

YEAR 2022 CCIL CORRELATION

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

IMPORTANT NOTE: Type A Superpave Mix Design 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 (**I-GYCA-x and II-GYCA-x**) and one bag of fine aggregate each (**I-GYFA-x and II-GYFA-x**) along with asphalt cement (**I-GYAC-x and II-GYAC-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 $\pm 3^{\circ}\text{C}$ for $2\text{h} \pm 5$ 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.

- 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 7 2022**. An example of a completed report form is shown on page 4.

Important Change for 2022: 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 I-GYCA-x						Fine Aggregate	Dust	Asphalt Cement
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm	I-GYFA-x		I-GYAC-x
Individual		183.5	576.5	1274.9	205.1	43.9	2194.3	152.3	269.5
Cumulative		183.5	760.0	2034.9	2240.0	2283.9	4478.2	4630.5	4900.0

Mixing Temperature = 148°C Compaction Temperature = 135°C
 AC Content = 5.5%

Notes:

- * **Is** material retained on the 12.5mm sieve to be discarded? **No**
- ** **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**
- *** Has dust been supplied separately? **Yes. In a separate bag with the fine aggregate.**
- 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 II-GYCA-x						Fine Aggregate	Dust***	Asphalt Cement
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm	II-GYFA-x		II-GYAC-x
Individual		36.7	495.2	1603.7	254.7	55.9	2001.5	177.9	274.4
Cumulative		36.7	531.9	2135.6	2390.3	2446.2	4447.7	4625.6	4900.0

Mixing Temperature = 148°C Compaction Temperature = 135°C
 AC Content = 5.6%

Notes:

- * **Is** material retained on the 12.5mm sieve to be discarded? **No**
- ** **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**
- *** Has dust been supplied separately? **Yes**
- Masses provided for Superpave Gyratory Specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

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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