YEAR 2023 CCIL CORRELATION

SUPERPAVE GYRATORY COMPACTION - LAB MIX (AB YT)

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

Lab Mix Samples

One bag of coarse aggregate each **(GYCA-I-N and GYCA-II-N)** and one bag of fine aggregate each **(GYFA-I-N and GYFA-II-N)** along with asphalt cement **(GYAC-I-N and GYAC-II-N)** 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 2.5 mm size) and pass 2.5 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 I: $N_{ini} = 8$, $N_{des} = 100$
For Material II: $N_{ini} = 9$, $N_{des} = 125$

The same Superpave Gyratory Compactor shall be used to compact both materials.

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 at 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 online and submitted by **2023 January 6, Friday**. An example of a completed report form is shown on page 4.

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.

DO NOT send reports and worksheets by fax

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Superpave Gyratory Specimens – Material I

Weigh Card (mass in grams)									
Mass Type	Coarse Aggregate GYCA-I-N						Fine Aggregate GYCA-I-N	Dust	Asphalt Cement GYCA-I-N
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm			
Individual		88.4	940.6	1,135.5	72.0	30.0	2,221.6	157.1	254.8
Cumulative		88.4	1,029.0	2,164.5	2,236.5	2,266.5	4,488.1	4,645.2	4,900.0

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

AC Content (by Total Mix Mass): **5.20%** This Equates to **5.49%** 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. 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 II

Weigh Card (mass in grams)									
Type Mass	Coarse Aggregate GYCA-II-N						Fine Aggregate	Dust***	Asphalt Cement
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm	GYFA-II-N		GYAC-II-N
Individual		**44**	**888.1**	**1,043.0**	**45.6**	**21.0**	**2,495.3**	**118.0**	**245.0**
Cumulative		**44**	**932.1**	**1,975.1**	**2,020.7**	**2,041.7**	**4,537.0**	**4,655.0**	**4,900.0**

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