



Oklahoma Department of Transportation Mix Design Report

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| Asphalt Concrete, Type S4 (PG 64-22 OK) Mat'l. Code: asco012 <i>(Material Full Name and Material Code)</i> | Insoluble ID: I1 <i>(Design Type and Design Type ID)</i> |
| Cummins Const Co P/S # m00556 <i>(Producer/Supplier Name and Producer/Supplier Code)</i> | S4qc0101681300 <i>(Mix ID)</i> |
| Cummins Const Co (Portable)- 400TPH PLANT ID # m00556-16 <i>(Plant Name and Plant ID)</i> | |

| Aggregate | Producer/Supplier | % USED |
|------------------------|--|--------|
| 5/8" Chips | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | 20 |
| 3/8" Chips | Dolese Co (Ardmore, OK) P/S # m002701001 | 30 |
| Stone Sand | Martin-Marietta (Davis, OK) P/S # m002285005 | 10 |
| Scrns. | Dolese Co (Ardmore, OK) P/S # m002701001 | 25 |
| Sand (Unlisted Source) | Flume Sand (Thackerville, OK) | 15 |
| | | |
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| | | |
| | | |
| | | |
| Asphalt Cement: | Asphaltic Cement Type PG 64-22 OK, acem003, Valero (Ardmore, OK), m00352 <i>(Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)</i> | |

| Sieve Size | Producer/Supplier: | | | | | | Comb. Agg. | Requirements | | | | |
|------------------------|---|--|--|--|-------------------------------|-----|------------|--------------|------|------|------------|--|
| | Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008 | Dolese Co (Ardmore, OK) P/S # m002701001 | Martin-Marietta (Davis, OK) P/S # m002285005 | Dolese Co (Ardmore, OK) P/S # m002701001 | Flume Sand (Thackerville, OK) | | | JMF | Min. | Max. | % Tol. (±) | |
| 5/8" Chips | | | | | | | | | | | | |
| 3/8" Chips | | | | | | | | | | | | |
| Stone Sand | | | | | | | | | | | | |
| Scrns. | | | | | | | | | | | | |
| Sand (Unlisted Source) | | | | | | | | | | | | |
| 3/4 in (19 mm) | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | |
| 1/2 in (12.5 mm) | 77 | 100 | 100 | 100 | 100 | 95 | 95 | 88 | 100 | 100 | 7 | |
| 3/8 in (9.5 mm) | 52 | 97 | 100 | 100 | 100 | 90 | 90 | 83 | 97 | 100 | 7 | |
| #4 (4.75 mm) | 13 | 27 | 89 | 90 | 100 | 57 | 57 | 50 | 64 | 64 | 7 | |
| #8 (2.36 mm) | 4 | 6 | 52 | 59 | 100 | 38 | 38 | 33 | 43 | 43 | 5 | |
| #16 (1.18 mm) | 3 | 3 | 29 | 35 | 100 | 28 | 28 | 24 | 32 | 32 | 4 | |
| #30 (.600 mm) | 3 | 3 | 18 | 23 | 98 | 24 | 24 | 20 | 28 | 28 | 4 | |
| #50 (.300 mm) | 2 | 2 | 11 | 18 | 68 | 17 | 17 | 13 | 21 | 21 | 4 | |
| #100 (.150 mm) | 2 | 2 | 8 | 16 | 23 | 9 | 9 | 6 | 12 | 12 | 3 | |
| #200 (.075 mm) | 1.6 | 1.9 | 5.1 | 13.1 | 3.9 | 5.3 | 5.3 | 3.3 | 7.3 | 7.3 | 2 | |
| AC Content % | | | | | | 5.0 | 5.0 | 4.6 | 5.4 | 5.4 | 0.4 | |

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

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 |

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

| Tests on Compressed Mixtures (@ Design AC) | | | |
|--|--------|------------------|--------------------|
| | # Gyr. | % Density of Gmm | % Density Required |
| Nini | 6 | 87.3 | 85.5 - 91.5 |
| Ndes | 50 | | 96.0 |

| Tests on Aggregates | Required | Units |
|---------------------|----------|---------------------------------|
| Durability Index | 74 | 40 min. % |
| F.A.A. %U | N/A | % |
| Flat and Elongated | 0 | 10 max. % |
| Fractured Faces | 100/100 | 85/80 min. % |
| Insoluble Residue | 31.3 | 30 min. % |
| LA Abrasion | 27 | 40 max. % |
| Micro-Deval | 12.1 | N/A % |
| Permeability | 2 | 12.5 max. 10 ⁻⁵ cm/s |
| Sand Equivalent | 72 | 40 min. % |
| IOC | 0.36 | % |
| Gse | 2.711 | |
| Gsb | 2.669 | |
| Specimen Weight | 4850 | g |

| Tests on Compressed Mixtures | | | | | | | |
|------------------------------|-------|-------|------------------|--------------------|-------|----------------|---------|
| %AC | Gmb | Gmm | % Density of Gmm | % Density Required | % VMA | % VMA Required | % VFA |
| 4.4 | 2.409 | 2.524 | 95.4 | 95.4 | 13.7 | 13.7 | 66.4 |
| 4.9 | 2.397 | 2.504 | 95.7 | 96.0 / 94.5 - 97.4 | 14.6 | 14.5 / 14.0 | 70.5 |
| 5.4 | 2.426 | 2.485 | 97.6 | 97.6 | 14.0 | 14.0 | 82.9 |
| | | | | | | | 72 - 77 |

ITS (PSI) 123.1 N/A min.
TSR 0.96 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 110.0 @ 5.0 % Asphalt Cement

| Dust Prop. | Dust Prop. Req. |
|------------|-----------------|
| 1.4 | 0.6 - 1.6 |
| 1.2 | |
| 1.1 | |

Hamburg Rut Test Depth (mm) 7.84 12.50 max. @ 10,000 cycles
MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09

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|-------------------|--|
| Comments: | |
| Last Modified By: | Williams, Bobby Ray bwilli01 <i>(User Name and User ID)</i> |
| Date: | 2/6/2017 <i>(mm/dd/yyyy)</i> |