



SECTION 1071

ASPHALT RELEASE AGENTS, FIBER ADDITIVES AND LIQUID ANTI-STRIP ADDITIVES

1071.1 Scope. This specification covers asphalt release agents for use in coating truck beds and bituminous mixture additives.

1071.2 Acceptance. All material under this specification shall be obtained from a source identified on the Pre-Acceptance List designated for this specification. All material will be inspected and accepted in accordance with [Sec 106](#).

1071.3 Asphalt Release Agent. The asphalt release agent shall not be detrimental to bituminous mixtures and shall not dissolve asphalt binder when applied to the truck bed.

1071.3.1 Physical Properties. The following physical properties shall be determined.

1071.3.1.1 Unit Weight. The weight per gallon shall be determined in accordance with AASHTO T 59, *Weight per Gallon of Emulsified Asphalt*.

1071.3.1.2 Solids. The percent solids shall be determined in accordance with ASTM D 1644, Method A.

1071.3.1.3 Acidity or Alkalinity Level (pH). The pH of the undiluted agent shall be determined by appropriate methods.

1071.3.1.4 Asphalt Miscibility. When tested in accordance with MoDOT Test Method TM 63, the asphalt release agent shall show no evidence of dissolving the asphalt binder.

1071.3.2 Dilution. Dilution by diesel or other petroleum products will not be permitted.

1071.3.3 Documentation. The manufacturer shall submit a certification and guarantee to Construction and Materials prior to initial approval showing the brand name and designation, the composition or description of the release agent, and the manner in which the material will be identified on the containers. The manufacturer shall certify that the material is in accordance with this specification and shall list typical values of current tests for the properties listed in [Sec 1071.3.1](#). The certified test report shall show the manufacturer's name, brand name of material, lot and date tested. The manufacturer shall also submit a one-quart sample accompanied by an MSDS for the material. In addition, the manufacturer shall furnish information for any dilution requirements, including the minimum dilution rate and special application requirements.

1071.3.4 Packaging and Marking. The containers in which release agents are delivered shall be plainly marked with the manufacturer's name, the brand name and designation of the material, lot number and net quantity. Special applicators and dilution rates shall be designated on the container. Bulk shipments shall be accompanied by a delivery ticket showing this information.

1071.4 Bituminous Mixture Fiber Additives. Fibers for stone matrix asphalt mixture may be either cellulose or mineral fiber, and shall be in accordance with AASHTO MP8, Table 3

for cellulose fibers, or Table 4 for mineral fibers when tested in accordance with MoDOT Test Method TM 60.

1071.4.1 Documentation. The manufacturer shall submit a certification and guarantee to Construction and Materials prior to initial approval, showing the brand name and designation, the composition or description of the fibers, and the manner in which the material will be identified on the containers. The manufacturer shall certify that the material is in accordance with this specification and shall list typical values of current tests for the properties listed in AASHTO MP8. The certified test report shall show the manufacturer's name, brand name of material, lot and date tested. The manufacturer shall submit at least a 5-pound sample accompanied by an MSDS for the material.

1071.4.2 Packaging and Marking. The containers in which fibers are delivered shall be plainly marked with the manufacturer's name, the brand name and designation of the material, lot number and net quantity. Bulk shipments shall be accompanied by a delivery ticket showing this information.

1071.5 Liquid Anti-Strip Additives. Liquid anti-strip additives shall not be detrimental to the bituminous mixture.

1071.5.1 Physical Properties. Amine-type liquid anti-strip additives that are physically mixed with the asphalt binder will be classified as Type I. Latex-type liquid anti-strip additives that are applied to the aggregate will be classified as Type II. The following physical properties shall be determined for each type.

1071.5.1.1 Type I Liquid Anti-Strip Additives.

Test	Test Method
Specific Gravity @ 77 F	AASHTO T 228
Brookfield Viscosity 77 F using an RVT viscometer. The report shall include the corresponding test temperature, speed, spindle and model of instrument.	ASTM D2196
Pensky-Martens Closed Cup Flash Point or Cleveland Open Cup Flash Point	ASTM D93 AASHTO T 48
Infrared Spectrum (neat material)	Appropriate Method

1071.5.1.2 Type II Liquid Anti-Strip Additives.

Test	Test Method
Weight Per Gallon @ 77 F	ASTM D1475
Brookfield Viscosity 77 F using an RVT viscometer. The report shall include the corresponding test temperature, speed, spindle and model of instrument.	ASTM D2196
pH	Appropriate Method
Percent Solids	ASTM D1644 Method A
Infrared Spectrum (latex portion)	Appropriate Method

1071.5.2 Heat Stability. The additive shall be stable and shall not separate under all manufacturer listed storage and use temperatures. When Type I or Type II additives are blended with the proposed bituminous material to be used at the anticipated application rate, the blended material shall still meet all bituminous material specifications and shall be heat stable. Heat stability shall be established by comparing AASHTO T 283 specimens made by preparing three conditioned specimens using aged, blended material that has been held at 325 F for 96 hours and three conditioned specimens using fresh blended material. The

average tensile strength of conditioned specimens using aged material shall be compared with conditioned specimens made with fresh blended material. If the average conditioned strength of the mixture with aged material is less than 90 percent of the mixture with fresh blended material, the anti-strip additive will not be permitted for use. This requirement will also apply if tested on any specific mix design using the approved anti-strip additive.

1071.5.3 Unconditioned Strength. The anti-strip additive shall not significantly lower the unconditioned strength of AASHTO T 283 specimens. This shall be determined by preparing an additional six unconditioned specimens, three with and three without the liquid anti-strip additive. The average tensile strengths of unconditioned specimens shall be compared with specimens with and without the liquid anti-strip additive. If the average unconditioned strength of the mixture with the additive is less than 90 percent of the mixture without the additive, the anti-strip additive will not be permitted for use in that bituminous mixture.

1071.5.4 Documentation. The manufacturer shall submit a certification and guarantee to Construction and Materials prior to initial approval showing the brand name and designation, the composition or description of the anti-strip liquid, and the manner in which the material will be identified on the containers. The manufacturer shall certify that the material is in accordance with this specification and shall list typical values of current tests for the properties listed in [Sec 1071.5.1](#). A copy of the bituminous mix design used to test for heat stability and unconditioned strength shall be included with the test results. The certified test report shall show the manufacturer's name, brand name of material, lot and date tested. The manufacturer shall submit at least a one-gallon sample accompanied by an MSDS for the material.

1071.5.5 Packaging and Marking. The containers in which anti-strip liquids are delivered shall be plainly marked with the manufacturer's name, the brand name and designation of the material, lot number and net quantity. Bulk shipments shall be accompanied by a delivery ticket showing this information.