

YEAR 2021 CCIL CORRELATION

SUPERPAVE GYRATORY COMPACTION LAB MIX (ON QC)

IMPORTANT NOTE: Type A Superpave laboratories are required to carry out Gyratory compaction and appropriate subsequent testing using **only** Lab 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 2.36mm 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 I and Material II. 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 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 LS-262 (latest revision) for the determination of the Bulk Relative Density (BRD) of the gyratory samples.
- 2) Follow LS-264 (latest revision) for the determination of the Maximum Theoretical Relative Density (MRD) of the separate sample 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 online 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
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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	Dust	Asphalt Cement
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm	GYFA-A-X		GYAC-A-X
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, 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.

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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 LS-264)	2.510	2.508	2.509	2.515	2.519	2.517
BRD @ N _{del}	2.425	2.416	2.420	2.431	2.431	2.431
BRD @ N _{ini}	2.146	2.150	2.148	2.168	2.162	2.165
% G _{mm} @ N _{ini}	85.5	85.5	85.5	86.2	85.9	86.1
% Air Voids (@ N _{del})	3.4	3.7	3.6	3.3	3.4	3.4

Compactor Calibration

Internal Angle (1.16 deg.)

Comments