

YEAR 2018 CCIL CORRELATION

IGNITION FURNACE GENERAL INSTRUCTIONS – Alberta and Yukon

The following samples have been forwarded to your laboratory:

Material **I-GCF-(N)** (Five samples)

Material **I-IGMF-(N)** and **II-IGMF-(N)** (Two pre-mixed samples)

Asphalt Cement **I-IGAC-(N)** (One sample)

A) Ignition Furnace Procedure

- 1) While furnace is at room temperature calibrate the furnace balance as described in the furnace manual provided by the manufacturer.
- 2) Set the combustion temperature of 540°C (deemed appropriate for this type of sample) or as indicated for Irradiation type furnace.
- 3) Set the start time (Auto Timer) so that the furnace is at the specified run temperature (see 2) above) for at least 60 minutes before starting the burn of the first sample of the day.
- 4) Set the furnace endpoint to 0.01% of the sample mass (D6307)

B) Ignition Basket Weight Correction Factor

- 1) Follow ATT-74, Part II Section 3.3.2.1

C) Sample Preparation

Correction Factor (I-IGCF-(N)) Samples:

- 1) Five sample bags containing approximately 1500g of mixed aggregates and one sample of asphalt cement are supplied
- 2) Aggregates are to be dried to constant weight at temperature not to exceed 150°C and cooled to room temperature prior to mixing.
- 3) Place the asphalt cement sample (supplied) in an oven set at 150°C
- 4) Follow Alberta Field Test Procedure ATT 74, Part II Section 3.2.1 (See Table I and Table 2 below).
- 5) Mixing temperature for the correction factor samples is 150°C.
- 6) Weigh and record the dried aggregate sample.
- 7) Based on this weight add sufficient asphalt cement (supplied) to produce a mix containing **5.00% I-IGAC-(N)** based on dry aggregate mass.
- 8) Five samples are provided. Calibration Factor shall be determined from 3 of the 5 samples.

Pre-mixed I-IGMF-(N) and II-IGMF-(N) Samples

- 1) Sample bags containing approximately 1500g of **I-IGMF-(N)** and **II-IGMF-(N)** are supplied and are ready for testing. Use total sample for analysis. **Determination of moisture content is not required.**
- 2) Record the appropriate data in the ignition data report form included herein.

NOTE: LABORATORIES SHOULD TAKE CAUTION REGARDING NEGATIVE CALIBRATION FACTORS. A LARGE NEGATIVE CALIBRATION FACTOR SUGGESTS THAT THE ASPHALT CEMENT HAS NOT BEEN COMPLETELY BURNED DURING THE IGNITION RUN

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D) Ignited Aggregate Gradation

A) Correction factor samples

- 1) Carefully transfer the total residue after ignition *including ash brushed off of pans and instruments* to a weighing pan and weigh to the nearest 0.1g.
- 2) Perform a wash sieve analysis on all five samples and record the data for the 3 selected samples on the upper portion or report form provided (available on the CCIL Website)

B) Pre-mixed samples

- 1) Carefully transfer the total residue after ignition *including ash brushed off of pans and instruments* to a weighing pan and weigh to the nearest 0.1g.
- 2) Perform a washed sieve analysis on the two samples and record the data for the two samples on the lower portion of the report form provided (available on the CCIL Website).
- 3) Report corrected asphalt cement content both as a percentage of total weight of asphalt mix and as a percentage of total weight of dry aggregates.

All test results must be reported online and submitted by **January 5 2018**. An example of a completed report form is shown on page 3.

Hard copies of the report forms and work sheets (including Tables 1-4) must be submitted by **January 5 2018** by mail or courier to:

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DO NOT send reports and worksheets by fax

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| 2018 CCIL CORRELATION - EXAMPLE FORM ALBERTA and YUKON | | | | | | |
|--|--------------------------|--------|-------|---------|-----------------------------|-------------|
| Testing Admin Information | | | | | your assigned CCIL Lab No.: | AB99 |
| <ul style="list-style-type: none"> • Lab Name (include Branch or Mobile #) • E-mail Address • Reported by (Contact Name) • Phone Number (Contact) • Tested by (Name(s)) • Results Reporting Date | Apex Construction | | | | | |
| | enstein@apex.xom | | | | | |
| | Frank Enstein | | | | | |
| | (999) 999-9999 | | | | | |
| | I.P. Daly | | | | | |
| January 5 2018 | | | | | | |
| ATT74 - IGNITION FURNACE - Alberta | | | | | | |
| Manufacturer: | Easy Bake | Model: | 100 W | S/N: | 123321 | |
| Calibration Factor (I-IGCF) Samples - (Enter only the 3 samples used) | | | | | | |
| | Sample Number | x | y | z | Average | |
| • %A.C. | | 5.22 | 5.15 | 5.14 | 5.17 | |
| % Passing Sieve, mm | | | | | | |
| • 16.0 | | 100.0 | 100.0 | 100.0 | 100.0 | |
| • 12.5 | | 100.0 | 100.0 | 100.0 | 100.0 | |
| • 10.0 | | 97.6 | 96.9 | 97.4 | 97.3 | |
| • 5.00 | | 84.7 | 84.5 | 85.1 | 84.8 | |
| • 2.50 | | 63.1 | 63.4 | 63.2 | 63.2 | |
| • 1.25 | | 52.5 | 52.1 | 52.3 | 52.2 | |
| • 0.630 | | 42.8 | 42.7 | 42.3 | 42.6 | |
| • 0.315 | | 33.7 | 33.5 | 33.8 | 33.7 | |
| • 0.160 | | 20.6 | 20.3 | 20.4 | 20.4 | |
| • 0.080 | | 8.0 | 8.3 | 8.1 | 8.1 | |
| • Calibration Factor | | 0.22 | 0.16 | 0.14 | 0.17 | |
| Bituminous Mix (I and II-IGMF) Samples | | | | | | |
| | Sample Number | X | Y | Average | | |
| • Corrected %A.C. by dry aggregate mass | | 5.01 | 5.13 | 5.07 | | |
| • Corrected %A.C. by asphalt mix mass | | 4.77 | 4.88 | 4.82 | | |
| % Passing Sieve, mm | | | | | | |
| • 16.0 | | 100.0 | 100.0 | 100.0 | | |
| • 12.5 | | 100.0 | 100.0 | 100.0 | | |
| • 10.0 | | 96.9 | 97.8 | 97.4 | | |
| • 5.00 | | 84.7 | 84.3 | 84.5 | | |
| • 2.50 | | 63.4 | 62.8 | 63.1 | | |
| • 1.25 | | 51.8 | 52.4 | 52.1 | | |
| • 0.630 | | 43.8 | 43.4 | 43.6 | | |
| • 0.315 | | 33.7 | 33.5 | 33.6 | | |
| • 0.160 | | 20.6 | 20.3 | 50.5 | | |
| • 0.080 | | 8.4 | 8.2 | 8.3 | | |

TABLE 1. CORRECTION FACTOR – ALBERTA* and YUKON

| A. ACTUAL ASPHALT CONTENT AND SAMPLE PREPARATION | | | | | | | |
|--|--|---|---|---|---|---|---|
| SAMPLE NUMBER | | | 1 | 2 | 3 | 4 | 5 |
| A | Wt of dry aggregate + basin + spoon @ 130°C | g | | | | | |
| B | Tare of basin + spoon @ 130°C (Basin No.) | g | | | | | |
| C | Wt of dry aggregate A - B | g | | | | | |
| D | Target asphalt content | % | | | | | |
| E | Wt of asphalt required CD /100 | g | | | | | |
| F | Required wt of basin + spoon + dry aggregate + asp A+E | g | | | | | |
| G | Actual wt of basin + spoon + dry aggregate + asp | g | | | | | |
| H | Wt of asphalt added G - A | g | | | | | |
| I | Actual asphalt content H / C 100 | g | | | | | |
| B: IGNITION BASKET WEIGHT CORRECTION FACTOR FOR TEMPERATURE | | | | | | | |
| | Basket number | | | | | | |
| AA | Weight of ignition basket @ 538°C | g | | | | | |
| BB | Weight of ignition basket at 130°C | g | | | | | |
| CC | Ignition basket weight B | g | | | | | |
| C: ASPHALT CONTENT IGNITION | | | | | | | |
| J | Wt. of ignition basket (No.) | g | | | | | |
| K | Wt of dry mix | g | | | | | |
| L | Wt of dry aggregate + basket @ 538°C | g | | | | | |
| M | Wt of aggregate from ignition L - J | g | | | | | |
| N | Wt of asphalt K - M | g | | | | | |
| O | Ignition asphalt content 100 N/M | % | | | | | |
| D: IGNITION ASPHALT CONTENT CORRECTION FACTOR | | | | | | | |
| P | Difference of asphalt contents I - O | % | | | | | |
| Q | Average asphalt correlation factor (P1+P2+P3+P4+P5)/5 | % | | | | | |
| * From ATT 74, Part II | | | | | | | |

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TABLE 2. IGNITION DATA – PRE-MIXED SAMPLES - ALBERTA* and YUKON

| | | | Sample I | Sample II |
|----------------------|--|---|----------|-----------|
| K | Wt of dry mix | g | | |
| L | Weight of ignition basket | g | | |
| M | Ignition basket weight correction factor | g | | |
| N | Weight of Ignition basket @ 538°C L – M | g | | |
| O | Weight of dry aggregate + ignition | g | | |
| P | Weight of dry aggregate from ignition O - N | g | | |
| Q | Weight of asphalt K - P | g | | |
| R | Uncorrected asphalt content $100 Q / P$ | % | | |
| S | Ignition asphalt content correction factor | % | | |
| T | Corrected ignition asphalt content | % | | |
| *From ATT 74, Part I | | | | |
| Remarks: | | | | |
| | | | | |
| | | | | |
| | | | | |

**TABLE 3: Gradation of In-House Prepared Calibration Factor Samples
(After Ignition) – ALBERTA and YUKON**

| | | Calibration Factor Samples | | | | |
|----------------------------|-----------------|----------------------------|----------|----------|----------|----------|
| | | Code No. | Code No. | Code No. | Code No. | Code No. |
| | | | | | | |
| Laboratory Balance | Initial Mass, g | | | | | |
| | Final Mass, g | | | | | |
| Furnace Balance | Initial Mass, g | | | | | |
| | Final Mass, g | | | | | |
| AGGREGATE | | | | | | |
| Dry mass before washing, g | | | | | | |
| Dry mass after washing, g | | | | | | |
| GRADATION | % Passing | | | | | |
| | 16.0 mm | | | | | |
| | 12.5 mm | | | | | |
| | 10.0 mm | | | | | |
| | 5.00 mm | | | | | |
| | 2.50 mm | | | | | |
| | 1.25 mm | | | | | |
| | 0.630 mm | | | | | |
| | 0.315 mm | | | | | |
| | 0.160 mm | | | | | |
| 0.080 mm | | | | | | |

Laboratory Name: _____ Date Tested: _____

**TABLE 4: Gradation of Aggregates from Pre-mixed HMA Samples
(After Ignition) – ALBERTA and YUKON**

| | | Prepared HMA Samples | | | | |
|----------------------------|------------------|----------------------|----------|----------|----------|----------|
| | | Code No. | Code No. | Code No. | Code No. | Code No. |
| | | | | | | |
| Laboratory Balance | Initial Mass, g | | | | | |
| | Final Mass, g | | | | | |
| Furnace Balance | Initial Mass, g | | | | | |
| | Final Mass, g | | | | | |
| AGGREGATE | | | | | | |
| Dry mass before washing, g | | | | | | |
| Dry mass after washing, g | | | | | | |
| GRADATION | % Passing | | | | | |
| | 16.0 mm | | | | | |
| | 12.5 mm | | | | | |
| | 10.0 mm | | | | | |
| | 5.00 mm | | | | | |
| | 2.50 mm | | | | | |
| | 1.25 mm | | | | | |
| | 0.630 mm | | | | | |
| | 0.315 mm | | | | | |
| | 0.160 mm | | | | | |
| | 0.080 mm | | | | | |

Laboratory Name: _____ Date Tested: _____
