



Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S3 (PG 64-22 OK) Mat'l. Code: asco009
 (Material Full Name and Material Code)

Binder - Recycled ID: B2
 (Design Type and Design Type ID)

J & R Sand Co P/S # m00560
 (Producer/Supplier Name and Producer/Supplier Code)

WS3qc0611800101
 (Mix ID)

J & R Sand Co #AP 10 (Portable) - 350TPH PLANT ID # m00560-01
 (Plant Name and Plant ID)

| Aggregate | Producer/Supplier | % USED |
|--|---|--------|
| 3/4" Chips | Klotz Sand and Gravel (Lakin, KS) P/S # m008758021 | 29 |
| 3/4" C. Run | Klotz Sand and Gravel (Lakin, KS) P/S # m008758021 | 35 |
| Sand | J & R Sand Co, Winchell Pit (Beaver Co., OK) P/S # m002050402 | 11 |
| Coarse R.A.P. | Contractor / Project Site P/S # Contractor | 25 |
| Warm Mix Asphalt (WMA) Technology: EVOTHERM (Chem. Add.) qual028 Ingevity m00941 (Product Name, Material Code, Producer/Supplier Name, Producer/Supplier Code) | | |
| Asphalt Cement: Asphaltic Cement Type PG 64-22 OK, acem003, Valero Mckee (Sunray, TX), m00311 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code) | | |

| Sieve Size | Producer/Supplier: | | | | Comb. Agg. | Tol. (%) | | |
|------------------|--------------------|-------------|------|---------------|------------|----------|------|------|
| | 3/4" Chips | 3/4" C. Run | Sand | Coarse R.A.P. | | JMF | Min. | Max. |
| 1 in (25 mm) | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 |
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | 100 | 100 | 93 | 7 |
| 1/2 in (12.5 mm) | 65 | 90 | 100 | 96 | 85 | 85 | 78 | 7 |
| 3/8 in (9.5 mm) | 38 | 80 | 100 | 90 | 73 | 73 | 66 | 7 |
| #4 (4.75 mm) | 6 | 52 | 99 | 74 | 49 | 49 | 42 | 7 |
| #8 (2.36 mm) | 3 | 33 | 88 | 59 | 37 | 37 | 32 | 5 |
| #16 (1.18 mm) | 2 | 22 | 60 | 47 | 27 | 27 | 23 | 4 |
| #30 (.600 mm) | 2 | 16 | 36 | 36 | 19 | 19 | 15 | 4 |
| #50 (.300 mm) | 2 | 11 | 14 | 24 | 12 | 12 | 8 | 4 |
| #100 (.150 mm) | 2 | 8 | 3 | 14 | 7 | 7 | 4 | 3 |
| #200 (.075 mm) | 1.2 | 5.0 | 2.0 | 9.2 | 4.6 | 4.6 | 2.6 | 2 |
| AC Content % | | | | 5.4 | 4.4 | 4.4 | 4.0 | 0.4 |

Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-

Warm Mix Asphalt (WMA) Additive % 0.4

Mix temperature @ discharge from mixer: 285 (141) °F (°C) Required ± 20 °F (± 10 °C)
 Optimum roadway compaction temperature: 245 (118)
 Laboratory mixing temperature: 275 (135)
 Laboratory compaction temperature: 235 (113)

| Tests on Aggregates | Required | Units |
|---------------------|----------|---------------------------------|
| Durability Index | 96 | 40 min. % |
| F.A.A. %U | N/A | % |
| Flat and Elongated | 0 | 10 max. % |
| Fractured Faces | 89/83 | 85/80 min. % |
| Insoluble Residue | 80.5 | N/A % |
| LA Abrasion | 30 | 40 max. % |
| Micro-Deval | 5.9 | N/A % |
| Permeability | 1.9 | 12.5 max. 10 ⁻⁵ cm/s |
| Sand Equivalent | 74 | 40 min. % |
| Pba | 0.34 | |
| IOC | 0.35 | % |
| Gse | 2.636 | |
| Gsb | 2.613 | |
| Specimen Weight | 4750 | g |

| 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 | 89.8 | 85.5 - 91.5 |
| Ndes | 50 | | 96.0 |

| Tests on Compressed Mixtures | | | | | | | | |
|------------------------------|-------|-------|-----------|--------------------|-------|----------------|----------------|----------------|
| %AC | Gmb | Gmm | % Density | | % VMA | % VMA Required | | % VFA |
| | | | of Gmm | % Density Required | | Design / Field | Design / Field | |
| 3.9 | 2.333 | 2.480 | 94.1 | Design / Field | 14.2 | Design / Field | 58.5 | % VFA Required |
| 4.4 | 2.366 | 2.462 | 96.1 | 96.0 / 94.5 - 97.4 | 13.4 | 13.5 / 13.0 | 70.9 | 70 - 75 |
| 4.9 | 2.388 | 2.443 | 97.7 | | 13.1 | | 82.4 | |

ITS (PSI) 189.8 N/A min.
 TSR 0.85 0.80 / 0.75 min. (Design / Field)
 Compacted Wt. (lbs/sy/1" thick) = 108.3 @ 4.4 % Asphalt Cement
 3.0 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 5.69 12.50 max. @ 10,000 cycles

MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09

Comments: _____

Last Modified By: McComack, Hunter J. hmccomac
 (User Name and User ID)

Date: 5/29/2018
 (mm/dd/yyyy)