



**MATERIAL SPECIFICATION FOR
EMULSIFIED ASPHALT PATCHING MATERIAL AND
PROPRIETARY COLD PATCHING MATERIAL**

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1153.01	SCOPE

This specification covers the requirements for the manufacturing of emulsified asphalt patching material and proprietary cold patching material (PCPM).

1153.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Material

OPSS 1003	Aggregates - Hot Mix Asphalt
OPSS 1151	Superpave and Stone Mastic Asphalt Mixtures

Ontario Ministry of Transportation Publications

MTO Laboratory Testing Manual:

LS-282	Method of Test for Quantitative Extraction of Asphalt Cement and Analysis of Extracted Aggregate from Bituminous Paving Mixtures
LS-289	Workability of Cold Patching Materials by Blade Resistance Method
LS-290	Cohesion of Cold Bituminous Patching Materials by Rolling Sieve Method

Other Publications

Environment and Climate Change Canada - Code of Practice for the Reduction of Volatile Organic Compound (VOC) Emissions from Cutback and Emulsified Asphalt, February 2017

1153.03 DEFINITIONS

For the purpose of this specification, the definitions in OPSS 307 apply.

1153.04 DESIGN AND SUBMISSION REQUIREMENTS

1153.04.01 Design Requirements

The emulsified asphalt patching material or PCPM shall meet all the requirements of this specification and shall maintain its effective properties in stockpile for a minimum period of eight months from the date of supply.

1153.04.02 Submission Requirements

1153.04.02.01 Emulsified Asphalt Patching Material

The emulsified asphalt patching material mixture composition shall be submitted to the Contract Administrator 7 Days before the start of the production. The following items shall also be included in the submission:

- a) Type and grade of asphalt emulsion, supplier and facility type, and location from which the asphalt emulsion is being supplied.
- b) A statement that the Volatile Organic Compound (VOC) content of the emulsified asphalt used in the mix is not more than the limit specified in the Code of Practice for the Reduction of Volatile Organic Compound (VOC) Emissions from Cutback and Emulsified Asphalt.
- c) Test results for the asphalt emulsion that demonstrate compliance to the requirements of the Asphalt Emulsion subsection.
- d) The aggregate supplier and location from which the aggregates are being supplied.
- e) Type of aggregate and test results for the aggregate that demonstrate compliance according to the Aggregates clause.
- f) Test results for percent of residual asphalt content and percent by mass of patching mixture, when tested according to LS-282, that demonstrate compliance according to the Composition clause.
- g) Testing results for the mixture property tests including stripping resistance, workability and cohesion.

1153.04.02.02 Proprietary Cold Patching Material

The following shall be submitted to the Contract Administrator at least 7 Days prior to the delivery of the PCPM:

- a) A copy of the manufacturer's product specification.
- b) A statement that the binder used has a Volatile Organic Compound (VOC) content not more than the limit specified in the Code of Practice for the Reduction of Volatile Organic Compound (VOC) Emissions from Cutback Asphalt and Emulsified Asphalt.
- c) The aggregate supplier and location from which the aggregates are being supplied.
- d) The type of aggregate and test results for the aggregate that demonstrate compliance according to the General clause.
- e) Test results for percent of residual asphalt content and percent by mass of patching mixture, when tested according to LS-282, that demonstrate compliance to the requirements of manufacturer's product specification.
- f) Testing results for the mixture property tests including stripping resistance, workability and cohesion.

1153.05 MATERIALS

1153.05.01 Emulsified Asphalt Patching Material

1153.05.01.01 Asphalt Emulsion

The asphalt emulsion type shall be selected to ensure compatibility with the aggregates to be used.

1153.05.01.02 Aggregates

The aggregates shall consist of a blend of coarse and fine aggregate such that not less than 85% of the portion passing a 4.75 mm sieve is natural sand.

The aggregates shall consist of clean, hard, durable particles according to the physical requirements for Superpave 12.5 according to OPSS 1003.

Gradation of aggregates used in the patching mixture shall be according to Table 1.

1153.05.01.03 Composition

The patching mixture shall contain between 3.7 to 5.5% residual asphalt content by mass. The percent residual asphalt shall be expressed as a percentage of the total mix.

The patching mixture shall meet the mixture property testing requirements according to Table 2 .

1153.05.02 Proprietary Cold Patching Material

1153.05.02.01 General

The PCPM shall be according to the manufacturer's product specification and the mix property testing requirement specified in Table 2, including the ingredients that were submitted to obtain Owner approval of the PCPM. The PCPM shall be either a summer or winter mix category as specified in the Contract Documents. The PCPM shall be supplied directly from the manufacturer's terminal without further blending or modification.

The aggregates used in the PCPM shall consist of clean, hard, durable particles meeting the physical requirements for Superpave 12.5 according to OPSS 1003.

All PCPM supplied shall be uniformly coated.

1153.07 PRODUCTION

1153.07.01 Emulsified Asphalt Patching Material

The mineral aggregates and asphalt emulsion shall be combined and mixed to provide a uniformly coated and homogeneous product according to Table 1.

Temperature of the emulsion and mixing temperature shall be as specified by the emulsion supplier.

1153.07.02 Proprietary Cold Patching Material

The composition of the mixture, temperature of the emulsion and mixing temperature shall be according to the manufacturer's product specification.

TABLE 1
Gradation of the Emulsified Asphalt Patching Mixture

MTO Sieve Designation	Percentage Passing By Mass
16.0 mm	100
12.5 mm	98 - 100
9.5 mm	85 - 100
4.75 mm	50 - 85
2.36 mm	35 - 65
1.18 mm	25 - 50
0.600 mm	15 - 40
0.300 mm	7 - 25
0.150 mm	2 - 13
0.075 mm	0 - 7

TABLE 2
Mixture Property Testing Requirements

Mixture Property	Testing Method	Acceptance Parameter	Acceptable Limit	Rejectable Limit
Stripping Resistance	LS-323	Percent Coating	≥ 75%	< 75%
Workability	LS-289	Workability Index	≤ 2,000 N	> 2,000 N
Cohesion	LS-290	Cohesion Index	≥ 60%	< 60%