|---|---|---|
| 4.8 | 2.288 | 2.443 | 93.7 | 96.0 / 94.5 - 97.4 | 15.6 | 14.5 / 14.0 | 59.6 | 72 - 77 |
| 5.3 | 2.323 | 2.425 | 95.8 | | 14.8 | | 71.6 | |
| 5.8 | 2.341 | 2.407 | 97.3 | | 14.6 | | 81.5 | |

| Dust Prop. | Dust Prop. Req. |
|---|---|
| 1.3 | 0.6 - 1.6 |
| 1.2 | |
| 1.0 | |

**ITS (PSI)** 107.5 N/A min.
**TSR** 0.85 0.80 / 0.75 min. (Design / Field)
**Compacted Wt. (lbs/sy/1" thick) =** 106.5 @ 5.4 % Asphalt Cement

**Hamburg Rut Test Depth (mm)** 2.46 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:** 7/14/2014
*(mm/dd/yyyy)*