YEAR 2021 CCIL CORRELATION

SUPERPAVE GYRATORY COMPACTION - LAB MIX (BC MB NB NL NS PE SK)

IMPORTANT NOTE: Type A Superpave Mix Design laboratories are required to carry out Gyratory Compaction and appropriate subsequent testing using **only** Lab Mix samples as the starting material. Type A laboratories are **NOT** required to carry out additional testing on Mix compliance samples.

Lab Mix Samples

One bag of coarse aggregate each **(GYCA-A-X and GYCA-B-X)** and one bag of fine aggregate each **(GYFA-A-X and GYFA-B-X)** along with asphalt cement **(GYAC-A-X and GYAC-B-X)** have been provided.

Aggregate Preparation

On receipt of the bulk samples of coarse and fine aggregate, dry the samples to constant mass and size the **coarse** aggregate (down to 2.36 mm size) and pass 2.36 mm portion.

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 the weigh cards for each mix

Mix Preparation

1) For Gyratory samples **(two samples for each mix)** combine the dried aggregate and asphalt cement in the proportions indicated in the Weigh Card tables for Material A and Material B. Mass of the sample to be consistent with those included in the appropriate weigh card.
2) An additional sample using the same proportions of dried aggregate and asphalt cement shall be produced for Maximum Theoretical Relative Density (MRD); minimum mass of 1500g.
3) The mixing temperature and compaction temperature shall be as indicated on the appropriate mix design weigh card form.
4) Mixture conditioning for both Gyratory and MRD samples shall be carried out at the mixture compaction temperature indicated on the weighcard ±3°C for 2h ± 5 minutes (as indicated in AASHTO R30). Proceed immediately with compaction.

   For Material A: $N_{ini} = 8, N_{des} = 100$
   For Material B: $N_{ini} = 8, N_{des} = 100$

   The same Superpave Gyratory Compactor shall be used to compact both materials.
5) The specimens can be extruded from the mold immediately after compaction.

Sample Testing

1) Follow D2726 for the determination of the Bulk Relative Density (BRD) of the gyratory samples.

2) Follow D2041 for the determination of the Maximum Theoretical Relative Density (MRD) of the separate samples blended for this purpose.

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Report

1) Maximum Theoretical Relative Density (MRD) for gyratory mix
2) Bulk Relative Density for gyratory compacted samples
3) Percent G_{mm} at N_{ini}.
4) The calculated percent air voids of the compacted specimen (N_{design}) to nearest 0.1%
5) Manufacturer, Model, and Serial number of the Superpave Gyratory Compactor used to compact the samples.

All test results shall be reported on line and submitted by **January 8 2021.** An example of a completed report form is shown on page 4.

Hard copies of the report forms and work sheets must be submitted by **January 8 2021** by mail or courier to:

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CCIL Program Manager
3410 South Service Road, Suite 104
Burlington, Ontario, L7N 3T2
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DO NOT send reports and worksheets by fax

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Superpave Gyratory Specimens – Material A

Weigh Card (mass in grams)									
Mass Type	Coarse Aggregate GYCA-A-X						Fine Aggregate GYFA-A-X	Dust	Asphalt Cement GYAC-A-X
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm			
Individual		**86.1**	**768.2**	**1,266.0**	**17.0**	**14.5**	**2,331.2**	**152.4**	**264.6**
Cumulative		**86.1**	**854.3**	**2,120.3**	**2,137.3**	**2,151.8**	**4,483.0**	**4,635.4**	**4,900.0**

Mixing Temperature = 147°C Compaction Temperature = 133°C
AC Content = 5.4 %

Notes:

1. ***** Is** material retained on the 12.5mm sieve to be discarded? **No**
2. ****** Is material passing the 2.36mm sieve material from coarse aggregate to be discarded? **No**
   OR
   has the pass 2.36mm 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. Masses provided for Superpave Gyratory Specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

Superpave Gyratory Specimens – Material B

Weigh Card (mass in grams)									
Type Mass	Coarse Aggregate GYCA-B-X						Fine Aggregate	Dust***	Asphalt Cement
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm	GYFA-B-X		GYAC-B-X
Individual		**59.0**	**562.2**	**1316.4**	**146.6**	**47.8**	**2309.7**	**164.3**	**294.0**
Cumulative		**59.0**	**621.2**	**1937.6**	**2084.2**	**2132.0**	**4441.7**	**4606.0**	**4900.0**

Mixing Temperature = 148°C Compaction Temperature = 135°C
AC Content = 6.0 %

Notes:

1. ***** Is** material retained on the 12.5mm sieve to be discarded? **No**
2. ****** Is material passing the 2.36mm sieve material from coarse aggregate to be discarded? **No**
   OR
   has the pass 2.36mm sieve material been included in the component package? **No**
3. ******* Has dust been supplied separately? **Yes**
4. Masses provided for Superpave Gyratory Specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

Canadian Council of Independent Laboratories

2020 Asphalt Reporting Form
Gyratory Lab Mix

Gyratory Lab Mix Report - Certification Program

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

Please specify

Super Technician

Gyratory Lab Mix Report

Test	A-GY-xxx a	A-GY-xxx b	- Avg	B-GY-xxx a	B-GY-xxx b	- Avg
MSG (G_{mm} by ASTM 2041)	2.510	2.508	2.509	2.515	2.519	2.517
BRD @ N_{des}	2.425	2.416	2.420	2.431	2.431	2.431
BRD @ N_{ini}	2.146	2.150	2.148	2.168	2.156	2.162
% G_{mm} @ N_{ini}	85.5	85.7	85.6	86.2	85.6	85.9
% Air Voids (@ N_{des})	3.4	3.7	3.6	3.3	3.5	3.4

Compactor Calibration

Internal Angle (1.16 deg.)

Comments