



**Note: The MUNI published in November 2021 replaces OPSS 1312 COMMON, November 2008 with no technical content changes.**

**MATERIAL SPECIFICATION FOR  
LATEX MODIFIERS FOR USE IN CONCRETE**

---

**TABLE OF CONTENTS**

<b>1312.01</b>	<b>SCOPE</b>
<b>1312.02</b>	<b>REFERENCES</b>
<b>1312.03</b>	<b>DEFINITIONS</b>
<b>1312.04</b>	<b>DESIGN AND SUBMISSION REQUIREMENTS</b>
<b>1312.05</b>	<b>MATERIALS - Not Used</b>
<b>1312.06</b>	<b>EQUIPMENT - Not Used</b>
<b>1312.07</b>	<b>PRODUCTION - Not Used</b>
<b>1312.08</b>	<b>QUALITY ASSURANCE</b>
<b>1312.09</b>	<b>OWNER PURCHASE OF MATERIALS - Not Used</b>

**APPENDICES**

<b>1312-A</b>	<b>Commentary</b>
---------------	-------------------

<b>1312.01</b>	<b>SCOPE</b>
----------------	--------------

This material specification covers the requirements for latex modifiers for use in concrete.

**1312.01.01 Specification Significance and Use**

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

## **1312.01.02 Appendices Significance and Use**

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

## **1312.02 REFERENCES**

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

### **Ontario Ministry of Transportation Publications**

Laboratory Testing Manual:

LS-413 Method of Test for Non-Volatile Content of Chemical Admixtures, Latex Admixtures and Curing Compounds

LS-419 Method of Test for Evaluation of Latex Modifiers for Use in Concrete

### **ASTM International**

C 494/C 494M-05a Chemical Admixtures for Concrete

E 70-07 Test Method for pH of Aqueous Solutions with the Glass Electrode

### **Federal Highway Administration (FHWA)**

Report No. FHWA-RD-78-35 "Styrene Butadiene Latex Modifiers for Bridge Deck Overlay Concrete", K.C. Clear and B.H. Collar, April 1975

## **1312.03 DEFINITIONS**

For the purpose of this specification, the following definitions apply:

**Latex Modifier** means a dispersion of polymeric particles in water which, when added to concrete, decreases its permeability without significantly adversely affecting its other properties.

**1312.04                      DESIGN AND SUBMISSION REQUIREMENTS**

**1312.04.01                      Submission Requirements**

**1312.04.01.01                      Product Data**

Use of this product shall not commence until acceptance of the product has been received in writing from the Owner.

The following product data shall be submitted to the Owner for acceptance prior to its use.

- a) Trade name of product.
- b) Name of manufacturer and supplier.
- c) Generic description of the latex.
- d) Infrared spectra of the latex modifier determined according to the method described in Report No. FHWA-RD-78-35, Section VI.3.
- e) A list of all monomers and polymers charged during emulsion manufacture.
- f) Non-volatile content, pH, relative density, and viscosity of the latex together with the production tolerances.
- g) Test data and a test certificate from a certified laboratory showing compliance of the latex emulsion with the requirements of this specification.
- h) Manufacturer's Safety Data Sheets.

**1312.07                      PRODUCTION**

**1312.07.01                      Quality Control**

The acceptability of the latex modifier shall be determined by comparing the properties of a test concrete containing the latex modifier, to the properties of a reference concrete according to LS-419.

The testing shall be performed by a laboratory certified by an organization accredited by the Standards Council of Canada or by a laboratory participating in the Cement and Concrete Reference Laboratory at the National Institute of Standards and Technology correlation and inspection programs. When the certified laboratory is the manufacturer's laboratory, an Engineer employed by an independent certified laboratory shall witness the testing and affix their Engineer's seal and stamp to the test report verifying in writing the testing was performed according to this specification.

**1312.08                      QUALITY ASSURANCE**

**1312.08.01                      Sampling**

The Contractor shall supply a 1 litre sample of the latex emulsion to the Contract Administrator when requested. Samples shall be taken in the presence of the Contract Administrator.

The Contractor shall supply the sample containers. The containers shall be sufficiently strong and securely fastened.

All containers used for samples of materials controlled under WHMIS shall be appropriate for the materials being shipped and shall be labelled and accompanied with the relevant Material Safety Data Sheets.

Sample containers shall be triple-tight, leak-proof cans or pails that are inert to the material being sampled or suitable plastic containers of similar capacity that can be closed to prevent any leakage.

When labelling and identification requirements are not specified in the Contract Documents, the following minimum sample identification shall accompany the sample. Steps shall be taken to ensure the samples and the sample identification are not separated during transporting.

- a) Contract number.
- b) Name of Contractor and a contact person's name and telephone and fax numbers.
- c) Contract Administrator's name and telephone and fax numbers.
- d) Quantity and type of sample. When a sample consists of more than one item, each item shall be individually identified.
- e) Date sampled (i.e., yyyy-mm-dd).
- f) Date shipped (i.e., yyyy-mm-dd).
- g) Sample location.

#### **1312.08.02 Chemical and Physical Tests**

Testing for non-volatile content shall be according to LS-413.

Testing for relative density shall be according to ASTM C 494M, Section 18.4.

Testing for pH value, shall be according to ASTM E 70.

#### **1312.08.03 Acceptance or Rejection**

The material properties shall be according to the product data information submitted to the Owner at the time of the initial evaluation.

The non-volatile content shall be within  $\pm 1.0\%$  of the approved latex emulsion.

The relative density shall be within  $\pm 0.005$  of the approved latex emulsion.

The pH shall be within  $\pm 1.0$  pH units of the pH of the approved latex emulsion.

Material represented by a quality assurance sample failing to meet the requirements of this specification shall be rejected.

**Appendix 1312-A, November 2021  
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

**Note:** This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

**Designer Action/Considerations**

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

**Related Ontario Provincial Standard Drawings**

No information provided here.