2024 CCIL Asphalt Correlation

AB YT Mix Design (MD) Instructions

Review your shipping address shown in the portal and update it if there are any changes through the request for services. When you receive your samples, review the shipment before signing off with the shipper.

IMPORTANT NOTE: Type A Marshall Mix Design (MD) Laboratories are required to carry out testing **only** on lab prepared mix samples as outlined below. Type A laboratories are **NOT** required to carry out additional testing on Type B Mix Compliance (MC) plant mix samples.

Lab Mix Samples

In your shipment, you should have received 1 bag of coarse and 1 bag of fine aggregate for each of 2 mix designs (4 bags total) along with asphalt cement.

Note 1. To ensure that all laboratories receive identical samples, the fine aggregate samples have been recombined from individual sieve sizes. Before commencing any testing, these samples should be **carefully but thoroughly mixed** (each fine aggregate separately) by running through a mini-splitter several times.

Note 2. Pay attention to the notes included with each weigh card.

PREPARATION OF THE MATERIALS BY THE PARTICIPATING LABORATORIES

On receipt of the bulk samples of coarse and fine aggregate, dry the samples to constant mass and size the **coarse** aggregate (down to 2.5 mm size).

TESTING

AGGREGATES

Coarse aggregates shall be tested according to ASTM C127 (latest revision), "Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate" and fine aggregates shall be tested according to ASTM C128 (latest revision), "Density, Relative Density (Specific Gravity) and Absorption of Fine Aggregate". For the fine aggregate, remove the material finer than 0.080mm following the procedure in ASTM C117 (latest revision) prior to testing. Note that **2** determinations for each aggregate **(A-MDCA-N; B-MDCA-N, A-MDFA-N; B-MDFA-N)** are required. Report the “Oven Dry” Relative Density (OD) to the nearest 0.001. Calculate the absorption and report to the nearest 0.01%.

MIXES

Combine the dried aggregate and asphalt cement **(A-MDAC-N or B-MDAC-N)** in the proportions given on the attached mix “WEIGH CARDS”, for Material A and Material B on page **3**. ASTM laboratory test method D6926 (latest revision), “Preparation of Bituminous Specimens Using Marshall Apparatus” shall then be followed to prepare the Marshall specimens.

Note 3. Each sample for each Marshall briquette specimen and Maximum Relative Density Test is to be batched individually. A total of 6 briquettes and 2 Maximum Relative Density samples shall be prepared for each mix. Manual compaction of briquettes shall be carried out using **75 blows per side.** For mechanical hammers, each lab shall determine and use its own equivalency to this compaction effort.

Note 4. With the manual hammer, the following should be noted: (a) compaction pedestal must be secured; (b) the timing of blows should be 60± 5 blows per minute; (c) the hammer should be allowed to rebound between successive blows.

The mixing temperature and **compaction temperature** shall be as indicated on the mix design weigh card forms.

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Trough, moulds and hammers shall be preheated to **135±5°C.**

Thereafter the specimens shall be tested for:

1 Bulk relative density, D2726 (latest revision), "Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures".

2. Marshall Stability and Flow, D6927 (latest revision), "Marshall Stability and Flow of Bituminous Mixtures".

Note 5: Stability must be reported in Newtons and Flow in 0.25mm units.

3. Maximum Specific Gravity, D2041 (latest revision), "Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures".

Note 6: To allow a proper comparison, the Maximum Specific Gravity test shall be carried out on uncompacted freshly mixed material including the heat treatment.

4. Air voids, D3203 (latest revision), "Percent Air Voids in Compacted Dense and Open Bituminous Pavement Mixtures".
5. VMA, TLT-301 (latest revision), "Determination of VMA in Compacted Bituminous Mixtures".

Note 7: Please identify the method used for the determination of flow by selecting from the dropdown feature on the Reporting Form.

Examples of completed report forms are shown on pages 4 & 5.

The Mix Design Report form shall be completed online and submitted by **2024 January 5, Friday.**

Remember: Your lab's worksheets must be submitted through the portal with your correlation 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.

DO NOT send reports and worksheets by fax.

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AB YT Mix Design (MD) Instructions

Mix Design – Material A

Weigh Card (mass in grams)

Mass Type	Coarse Aggregate A-MDCA-N						Fine Aggregate A-MDFA-N	Dust***	Asphalt Cement A-MDAC-N
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm			
Individual		**23.6**	**226.1**	**299.1**	**10.9**	**2.0**	**608.4**	**17.4**	**62.5**
Cumulative		**23.6**	**249.7**	**548.8**	**559.7**	**561.7**	**1,170.1**	**1,187.5**	**1,250.0**

Mixing Temperature: **145°C** Compaction Temperature: **134°C**

AC Content (by Total Mix Mass): **5.00%** This Equates to **5.26%** by Aggregate Mass

Notes:

1 * Is material retained on the 12.5mm sieve to be discarded? **No**

2 ** Is material passing the 2.5mm sieve material from coarse aggregate to be discarded? **No**

OR

Has the pass 2.5mm sieve material been included in the component package? **No**

3. *** Has dust been supplied separately? **Yes. In a separate bag with the fine aggregate**.

4. Aggregates may exhibit stripping. DO NOT use antistripping additive.

5. Masses provided for BRD are to be adjusted proportionally to provide Maximum Theoretical Relative Density (MRD) test samples.

Mix Design – Material B

Weigh Card (mass in grams)

Mass Type	Coarse Aggregate B-MDCA-N						Fine Aggregate B-MDFA-N	Dust***	Asphalt Cement B-MDAC-N
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm			
Individual		**7.7**	**190.6**	**314.8**	**23.2**	**16.0**	**598.4**	**36.8**	**62.5**
Cumulative		**7.7**	**198.3**	**513.1**	**536.3**	**552.3**	**1,150.7**	**1,187.5**	**1,250.0**

Mixing Temperature: **148°C** Compaction Temperature: **135°C**

AC Content (by total mass): **5.00%** This Equates to **5.26%** by Aggregate Mass

Notes:

1. * Is material retained on the 12.5mm sieve to be discarded? **No**

2. ** Is material passing the 2.5mm sieve material from coarse aggregate to be discarded? **No**

OR

Has the pass 2.5mm sieve material been included in the component package? **No**

3. *** Has dust been supplied separately? **Yes. In separate bags with the fine aggregate**

4. Aggregates may exhibit stripping. DO NOT use antistripping additive.

5. Masses provided for BRD Specimens are to be adjusted proportionally to provide Maximum Theoretical Relative Density (MRD) test samples.

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AB YT Mix Design (MD) Instructions

Canadian Council of Independent Laboratories

2020 Asphalt Reporting Form
Mix Design

Mix Design 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 Design Report

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - *LS-262/D2726*	2.376	2.380	2.378	2.421	2.430	2.426
MRD - *LS-264/D2041*	2.485	2.484	2.484	2.504	2.504	2.504
% Voids	4.5	4.4	4.5	3.2	3.0	3.1
% VMA	15.6	15.8	15.7	14.2	14.4	14.3

Flow Measurement

Automated Method

Marshall Stability and Flow of Bituminous Mixtures - ***LS-263/D6927***

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
Stability (N)	10864	11625	11245	9424	9821	9623
Flow (0.25mm units)	10.4	10.2	10.3	9.6	10.2	9.9

Note: BRD values under “x” and “y” are the average of the group of 3 specimens.

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AB YT Mix Design (MD) Instructions

Relative Density and Absorption of Coarse Aggregate - *LS-604/T85*

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - CA	2.705	2.702	2.704	2.694	2.689	2.692
Absorption - CA	1.358	1.385	1.372	1.403	1.391	1.397

Relative Density and Absorption of Fine Aggregate - *LS-605/T84*

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - FA	2.671	2.675	2.673	2.671	2.666	2.669
Absorption - FA	1.741	1.728	1.735	1.766	1.744	1.755

Comments