

## Item C826 - Asphalt Concrete with Fibers

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**C826.1 General.** This work consists of constructing a surface course and/or an intermediate course of aggregate, fiber and asphalt cement mixed in a central plant and spread and compacted on a prepared surface. The requirements of ODOT Items 441, 442, 448 and Item C441 apply, except as modified by this specification.

**C826.2 Fibers.** Use fibers specifically manufactured and drawn for use in asphalt concrete mixes. Use the specified fiber type conforming to the following requirements:

Fiber Type	A	B	C
Material	polyester	polypropylene	aramid
Denier; ASTM D 1577*	$4.5 \pm 1.5$	$4 \pm 1$	n/a
Length, inch (mm)	$0.25 \pm 0.02$ ( $6.35 \pm 0.51$ )	$0.39 \pm 0.08$ ( $9.91 \pm 2.0$ )	$0.75 \pm 0.13$ ( $19.0 \pm 3.2$ )
Crimps; ASTM D 3937	None	None	None
Tensile strength, minimum, psi (Mpa); ASTM D 2256*	70,000(483)	40,000(276)	400,000(2760)
Specific gravity	$1.36 \pm 0.04$	$0.91 \pm 0.04$	$1.44 \pm 0.05$
Melting temperature, minimum, °F (°C)	475(246)	320(160)	800(427)

\*This data must be obtained prior to cutting the fibers.

Furnish fibers according to the ODOT Qualified Products List (QPL). Ensure Type A and B fibers have a uniform singular color of white to light gray. Furnish Type C fibers intended for use in asphalt concrete mixes. Ensure Type C fibers are blended with 3/4 inch (19 mm) fibrillated polyolefin fibers or wax coated to ensure proper distribution in the mix.

During production, the Contractor will obtain a random 0.5-pound (250 gram) sample of the finished fibers for each 24,000 pounds (11,000 kg) of fiber used. Forward the sample to the City's testing contractor.

**C826.3 Composition.** Design the mix in accordance with ODOT 441.02 or ODOT 442.02. Add Type A or B 6.0 pounds per ton (3.0 kg/metric ton) of total mix. Add Type C fibers at the rate of 1.8 to 4.0 ounces (60 to 113 g) of pure aramid fiber, not including the weight of any polyolefin fibers or coating, per ton (metric ton) of total mix.

Use no more than 10 percent reclaimed asphalt concrete pavement. Do not use recycled asphalt shingles.

**C826.4 Mixing.** Prior to the start of full production, produce a test batch of fiber asphalt concrete to demonstrate to City Testing how the fibers will be introduced and mixed into the asphalt concrete. Achieve satisfactory results before beginning full production. If during production an unsatisfactory mix is produced, cease production until a satisfactory test batch is produced.

When a batch type plant is used, add fibers according to the manufacturer’s recommendation to the heated aggregate prior to introduction of the asphalt binder. Mix the aggregate and fibers dry for a minimum of 10 seconds after introduction of the fibers. The Laboratory may increase this mixing time if satisfactory results are not obtained.

When a drum mix type plant is used, introduce the fibers into the aggregates by the reclaimed material feed system or by an adjustable pipe near the asphalt feed pipe.

For Fiber Type B mixes, ensure the temperature of the aggregate and asphalt binder does not exceed 295 °F (146 °C) where the fiber is introduced.

**Asphalt Concrete with Fibers QA/QC Requirements:**

Furnish all materials, equipment, labor, and incidentals for mixing aramid fiber into HMA or WMA per ODOT Supplemental Specification 826 Type C fibers.

Additionally, aramid fibers must be treated to prevent them from becoming airborne during the mixing process, and the treatment must become soluble in the asphalt. Treated aramid fiber shall be continuously fed and mixed into HMA or WMA per dosage and mixing requirements of ODOT specification. A certified QA/QC mixing technician shall perform continuous feeding of the treated aramid fibers into the asphalt during plant mixing operations for all of the Fiber Reinforced HMA/WMA quantities required for the project, and a P.E. stamped certification report shall be submitted upon project completion.

**C826.5 Basis of Payment.** The price bid for this item shall include all labor and equipment incidental to the construction of the asphalt concrete pavement with fibers according to these specifications.

Payment will be made at the unit price bid:

<b>Item</b>	<b>Unit</b>	<b>Description</b>
826	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, Type 1, (448), Fiber Type
826	Cubic Yard (Cubic Meter)	Asphalt Concrete Intermediate Course Type 2, (448), Fiber Type
826	Cubic Yard (Cubic Meter)	Asphalt Concrete Surface Course, 442 12.5mm, (448), Fiber Type
826	Cubic Yard (Cubic Meter)	Asphalt Concrete Intermediate Course 442 19mm, (448), Fiber Type