

**ASPHALT CONCRETE FRICTION COURSES - FUEL RESISTANT ASPHALT.**  
**(REV 6-23-21)**

SECTION 337 is deleted and the following substituted for locations of fuel resistant asphalt friction course as delineated in the Plans. DEV337FRA does not apply for any other friction courses delineated in the Plans:

**SECTION 337**  
**ASPHALT CONCRETE FRICTION COURSES - FUEL RESISTANT ASPHALT**

**337-1 Description.**

Construct a Fuel Resistant asphalt concrete friction course pavement with the type of mixture specified in the Contract Documents.

Obtain Fuel Resistant asphalt concrete friction course from a plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105. Producers must meet the plant and equipment requirements of Section 320, as modified herein. Meet the general construction requirements of Section 330, as modified herein.

**337-2 Materials.**

**337-2.1 General Requirements:** Meet the requirements specified in Division III as modified herein. The Engineer will base continuing approval of material sources on field performance. Warm mix technologies (additives, foaming techniques, etc.) listed on the Department's website may be used in the production of the mix.

**337-2.2 Asphalt Binder:** Use a PG 88-22 (FR) binder meeting the requirements of Section 916.

**337-2.3 Coarse Aggregate:** Meet the requirements of Section 901, and any additional requirements or modifications specified herein for the various mixtures.

**337-2.4 Fine Aggregate:** Meet the requirements of Section 902, and any additional requirements or modifications specified herein for the various mixtures.

**337-2.5 Hydrated Lime:** Meet the requirements of AASHTO M 303-89 (2010), Type 1. Provide certified test results for each shipment of hydrated lime indicating compliance with the specifications.

**337-2.6 Liquid Anti-strip Additive:** Meet the requirements of 916-4 and be listed on the Department's Approved Product List (APL).

**337-3 General Composition of Mixes.**

**337-3.1 General:** Use a bituminous mixture composed of aggregate (coarse, fine, or a mixture thereof), asphalt binder, and if necessary, hydrated lime or a liquid anti-strip additive. Size, uniformly grade and combine the aggregate fractions in such proportions that the resulting mix meets the requirements of this Section.

**337-3.2 Specific Component Requirements by Mix:** Use an aggregate blend of approved friction course aggregates that consists of crushed granite, crushed granitic gneiss, crushed limestone, crushed shell rock, or a combination of the above. As an exception, mixes that contain a minimum of 60% of approved friction course aggregates of crushed granite and/or crushed granitic gneiss may either contain: up to 40% fine aggregate from other sources of

aggregate not approved for friction courses. Mixtures utilizing PG 88-22 (FR) binder are not allowed to contain RAP.

A list of aggregates approved for use in friction course may be available on the Department's website. The URL for obtaining this information, if available, is:  
<https://mac.fdot.gov/>.

**337-3.3 Grading Requirements:** Meet the design gradation requirements for a Type SP-Fuel Resistant Superpave fine mixture, as defined in 334-3.2.2.

#### **337-4 Mix Design.**

Provide a mix design conforming to the requirements of 334-3.2 unless otherwise designated in the plans. All mix design revisions must meet the requirements of 334-3.3.

#### **337-5 Contractor's Process Control.**

Provide the necessary process control of the friction course mix and construction in accordance with the applicable provisions of 320-2, 330-2 and 334-4.

The Engineer will monitor the spread rate periodically to ensure uniform thickness. Perform quality control procedures for daily monitoring and control of spread rate variability. If the spread rate varies by more than 5% of the spread rate set by the Engineer in accordance with 337-8, immediately make all corrections necessary to bring the spread rate into the acceptable range.

#### **337-6 Acceptance of the Mixture.**

Meet the requirements of 334-5.

#### **337-7 Special Construction Requirements.**

##### **337-7.1 Temperature Requirements:**

**337-7.1.1 Air Temperature at Laydown:** Meet the requirements of Table 330-1.

**337-7.1.2 Temperature of the Mix:** Heat and combine the asphalt binder and aggregate in a manner to produce a mix having a temperature, when discharged from the plant, meeting the requirements of 320-6.3. Meet all requirements of 330-6.1.3 at the roadway.

**337-7.2 Prevention of Adhesion:** To minimize adhesion to the drum during the rolling operations, the Contractor may add a small amount of liquid detergent to the water in the roller.

At intersections and in other areas where the pavement may be subjected to cross-traffic before it has cooled, spray the approaches with water to wet the tires of the approaching vehicles before they cross the pavement.

**337-7.3 Transportation Requirements of Friction Course Mixtures:** Cover all loads of friction course mixtures with a tarpaulin, or waterproof cover, meeting requirements of 320-7.

#### **337-8 Thickness of Friction Courses.**

The thickness of the friction course layer will be the plan thickness as shown in the Contract Documents. For construction purposes, the plan thickness will be converted to spread rate as defined in 334-1.3.

Plan quantities are based on a  $G_{mm}$  of 2.540, corresponding to a spread rate of 110 lbs/yd<sup>2</sup>-in. Pay quantities will be based on the actual maximum specific gravity of the mix being used.

### **337-9 Failing Material.**

Meet the requirements of 334-5.9.

### **337-10 Method of Measurement.**

For the work specified under this Section (including the pertinent provisions of Sections 320 and 330), the quantity to be paid for will be the weight of the mixture, in tons. The pay quantity will be based on the quantity placed on the project, limited to 105% of the adjusted plan quantity for the pay item. The adjusted plan quantity will be determined by dividing the pay item's original plan quantity (including any Engineer approved quantity revisions) by the design  $G_{mm}$  stated in 334-1.3, then multiplying it by the tonnage-weighted average  $G_{mm}$  of the mixes used for the pay item.

The bid price for the asphalt mix will include the cost of the asphalt binder (asphalt cement, anti-stripping agent, additives, blending and handling) and the tack coat application as directed in 300-8. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix. The weight will be determined as provided in 320-3.2 (including the provisions for the automatic recordation system).

Prepare and submit a Certification of Quantities to the Engineer in accordance with 9-2.1.2.

### **337-11 Basis of Payment.**

**337-11.1 General:** Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

Meet the requirements of 334-8.

Based upon the quality of the material, a pay adjustment will be applied to the bid price of the material as determined on a LOT by LOT basis. The pay adjustment will be assessed by calculating a Pay Factor for individual quality characteristics. The pay adjustment will be computed by multiplying a Composite Pay Factor for the LOT by the bid price per ton.

**337-11.2 Payment:** Payment will be made under:

Item No. 914-337- Fuel Resistant Asphalt Concrete Friction Course - per ton.