



## SECTION 409

### SEAL COAT

**409.1 Description.** This work shall consist of placing bituminous material followed by placing cover aggregate material.

**409.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Aggregate for Seal Coats <sup>a</sup>	1003

<sup>a</sup>The grade of aggregate will be specified in the contract.

**409.2.1** All limestone and dolomite shall be either pre-coated as specified herein or fog sealed in accordance with Sec 413.

**409.2.2** Asphalt binder shall meet the following criteria:

Asphalt Binder Requirements			
Tests on Asphalt Binder <sup>a</sup>	Test Method	Minimum	Maximum
Penetration @ 77°F	ASTM D 5	60	150
Elastic Recovery @ 50°F, %	AASHTO T 301	65	---

<sup>a</sup>These tests shall be done on the asphalt residue for emulsions and cutbacks.

**409.2.3** Pre-coating binder shall be in accordance with [Sec 1015](#) for PG binder or emulsions.

**409.3 Job Mix Formula.** Prior to placing the seal coat, the contractor shall submit the mix design to the engineer for approval.

**409.3.1** The mix design shall contain the following information:

- (a) Source, grade and certified test results for the asphalt binder.
- (b) Source, type (formation, etc.), ledge number if applicable, and gradation of the aggregate.
- (c) The grade and certified test results for the aggregate.
- (d) The application rate used to pre-coat the aggregate as allowed in [Sec 1003](#).
- (e) The percent binder application rate, gallons per square yard.
- (f) The aggregate application rate, pounds per square yard.

**409.3.2** The application rates shall not vary from the mix design by more than the following amounts:

<b>Material</b>	<b>Tolerance</b>
Asphalt Binder	- 0.05 to + 0.15
Aggregate	± 5

**409.4 Equipment.** Equipment shall be capable to perform the following:

- (a) Heating and applying bituminous material, measuring temperature of tank contents and continuously verify application rates. The calibration of the system shall be approved by the engineer prior to use, and the contractor shall furnish all equipment, material and assistance necessary if calibration is required.
- (b) Removal of loose aggregate from applied surface.
- (c) Seating of aggregate without causing aggregate fracture.
- (d) Accurately measuring and uniformly spreading the aggregate over the full width of the bituminous material.

**409.5 Construction Requirements.**

**409.5.1 Weather Limitations.** Bituminous material shall not be placed on any wet surface or when the ambient temperature or the temperature of the pavement on which it is to be placed is below 60 F. Temperatures shall be obtained in accordance with MoDOT Test Method TM 20.

**409.5.2 Surface Preparation.** The surface shall be thoroughly cleaned.

**409.5.3 Application of Bituminous Material.**

**409.5.3.1** Bituminous material shall be uniformly applied within the temperature range recommended by the manufacturer. Any bituminous material on adjacent Portland cement or asphaltic concrete pavements, curbs, bridges or any areas not specified to be sealed shall be removed by the contractor, at the contractor's expense.

**409.5.3.2** When pre-coating is required, the cover aggregate shall be pre-coated at a minimum rate of 0.5 percent residual asphalt by weight of aggregate.

**409.6 Traffic Control.**

**409.6.1** The contractor shall perform work in such a way as to avoid damage to vehicles resulting from asphalt or loose aggregate. Conformance with the specifications, standards and traffic control plan is considered a minimum effort and is not intended to absolve any liability for damage to vehicles as a result of construction operations. The contractor shall designate a responsible person for receiving and resolving damage claims from the public. This person shall be available, by telephone, during normal business hours Monday through Friday. The company name and contact information shall be posted as designated on the plans. The contractor shall submit a list of all damage claims and disposition to the engineer on a bi-weekly basis.

**409.6.2** The contractor shall provide contact information signs with their company name and phone number on a variable width by 24 inch tall sign with black lettering on an orange background. The first line shall state "CONTRACTOR" in uppercase 4 inch C highway font, the second line shall contain the contractor name in upper/lower case 4 inch B highway font

and the third line shall contain the contractor's phone number in 4 inch C highway font. Signs shall be posted near the beginning and end of the project limits as approved by the engineer.

**409.7 Basis of Acceptance.** Seal coat will be evaluated by the engineer based on the following criteria. Any of the following may be grounds for rejection:

(a) During normal traffic operations, the presence of any loose stone that may be picked off the surface by vehicles.

(b) During normal traffic operations, the presence of any dust that is a nuisance to adjoining properties or impairs visibility.

(c) During normal traffic operations, the presence of any bleeding or moderate tracking.

(d) Transverse or longitudinal construction joints from the chip seal application that are not straight and uniform and create a bump or poor riding joint.

(e) An asymmetric appearance seen in a chip seal surface characterized by longitudinal grooves or ridges in the surface.

(f) A surface not having complete aggregate coverage with holes or failures in the surface.

**409.8 Method of Measurement.** Final measurement of the completed seal coat will not be made except for authorized changes during construction, or where appreciable errors are found in the contract quantity. Where required, measurement of seal coat, complete in place, will be made to the nearest square yard. The revision or correction will be computed and added to or deducted from the contract quantity.

**409.9 Basis of Payment.** The accepted quantities of seal coat, in place, will be paid for at the contract unit price. No separate payment will be made for pre-coating aggregate, fog sealing or for providing and installing contact information signs.