

SECTION 32 12 16.27
FIBER-REINFORCED ASPHALT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fiber reinforcement for asphalt cement concrete.

1.2 RELATED SECTIONS

- A. Section 32 12 16 Asphalt Paving.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. To be determined or from other sections reference.

1.4 SUBMITTALS

- A. Submit manufacturer's literature for fibers including:
 - 1. Product data
 - 2. Brochures
 - 3. Written instructions to suppliers
 - 4. Written instructions to installers
 - 5. Safety Data Sheets (SDS).
- B. Submit certificate prepared by asphalt material supplier, under provisions of Division 01, stating that the specified fibers were added to each batch of asphalt delivered to the project site. Each certificate should be accompanied by one copy of each batch delivery ticket indicating product name, manufacturer and quantity of fiber-reinforcement added to each asphalt load.

1.5 QUALITY ASSURANCE

- A. Fiber manufacturer to provide technical assistance from design through construction for use of fiber reinforcement.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fiber-reinforcement in sealed, undamaged containers with labels intact and legible, indicating material name and lot number.
- B. Deliver fiber-reinforcement to location where it will be added to each batch or loaded into the mixer.
- C. Store materials covered and off the ground. For ease of handling, do not allow boxes to become wet.

PART 2 PRODUCTS

- 2.1 MANUFACTURER** listed was used as design basis and not mandatory. Contractor can furnish like product from other manufacturers:

- A. FORTA Corporation
100 FORTA Drive
Grove City, PA 16127
(800) 245-0306
www.fortacorp.com
www.forta-fi.com

2.2 MATERIALS

- A. Fiber reinforcement with virgin polyolefins and virgin aramids.
- B. Fiber Reinforcement: fibers with the following typical physical properties:
 - 1. Nominal Specific Gravity (Bulk Relative Density): 0.91 and 1.44
 - 2. Nominal Material Types: Virgin Polyolefins and Virgin Aramid
 - 3. Maximum Length: 0.75 inch
 - 4. Match fiber blend of materials to application installation types:
 - i. Hot Mix Asphalt is designated blend HMA

2.3 BATCHING AND MIXING

- A. To avoid the formation of fiber balls or not mixed fibers, add sealed plastic bags of fibers into the mixer.
- B. Add fiber-reinforcement at 1.0 pound per ton.
- C. Order product for Pug Mill Mixers for minimum batch size regarding tons per batch to pounds per bag of product.
- D. Order product for Drum Type Mixers and the anticipated production rate of tons per hour (typically seconds per ton, dosage timing) regarding 1-pound per bag of product.
- E. Order fiber reinforcement materials for 1 pound per ton of asphalt materials and allowing for overages, mock-ups, production, and occasional errors based on your experience.

2.4 PUG MILL MIXERS AND MIXING OPERATIONS

- A. Ensure adequate start, stop, and dosage change information is easily communicated between batch control operations and fiber addition activities.
- B. Add complete bags of fibers just before aggregate is discharged into the pug mill mixer.
 - C. Immediately before or immediately after the dried aggregate is added to the pug mill, the bags of fibers should be added and discharged into the pug mill with the aggregate.
- D. Add complete bags of fibers at the general nominal batch size agreed to by operations and mixture design specifications.
- E. Do NOT open the bags and add or discharge into the pug mill.
- F. Dry mixing proceeds for the standard length of time as specified in the mixture design specifications.
- G. The proper quantity of bitumen (asphalt cement, liquid) is added to the pug mill and wet mixing proceeds for the standard length of time as specified in the design mixture specifications.
- H. The asphalt batch is accumulated and discharged normally.

- I. The asphalt batch is discharged to a haul vehicle or storage.

2.5 DRUM TYPE MIXERS AND MIXING OPERATIONS

- A. Ensure adequate start, stop, and rate change information is easily communicated between drum control operations and fiber addition activities.
- B. Add complete bags of fiber at a point in the mixing process after fines collection and before the addition of liquid asphalt.
- C. Add fibers after the fines collection to ensure the fibers do not clog filters.
- D. Add fibers before the liquid asphalt addition.
- E. Add complete bags of fibers at the general nominal rate agreed to by operations and mixture design specifications.
- F. Do NOT open the bags at any point in the loading process.
- G. Mixing should proceed for the standard length of time as specified in the mixture design specifications.
- H. The proper quantity of bitumen (asphalt cement, liquid) is added to the drum and wet mixing proceeds for the standard length of time as specified in the mixture design specifications.
- I. The asphalt batch is accumulated and discharged normally.
- J. The asphalt batch is discharged to a haul vehicle or storage.

PART 3 EXECUTION

3.1 PLACEMENT

- A. Discharge fiber reinforced asphalt cement concrete into locations as directed and in accordance with the project.
- B. Place asphalt cement concrete in accordance with provision of other Sections and with additional instructions as follows.
- C. Avoid over-using long tine rakes or other tools that will align fibers or disrupt the homogeneous, uniform 3-dimensional, fiber dispersion when moving asphalt cement concrete.
- D. Using a lute, "come along", or a flat tined pitch-fork (potato-fork) may be useful for moving asphalt cement concrete.
- E. Remove any observed fiber balls from mixture if they occur.
- F. Adjust operations regarding any observed fiber balls.

3.2 COMPACTION

- A. Verify timing for initial and final compaction on more than a visual determination.
- B. Hand Compaction/Finishing: use appropriate tools as required.

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