Version: V03.40

# 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)*

Cummins Const Co P/S # m00556
*(Producer/Supplier Name and Producer/Supplier Code)*

S3qc0101782500
*(Mix ID)*

Cummins Const Co (Woodward, OK) - 12000 lb Batch PLANT ID # m00556-14
*(Plant Name and Plant ID)*

| Aggregate | Producer/Supplier | % USED |
|---|---|---|
| #67 Rock | Dolese Co (Cooperton, OK) P/S # m002723801 | 25 |
| 3/8" Chips | Dolese Co (Cooperton, OK) P/S # m002723801 | 8 |
| Man. Sand | Martin-Marietta (Snyder, OK) P/S # m002323802 | 20 |
| Scrns. | Dolese Co (Cooperton, OK) P/S # m002723801 | 14 |
| Sand (Unlisted Source) | Loomis Sand Cleo Springs, OK | 8 |
| Fine R.A.P. | Contractor / Project Site P/S # Contractor | 25 |

**Asphalt Cement:** Asphaltic Cement Type PG 64-22 OK, acem003, Coastal Energy (Clinton, OK), m01042
*(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-

| Producer/Supplier: | Dolese Co (Cooperton, OK) P/S # m002723801 | Dolese Co (Cooperton, OK) P/S # m002723801 | Martin-Marietta (Snyder, OK) P/S # m002323802 | Dolese Co (Cooperton, OK) P/S # m002723801 | Loomis Sand Cleo Springs, OK | Contractor / Project Site P/S # Contractor | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sieve Size** | #67 Rock | 3/8" Chips | Man. Sand | Scrns. | Sand (Unlisted Source) | Fine R.A.P. | | | Comb. Agg. | *JMF* | *Min.* | *Max.* | *% Tol. (±)* |
| 1 in (25 mm) | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | ***100*** | *100* | *100* | *0* |
| 3/4 in (19 mm) | 98 | 100 | 100 | 100 | 100 | 100 | | | 100 | ***100*** | *93* | *100* | *7* |
| 1/2 in (12.5 mm) | 59 | 100 | 100 | 100 | 100 | 97 | | | 89 | ***89*** | *82* | *96* | *7* |
| 3/8 in (9.5 mm) | 31 | 95 | 100 | 100 | 100 | 85 | | | 79 | ***79*** | *72* | *86* | *7* |
| #4 (4.75 mm) | 5 | 12 | 95 | 91 | 100 | 75 | | | 61 | ***61*** | *54* | *68* | *7* |
| #8 (2.36 mm) | 3 | 4 | 70 | 59 | 100 | 55 | | | 45 | ***45*** | *40* | *50* | *5* |
| #16 (1.18 mm) | 2 | 2 | 41 | 37 | 100 | 42 | | | 33 | ***33*** | *29* | *37* | *4* |
| #30 (.600 mm) | 1 | 1 | 22 | 25 | 100 | 30 | | | 24 | ***24*** | *20* | *28* | *4* |
| #50 (.300 mm) | 1 | 1 | 10 | 18 | 80 | 20 | | | 16 | ***16*** | *12* | *20* | *4* |
| #100 (.150 mm) | 1 | 1 | 3 | 14 | 19 | 15 | | | 8 | ***8*** | *5* | *11* | *3* |
| #200 (.075 mm) | 0.9 | 1.3 | 2.6 | 12.1 | 4.5 | 9.5 | | | 5.3 | ***5.3*** | *3.3* | *7.3* | *2* |
| AC Content % | | | | | | 4.5 | | | 4.3 | ***4.3*** | *3.9* | *4.7* | *0.4* |

| | °F (°C) | Required |
|---|---|---|
| Mix temperature @ discharge from mixer: | 605 (318) | ± 20 °F (± 10 °C) |
| Optimum roadway compaction temperature: | 290 (143) | |
| Laboratory mixing temperature: | 325 (163) | |
| Laboratory compaction temperature: | 325 (163) | |

| 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 | 89.7 | 85.5 - 91.5 |
| Ndes | 50 | | 96.0 |

| Tests on Aggregates | | Required | | Units |
|---|---|---|---|---|
| Durability Index | 80 | 40 | min. | % |
| F.A.A. %U | | N/A | | % |
| Flat and Elongated | | 10 | max. | % |
| Fractured Faces | 100/100 | 85/80 | min. | % |
| Insoluble Residue | 11.8 | N/A | | % |
| LA Abrasion | 26 | 40 | max. | % |
| Micro-Deval | 9.8 | N/A | | % |
| Permeability | 2.5 | 12.5 | max. | $10^{-5}$cm/s |
| Sand Equivalent | 73 | 40 | min. | % |
| IOC | 0.34 | | | % |
| Gse | 2.682 | | | |
| Gsb | 2.663 | | | |
| Specimen Weight | 4800 | | | g |

**Tests on Compressed Mixtures**

| %AC | Gmb | Gmm | % Density of Gmm | % Density Required Design / Field | % VMA | % VMA Required Design / Field | % VFA | % VFA Required |
|---|---|---|---|---|---|---|---|---|
| 3.8 | 2.371 | 2.523 | 94.0 | | 14.3 | | 58.0 | |
| 4.3 | 2.404 | 2.504 | 96.0 | 96.0 / 94.5 - 97.4 | 13.6 | 13.5 / 13.0 | 70.6 | 70 - 75 |
| 4.8 | 2.418 | 2.485 | 97.3 | | 13.6 | | 80.1 | |

| Dust Prop. | Dust Prop. Req. |
|---|---|
| 1.5 | 0.6 - 1.6 |
| 1.3 | |
| 1.2 | |

ITS (PSI) 144.4 N/A min.
TSR 0.85 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 110.1 @ 4.3 % Asphalt Cement
3.2 % New Asphalt Cement

**Hamburg Rut Test Depth (mm)** 2.53 #N/A

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

**Comments:**

**Last Modified By:** Suitor, Kevin ksuitor
*(User Name and User ID)*

**Date:** 3/14/2018
*(mm/dd/yyyy)*