IGNITION FURNACE TEST INSTRUCTIONS

The following samples have been forwarded to your laboratory:

Material A-IGCF-X (Five samples)

Material A-IGMF-X and B-IGMF-X (Two pre-mixed samples)

Asphalt Cement A-IGAC-X (One sample)

A) Ignition Furnace: Reference Procedure ASTM D6307

- 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) Sample Preparation

Correction Factor (A-IGCF-X) 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 prior to mixing.
- A clean mixing bowl will be buttered by mixing a separate sample of HMA (not supplied). The bowl will be scraped clean of this buttering mix prior to mixing the five samples supplied.
- 4) Mixing temperature for the correction factor samples is 150°C.
- 5) Weigh and record the dried aggregate sample.
- 6) Based on this weight add sufficient asphalt cement (supplied) to produce a mix containing **5.00%**, **A-IGAC-X** (based on total mix).
- 7) Mix the sample as indicated in D-6926
- 8) Transfer the mixed sample to a metal tray, spread it out, cover with metal foil and allow it to cool to ambient temperature.
- 9) Sample is now ready for testing.
- 10) Five samples are provided. Calibration Factor shall be determined from 3 of the 5 samples according to D6307.

Pre-mixed A-IGMF-X and B-IGMF-X Samples:

1) Sample bags containing approximately 1500g of **A-IGMF-X** and **B-IGMF-X** are supplied and are ready for testing. Determination of moisture content is not required.

C) Ignition Furnace Run:

- Weigh the lid, sample tray, catch pan and retaining bracket on the laboratory balance (TABLE 1 – for A-IGCF-X (Correction Factor) samples and TABLE 3 – for A-IGMF-X and B-IGMF-X (HMA) samples)
- 2) Preheat the sample to be tested to 110°C±5°C (i.e. sufficiently warm to handle). Do not heat for more than one hour.
- 3) Place catch pan under sample tray and spread sample evenly on the tray.
- 4) Place lid over sample tray and secure lid, tray and catch pan with the retaining bracket.

- 5) Weigh total assembly on the laboratory balance and record the mass to 0.1g (TABLE 1 for **A-IGCF-X** samples and TABLE 3 for **A-IGMF-X** and **B-IGMF-X** samples)
- 6) Calculate sample mass (C in both TABLE 1 and TABLE 3)
- 7) Enter the sample mass C in the furnace data system.
- 8) Place the assembly in the preheated furnace and close the door.
- 9) Heat the sample at the specified temperature (540°C) until the difference between consecutive mass loss measurements does not exceed requirements for three one minute intervals.
- 10) Record sample mass after ignition (from data tape) (TABLE 1 F for **A-IGCF-X** samples and TABLE 3 F for **A-IGMF-X** and **B-IGMF-X** samples).
- 11) Remove the assembly from the furnace and allow to cool to ambient temperature and weigh to the nearest 0.1g (TABLE 1 E for **A-IGCF-X** samples and TABLE 3 F for **A-IGMF-X** and **B-IGMF-X** samples).
- 12) Record required data from tapes in TABLES 1 and 3 for **A-IGCF-X** and **A-IGMF-X** and **B-IGMF-X** samples respectively.

NOTE 1: 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.

D) Ignited Aggregate Gradation

- 1) Carefully transfer the total residue after ignition to a weighing pan and weigh to the nearest 0.1g.
- 2) Proceed with the washed sieve gradation. Laboratories shall complete the attached work sheets (Tables 1-4) and submit copies of the output tapes from the ignition furnace runs.

Asphalt contents shall be expressed as mass percent of total mixture.

Note 2: (New this year) Please identify the method used (Method A or B) for the type of furnace by selecting from the dropdown feature on the Reporting Form.

All test results shall be reported online and submitted by January 3 2020.

NOTE for laboratories in British Columbia: If your laboratory does not use the 16.0mm sieve, please do not enter zero in the online reporting form. Please cancel this sieve by clicking the box adjacent to the sieve in the reporting form.

An example of a completed report form is shown on Pages 3 and 4.

Hard copies of the report forms and work sheets (including Tables 1-4) must be submitted by **January 3 2020** by mail or courier to:

Nabil Kamel, M.A.Sc., P.Eng. CCIL Program Manager 3410 South Service Road, Suite 104 Burlington, Ontario, L7N 3T2

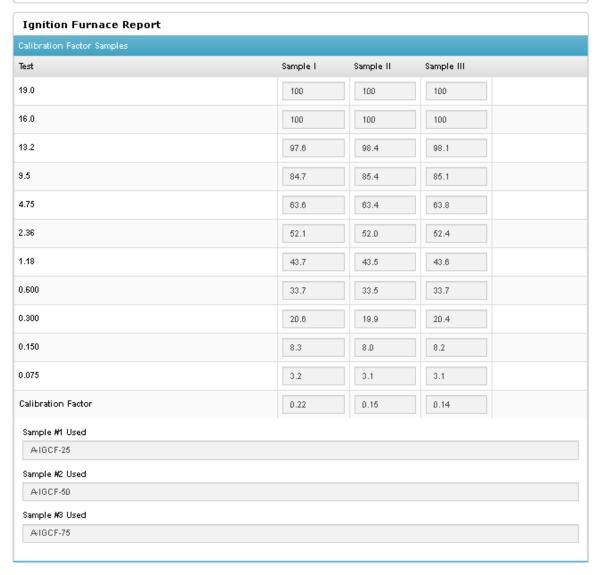
Tel: 289-337-8888: Fax: 289-337-8889: e-mail: nkamel@ccil.com

DO NOT send reports and worksheets by fax



2020 Asphalt Reporting Form Ignition Furnace

Ignition Furnace Report - Certification Program	
CCIL Confidential Lab # CCIL 999	
Lab Name: Demo Lab	
▶ Tested by:	
Lab Technician Supervisor / Manager Not listed	
Please specify	
Super Technician	



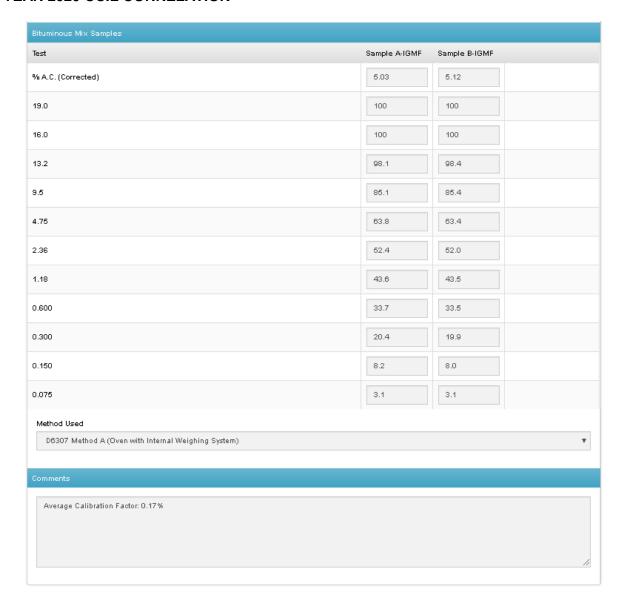


TABLE 1: In-House Prepared Calibration Factor Samples

General Information							
Compa	iny Name						
Technician's Name					Date		
		Sį	oecific Inform	nation		•	
	Calibration Factor Samples						
			Code No.	Code No.	Code No.	Code No.	Code No.
		La	aboratory Ba	lance			
А	Mass of sampl par	•					
В	Mass of sam catch pan,	ple tray, lid,					
C = (B - A)	Initial Mass	of Sample, g					
D	Mass of sample tray, lid, catch pan, sample after ignition, g						
E = (D - A)	Final mass of ignition	sample after					
		F	Furnace Bala	ince			
F	Final mass of ignition, g	•					
G = (C - F)	Loss Fu	rnace, g					
H = (G/C) x 100	Loss Fui	rnace, %					
1	Loss Furnace	Correction, %					
J = (H – I)	Total Loss (Appare						
K	Total AC	added, %					
L = (J - K)	Calibration	Factor, %	actor, %				
Furnace Temperature Information							
Test temperature shown on controls, °C							
Initial temperature from data tape, °C		tape, °C					
Maximum temperature form data tape, °C							
Final temperature from data tape, °C							

TABLE 2: Gradation of In-House Prepared Calibration Factor Samples (After Ignition)

		Calibration Factor Samples						
		Code No.	Code No.	Code No.	Code No.	Code No.		
Laboratory Balance	Initial Mass, g Final Mass,							
Furnace Balance	g Initial Mass, g Final Mass, g							
	9 1		AGGREGATE					
Dry mass befo	ore washing, g							
Dry mass after	er washing, g							
	% Passing							
	16.0 mm							
	13.2 mm							
z	9.5 mm							
RADATION	4.75 mm							
D A .	2.36 mm							
	1.18 mm							
Ö	600 µm							
	300 µm							
	150 µm							
	75 µm							

Laboratory Name: _	 	
Date Tested:		

General Information							
Compa	ny Name						
Technician's Name				Date			
		Sı	oecific Inform	ation			
			Prepared HMA Samples				
			Code No.	Code No.	Code No.	Code No.	Code No.
			aboratory Ba	lance			
Α	Mass of sample par	•					
В	Mass of sam catch pan,	ple tray, lid,					
C = (B - A)	Initial Mass of	of Sample, g					
D	Mass of sample tray, lid, catch pan, sample after ignition, g						
E = (D - A)	Final mass of ignition						
		i	Furnace Bala	ince			
F	Final mass of ignition, g (
G = (C - F)	Loss Fu	rnace, g					
H = (G/C) x 100	Loss Fur	nace, %					
I	Loss Furnace	Correction, %					
J = (H - I)	Total Loss I (Appare	Furnace, % ent AC)					
CF*	Correction	Factor, %					
L = (J – Asphalt Cement, %							
Furnace Temperature Information							
Test tempera	ture shown on c	ontrols, °C					
Initial tempera	ature from data t	tape, °C					
Maximum ten	nperature form d	lata tape, °C					
Final tempera	ature from data t						

Date Tested: _____

* CF = Calibration factor as derived from the testing in TABLE 1

TABLE 4: Gradation of Aggregates from Pre-mixed HMA Samples (After Ignition)

		Prepared HMA Samples							
		Code No.	Code No.	Code No.	Code No.	Code No.			
Laboratory	Initial Mass,								
Balance	Final Mass, g								
Furnace	Initial Mass, g								
Balance	Final Mass, g								
			AGGREGATE						
Dry mass befo	ore washing, g								
Dry mass after	er washing, g								
		% Passing							
	16.0 mm								
	13.2 mm								
z	9.5 mm								
RADATION	4.75 mm								
DA.	2.36 mm								
	1.18 mm								
Ö	600 µm								
	300 µm								
	150 µm								
	75 μm								