SECTION 202 – FINE AGGREGATE

2/07/2025

**202.01 – Description**

These specifications cover material for use as fine aggregate in the production of hydraulic cement concrete, mortar, asphalt concrete, and asphalt surface treatments. Fine aggregate shall be from quarries on the Department’s Approved List No. 5.

**202.02 – Materials**

Fine aggregate is classified herein according to its natural occurrence or method of manufacture as natural sand or stone sand. Natural sand shall consist of grains of hard, sound material, predominantly quartz, occurring in natural deposits or in loosely-bound deposits, such as sandstone conglomerate. Stone sand shall consist of sound crushed particles of approved Grade A stone, essentially free from flat or elongated pieces, with sharp edges and corners removed.

Fine aggregates for use in hydraulic cement concrete that are obtained from more than one source shall not be used alternately or mixed without the Engineer’s approval.

Lightweight aggregate may also be used as a fine aggregate and shall conform to Section 206.

**202.03 – Detail Requirements**

1. **Grading:** Grading shall conform to the requirements of Table II-1. Tests to verify conformity shall be performed in accordance with AASHTO T27.

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| **TABLE II-1****Fine Aggregate** |
| **Grading** | Amounts Finer Than Each Laboratory Sieve (% by Weight) |
| **3/8 in.** | **No. 4** | **No. 8** | **No. 16** | **No. 30** | **No. 50** | **No. 100** | **No. 200** |
| A | Min. 100 | 95-100 | 80-100 | 50-85 | 25-60 | 5-30 | Max. 10 |  |
| B | Min. 100 | 94-100 |  |  |  |  | Max. 10 |  |
| C | Min. 100 | 94-100 |  |  |  | Max. 25 |  |  |

1. **Soundness:** Soundness shall conform to the requirements of Table II-2. Tests to verify conformity shall be performed in accordance with AASHTO T103 or T104.

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| **TABLE II-2****Soundness** |
| **Use** | **Max. Soundness Loss (%)** |
| **Magnesium Sulphate (5 Cycles)** | **Freeze and Thaw (100 Cycles)** |
| Hydraulic cement concrete | 18 | 8 |
| Asphalt concrete surfaces and surface treatments | 25 | 15 |
| Asphalt concrete base mixes | 30 | 15 |

1. **Organic Impurities:** When fine aggregate is used in hydraulic cement concrete, the percentage of organic impurities shall conform to the requirements of AASHTO T21; however, material producing a darker color than that specified in AASHTO T21 may be accepted in accordance with AASHTO M6.
2. **Void Content:** Void content shall be tested to verify conformity in accordance with AASHTO T304 .
3. **Deleterious Material:**

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| The amount of deleterious material in sands shall be not more than the following:

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| **Material**  | **% by Weight**  | **AASHTO** **Test Method**  |
| Clay lumps  | 0.25  | T 112  |
| Shale, mica, coated grains, or soft or flaky particles  | 1.0  | T 113  |
| Organic material  | 0  | T 21  |
| Total material passing No. 200 sieve by washing1,2  |   | T 11 and T 27  |
| For use in concrete subject to abrasion  | 3  |   |
| For other concrete  | 5  |   |
| 1In the case of stone sand, if the material passing the No. 200 sieve is dust of fracture, essentially free from clay and shale, the percentages shown for use in concrete subject to abrasion and in other concrete may be increased to 5% and 7%, respectively. 2In the case of blends of stone sand and natural sand, provided the natural sand contains no greater than 3% passing the No. 200 sieve for use in concrete subject to abrasion and no greater than 5% for other concrete, then the stone sand limits of 5% and 7% shall apply to the blend.  |

1. Specific Gravity: Specific gravity will be tested in accordance with AASHTO T84.
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| **TABLE II-1****Fine Aggregate** |
| **Grading** | Amounts Finer Than Each Laboratory Sieve (Square Opening) (% by Weight) |
| **3/8 in.** | **No. 4** | **No. 8** | **No. 16** | **No. 30** | **No. 50** | **No. 100** | **No. 200** |
| A | Min. 100 | 95-100 | 80-100 | 50-85 | 25-60 | 5-30 | Max. 10 |  |
| B | Min. 100 | 94-100 |  |  |  |  | Max. 10 |  |
| C | Min. 100 | 94-100 |  |  |  | Max. 25 |  |  |

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| **TABLE II-2****Soundness** |
| **Use** | **Max. Soundness Loss (%)** |
| **Magnesium Sulphate (5 Cycles)** | **Freeze and Thaw (100 Cycles)** |
| Hydraulic cement concrete | 18 | 8 |
| Asphalt concrete surfaces and surface treatments | 25 | 15 |
| Asphalt concrete bases | 30 | 15 |