

**ITEM 400HS STANDARD SPECIFICATION FOR  
ASPHALT CONCRETE - HIGH STRESS  
USING GILSONITE**

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*This Specification has been developed by Flexible Pavements, Inc., an Association for the development, improvement and advancement of quality asphalt pavement construction in Ohio. The most current update of this document can be obtained by contacting Flexible Pavements, Inc. at 1-888-4 HOT MIX.*

**400HS.01 General**

**400HS.02 Composition**

**400HS.03 Acceptance**

**400HS.04 Basis of Payment**

**400HS.01 General.** This work shall consist of furnishing, placing and compacting surface or intermediate courses of hot mix asphalt, designed for high stresses, on a prepared surface in accordance with these specifications and in reasonably close conformity with the lines, grades, and typical sections shown on the plans or established by the owner representative.

Where reference is made to ODOT requirements, the requirements of The Ohio Department of Transportation, Construction and Materials Specifications, current edition shall apply.

Hot mix asphalt shall be placed by weight per unit of area as determined by the thickness shown on the plans or in the proposal and weight to volume conversion factors specified under method of measurement, ODOT, 401.17.

The requirements of ODOT, 441 and 446 shall apply; deviations from these are as shown.

Tack coat, when required, and the use of reclaimed material also shall meet ODOT requirements.

When used in this specification, the term "owner" is to be understood as the entity having ownership of the facility for which the work has been contracted.

**400HS.02 Composition.** The hot mix asphalt mixture designed for high stresses shall be composed of aggregate, asphalt binder and gilsonite. Aggregate and asphalt binder shall meet ODOT requirements. Gilsonite shall meet the manufacturers' requirements as detailed in the mixture specifications provided herein.

The contractor shall furnish a JMF (Job Mix Formula) or ODOT Bituminous Concrete Data Sheet suitable for the purpose of pavement construction. The JMF shall be established within the composition limits for the high stress mixture. Prior to producing material for this contract, the contractor shall submit to the owner representative, for approval, a JMF or data sheet. The JMF shall include the mix type being used, aggregate type and gradation, percentage of asphalt binder by weight of mixture, grade of asphalt binder, source of the gilsonite and unit weight of the mixture. The JMF, or data sheet, shall have previously been approved for use on ODOT work. Where no previously approved JMF is available, one shall be developed meeting all criteria established herein and shall be reviewed by an independent testing laboratory prior to submission to the owner representative. The person performing the review for the testing laboratory must be of its employ and shall have a current Level II Bituminous Concrete Certification from the Ohio Department of Transportation. The independent testing laboratory shall certify to the owner the mix design is accurate, complete, and meets the requirements of this specification. Costs for performing this review shall be included in the price per unit of mix.

For surface courses except where noted below, the gradation and mixture requirements of ODOT, 441, type 1H shall apply. Intermediate course mixtures, except where noted below, shall meet the gradation and mixture requirements of ODOT, 441, type 2.

Mixtures shall be designed for HEAVY traffic.

Coarse aggregate retained on the 4.75 mm (No. 4) sieve shall be a minimum of 100% mechanically crushed particles (ODOT Mechanical Crush Definition).

A maximum of 10% natural sand may be used.

Mixture composition shall be modified by the addition of Gilsonite. The bituminous material shall be 92% asphalt cement and 8% Gilsonite asphalt modifier. The contractor shall furnish the manufacturer's certification that the Gilsonite meets the following specification requirements:

Granular Solid	
Softening Point, ASTM E28-51T	330° - 350°F
Specific Gravity	1.045 ± 0.015
Penetration @ 77°F, 100 gm, 5 sec.	0
Color	Black
Flash Point, COC	550°F min.

The Gilsonite shall be added to the asphalt concrete using one of the following methods:

- a) Blended into the liquid asphalt cement in a mechanically agitated tank heated to a minimum temperature of 345°F.
- b) Added to the batch plant pugmill during the dry cycle and increasing the mix time by 15 to 20 seconds per batch.
- c) Added to a dryer drum plant through the recycle ring or dry mineral feeder.

The asphalt binder, prior to the addition of the Gilsonite, shall meet PG 64-22.

A maximum of 10% of reclaimed asphalt concrete pavement or reclaimed bituminous aggregate base may be used.

The proposed JMF shall be a design which has been properly modified to incorporate the Gilsonite.

**400HS.03 Acceptance.** Acceptance of the mixture shall be in accordance with ODOT, 446.05, except that an independent testing laboratory shall test the cores in accordance with ODOT Supplement 1036 and report the data to the owner's representative for the purpose of calculating the pay factor. The person testing the cores shall have a current Level I Bituminous Concrete Certification from the Ohio Department of Transportation. Costs for the acceptance testing shall be included in the price per unit of mix.

Table A of ODOT, 446.05 shall be modified as follows:

**Mean of 10 cores as percent of daily MSG**

93.0% or greater	1.00
92.0% to 92.9%	0.97
91.0% to 91.9%	0.94
90.0% to 90.9%	0.88
Less than 90.0%	*

\*The owner will determine whether the material will remain in place. The pay factor for such material allowed to remain in place will be 0.70.

**400HS.04 Basis of Payment.** Payment for accepted quantities of mix, complete in place, will be made at the contract price for:

<b>Item</b>	<b>Unit</b>	<b>Description</b>
400HS	Cubic Yard	Asphalt Concrete - High Stress, Surface Course
400HS	Cubic Yard	Asphalt Concrete - High Stress, Intermediate Course