YEAR 2023 CCIL CORRELATION

MIX COMPLIANCE (ON QC)

SAMPLES

Two bulk samples, one identified as Material **MC-I-N or III-N** and the other as Material **MC-II-N or IV-N**, have been provided. Each of these samples shall be tested individually, i.e., do not combine them.

TESTING

On receipt, each sample shall be warmed, and a representative portion obtained by quartering or using a riffle splitter. Two replicates of this representative portion shall then be tested as per LS-264, (latest revision) "Method of Test for Theoretical Maximum Relative Density of Bituminous Paving Mixtures"

Sufficient material from each sample shall then be heated to the appropriate temperature to prepare three briquettes. The briquette specimens shall be prepared as per LS-261 (latest revision), "Method of Test for Preparation of Marshall Specimens". Trough, moulds and hammers shall be preheated to 135 ± 5°C.

For **MC-I-N**, use a briquette mass **1250 ± 25 g** and the compaction temperature of **133°C**
For **MC-II-N**, use a briquette mass **1250 ± 25 g** and the compaction temperature of **133°C**

For **MC-III-N**, use a briquette mass **1240 ± 25 g** and the compaction temperature of **133°C**
For **MC-IV-N**, use a briquette mass **1250 ± 25 g** and the compaction temperature of **135°C**

Note 1: With the manual hammer, the following should be noted: (a) the compaction pedestal must be secured; (b) the timing of blows for the 75 blows should be 60 blows per minute (plus or minus 5 blows); (c) the hammer should be allowed to rebound between successive blows.

Thereafter the specimens shall be tested for:

1. Bulk relative density, LS-262 (latest revision) "Bulk Relative Density of compacted Bituminous Mixes"
2. Marshall stability and flow, LS-263 (Revision 32), "Resistance to Plastic Flow of Bituminous Mixtures using the Marshall Apparatus" (See Note 4)
3. Air voids, LS-265, (latest revision) "Determination of Percent Air Voids in Compacted Dense Bituminous Pavement Mixtures"
4. Voids in mineral aggregate, LS-266 (latest revision), "Determination of V.M.A. in Compacted Bituminous Mixtures"

Note 2: For calculation of the V.M.A. use the values for aggregate bulk relative densities and asphalt cement provided on Pages 3 and/or Page 4. An example of a completed work sheet is shown on page **4**. A hard copy of this sheet must be submitted with the laboratory work sheets. The VMA values shall be reported in the designated spaces on the Mix Compliance Report form.

Note 3: Please identify the method used for the determination of flow by selecting from the dropdown feature on the Reporting Form.

Note 4: Please be advised that LS-263, which included the use of the timing method for the determination of flow, was withdrawn by MTO effective May 2019. It has effectively been replaced by ASTM D6927 that describes the use of the flow meter or the automated method for the

determination of flow. For 2023 CCIL certification purposes, the LS-263 will be used.

All test results shall be reported online and submitted by **2023 January 6, Friday.** An example of a completed report form is shown on Page 6.

Remember: Your lab's worksheets must be submitted through the portal with your proficiency report. Please combine all worksheets for each portal report into a single pdf prior to uploading. You are required to keep all original worksheet hard copies in a secure dedicated location such as a sealed envelope that is available to CCIL upon request. Do not courier/mail/fax/e-mail the worksheets to CCIL.

YEAR 2023 CCIL CORRELATION

MIX COMPLIANCE - % VMA WORK SHEET (Materials I and II) LABORATORY No:
LABORATORY NAME

MATERIAL I

Coarse Aggregate 1	(CA1)	36.0%
Fine Aggregate 1	(FA1)	49.0%
RAP		15.0%

BRD Coarse Aggregate	(CA)	2.689
BRD Fine Aggregate 1	(FA1)	2.675
RAP		2.719

Compacted Mix BRD (Db) SAMPLE # _____
(1) _____
(2) _____
(3) _____

% AC 5.00 % (by mass of total mix)

Combined Aggregate BRD (Gb): _____

% VMA = (1) _____ (2) _____ (3) _____

MATERIAL II

Coarse Aggregate 1	(CA1)	28.7%
Coarse Aggregate 2	(CA2)	18.3%
Fine Aggregate 1	(FA1)	38.0%
RAP		15.0%

BRD Coarse Aggregate 1	(CA1)	2.723
BRD Coarse Aggregate 2	(CA2)	2.692
BRD Fine Aggregate 1	(FA1)	2.661
BRD RAP		2.715

Compacted Mix BRD (Db) SAMPLE # _____

(1) _____
(2) _____
(3) _____

AC 5.00 % (by mass of total mix)

Combined Aggregate BRD (Gb): _____

% VMA = (1) _____ (2) _____ (3) _____

YEAR 2023 CCIL CORRELATION

MIX COMPLIANCE - % VMA WORK SHEET (Materials III and IV)

LABORATORY No: LABORATORY NAME

MATERIAL III

Coarse Aggregate	(CA1)	36.0%
Fine Aggregate 1	(FA1)	29.4%
Fine Aggregate 2	(FA2)	19.6%
RAP		15.0%

BRD Coarse Aggregate	(CA)	2.675
BRD Fine Aggregate 1	(FA1)	2.666
BRD Fine Aggregate 2	(FA2)	2.731
RAP		2.719

Compacted Mix BRD (Db) SAMPLE # _____

(1) _____
(2) _____
(3) _____

AC 5.00 % (by mass of total mix)

Combined Aggregate BRD (Gb): _____

% VMA = (1) _____ (2) _____ (3) _____

MATERIAL IV

Coarse Aggregate	(CA1)	41.0%
Fine Aggregate 1	(FA1)	19.7%
Fine Aggregate 2	(FA2)	29.5%
Fine Aggregate 3	(FA3)	9.8%

BRD Coarse Aggregate	(CA1)	2.922
BRD Fine Aggregate 1	(FA1)	2.688
BRD Fine Aggregate 2	(FA2)	2.742
BRD Fine Aggregate 3	(FA3)	2.695

Compacted Mix BRD (Db) SAMPLE # _____

(1) _____
(2) _____
(3) _____

% AC 5.30 (by mass of total mix)

Combined Aggregate BRD (Gb): _____

% VMA = (1) _____ (2) _____ (3) _____

MIX COMPLIANCE - % VMA WORK SHEET (EXAMPLE)

LABORATORY No: 175 LABORATORY NAME Apex Construction

MATERIAL A

Coarse Aggregate	(CA)	45.2%
Fine Aggregate #1	(FA)	54.8%
BRD Coarse Aggregate	(CA)	BRD 2.697
BRD Fine Aggregate #1	(FA)	BRD 2.659

Compacted Mix BRD (Db) SAMPLE MC-I 14

(1) 2.372
(2) 2.369
(3) 2.374

% AC 5.27 (by mass of total mix)

Combined Aggregate BRD (Gb): 2.673

% VMA = (1) 15.9 (2) 16.1 (3) 15.9

Canadian Council of Independent Laboratories

2020 Asphalt Reporting Form
Mix Compliance

Mix Compliance Report - Certification Program

- CCIL Confidential Lab # CCIL 999
- Lab Name: Demo Lab
- Tested by:
  - ○ Lab Technician
  - ○ Supervisor / Manager
  - ◉ Not listed

Please specify

Super Technician

Mix Compliance Report

Test	A-MC-(N)(i)	A-MC-(N)(ii)	A-MC-(N)(iii)	- Avg	B-MC-(N)(i)	B-MC-(N)(ii)	B-MC-(N)(iii)	- Avg
BRD - *LS-262/D2726*	2.376	2.380	2.379	2.378	2.421	2.430	2.426	2.426
MRD - *LS-264/D2041*	2.485	2.484		2.484	2.501	2.504		2.503
% Voids				4.3				3.1
% VMA	15.6	15.8	15.7	15.7	14.2	14.4	14.3	14.3
Stability (N)	10864	11625	11425	11305	9424	9821	9655	9633
Flow (0.25mm units)	10.4	10.2	10.3	10.3	9.6	10.2	9.9	9.9

Flow Measurement

Automated Method

Comments