



Order No: F201042408  
Project No: 1000941889  
File No: E257516  
Vol No: 1  
Issue Date: 2020-05-28

## Follow-up Sample Test Report

**Contact:** JUSTIN HUNG

**Customer Name:** MING DIH INDUSTRY CO LTD

**Address:** 94 CHI-HSIEN 1ST RD  
SHIN SHING AREA  
KAOHSIUNG  
TW

**Manufacturer:** MING DIH INDUSTRY CO LTD

**Address:** 9 CHU-KUANG 1ST ST  
TA-FA IND DISTRICT  
TA-LIAO SHIANG KAOHSIUNG HSIEN  
831  
TW

**Product Category:** QMFZ2

**Product Description:** Plastics - component

**Model Number(s):** EPS-F

**Inspection Date:** 2020-04-13

**UL Contact:** ELMA HO at +886 2 7737 3531 or via email at FUSAdmin.TPI@ul.com.

## Statement of Results

### General Information for FUS Project

Test Name	Test Result
Model No.	EPS-F
Color	WT
Expected Thickness	5.0 mm
IR Reference Date	T09-11-05(TC3421)
TGA Reference Date	01-18-05
DSC Reference Date	06-14-05
Original HBF Flame Rating	HF-1
Original Min. Density	18.000 kg/m <sup>3</sup>
Original Max. Density	24.000 kg/m <sup>3</sup>



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Master Reporting Summary 5.0 mm

Test Name	Test Result
UL94 Horizontal Burning Foamed Material	HF-1
UL746A Density Determination	19.640 kg/m <sup>3</sup>
UL746A Infrared Spectroscopy (IR)	Yes
UL746A Thermogravimetry (TGA)	Yes
UL746A Diff. Scanning Calorimetry (DSC)	Yes

DENSITY DETERMINATION (As Received)

Test Name	Test Result
Thickness	5.3031 mm
Thickness	5.5308 mm
Thickness	5.3799 mm
Length	149.6300 mm
Length	149.9400 mm
Length	149.7800 mm
Width	48.2400 mm
Width	48.0400 mm
Width	47.7700 mm
Thickness (avg)	5.4046 mm
Length (avg)	149.7833 mm
Width (avg)	48.0167 mm
Weight	0.7704 g
Density	19.82 kg/m <sup>3</sup>



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DENSITY DETERMINATION (As Received)

Test Name	Test Result
Thickness	5.0949 mm
Thickness	5.2648 mm
Thickness	5.3284 mm
Length	149.3400 mm
Length	149.5600 mm
Length	149.4200 mm
Width	47.4800 mm
Width	47.6200 mm
Width	47.7600 mm
Thickness (avg)	5.2294 mm
Length (avg)	149.4400 mm
Width (avg)	47.6200 mm
Weight	0.7232 g
Density	19.43 kg/m³

DENSITY DETERMINATION (As Received)

Test Name	Test Result
Thickness	5.2093 mm
Thickness	5.2825 mm
Thickness	5.2860 mm
Length	149.3800 mm
Length	149.7200 mm
Length	149.6900 mm
Width	48.3300 mm
Width	48.4000 mm
Width	48.3300 mm
Thickness (avg)	5.2593 mm
Length (avg)	149.5967 mm
Width (avg)	48.3533 mm
Weight	0.7482 g
Density	19.67 kg/m³



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FUS Infrared Spectroscopy

Test Name	Test Result
IR Conformance	Yes

FUS TGA Analysis

Test Name	Test Result
TGA Conformance	Yes

FUS DSC Analysis

Test Name	Test Result
DSC Conformance	Yes

HORIZONTAL BURNING FOAMED MATERIAL TEST (As Received)

Test Name	Test Result
Specimen Number	1
Thickness	5.1720 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	34.0 mm
Burning Duration - beyond 25mm	8.0 s
Damaged Length - beyond 25mm	9.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined



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#### HORIZONTAL BURNING FOAMED MATERIAL TEST (As Received)

Test Name	Test Result
Specimen Number	2
Thickness	5.1180 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	29.0 mm
Burning Duration - beyond 25mm	12.0 s
Damaged Length - beyond 25mm	4.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined

#### HORIZONTAL BURNING FOAMED MATERIAL TEST (As Received)

Test Name	Test Result
Specimen Number	3
Thickness	5.2290 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	28.0 mm
Burning Duration - beyond 25mm	6.0 s
Damaged Length - beyond 25mm	3.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen dripped particles, which did NOT ignite cotton;Ceased to burn before the 125 mm gauge mark; rate not determined



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#### HORIZONTAL BURNING FOAMED MATERIAL TEST (As Received)

Test Name	Test Result
Specimen Number	4
Thickness	5.1170 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	32.0 mm
Burning Duration - beyond 25mm	10.0 s
Damaged Length - beyond 25mm	7.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined

#### HORIZONTAL BURNING FOAMED MATERIAL TEST (As Received)

Test Name	Test Result
Specimen Number	5
Thickness	5.2460 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	31.0 mm
Burning Duration - beyond 25mm	13.0 s
Damaged Length - beyond 25mm	6.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined



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**HORIZONTAL BURNING FOAMED MATERIAL TEST (Oven-Aged)**

Test Name	Test Result
Specimen Number	1
Thickness	5.2430 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	28.0 mm
Burning Duration - beyond 25mm	7.0 s
Damaged Length - beyond 25mm	3.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined

**HORIZONTAL BURNING FOAMED MATERIAL TEST (Oven-Aged)**

Test Name	Test Result
Specimen Number	2
Thickness	5.2470 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	28.0 mm
Burning Duration - beyond 25mm	10.0 s
Damaged Length - beyond 25mm	3.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined



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Vol No: 1  
Issue Date: 2020-05-28

#### HORIZONTAL BURNING FOAMED MATERIAL TEST (Oven-Aged)

Test Name	Test Result
Specimen Number	3
Thickness	5.2110 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	29.0 mm
Burning Duration - beyond 25mm	8.0 s
Damaged Length - beyond 25mm	4.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined

#### HORIZONTAL BURNING FOAMED MATERIAL TEST (Oven-Aged)

Test Name	Test Result
Specimen Number	4
Thickness	5.1340 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	32.0 mm
Burning Duration - beyond 25mm	12.0 s
Damaged Length - beyond 25mm	7.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined





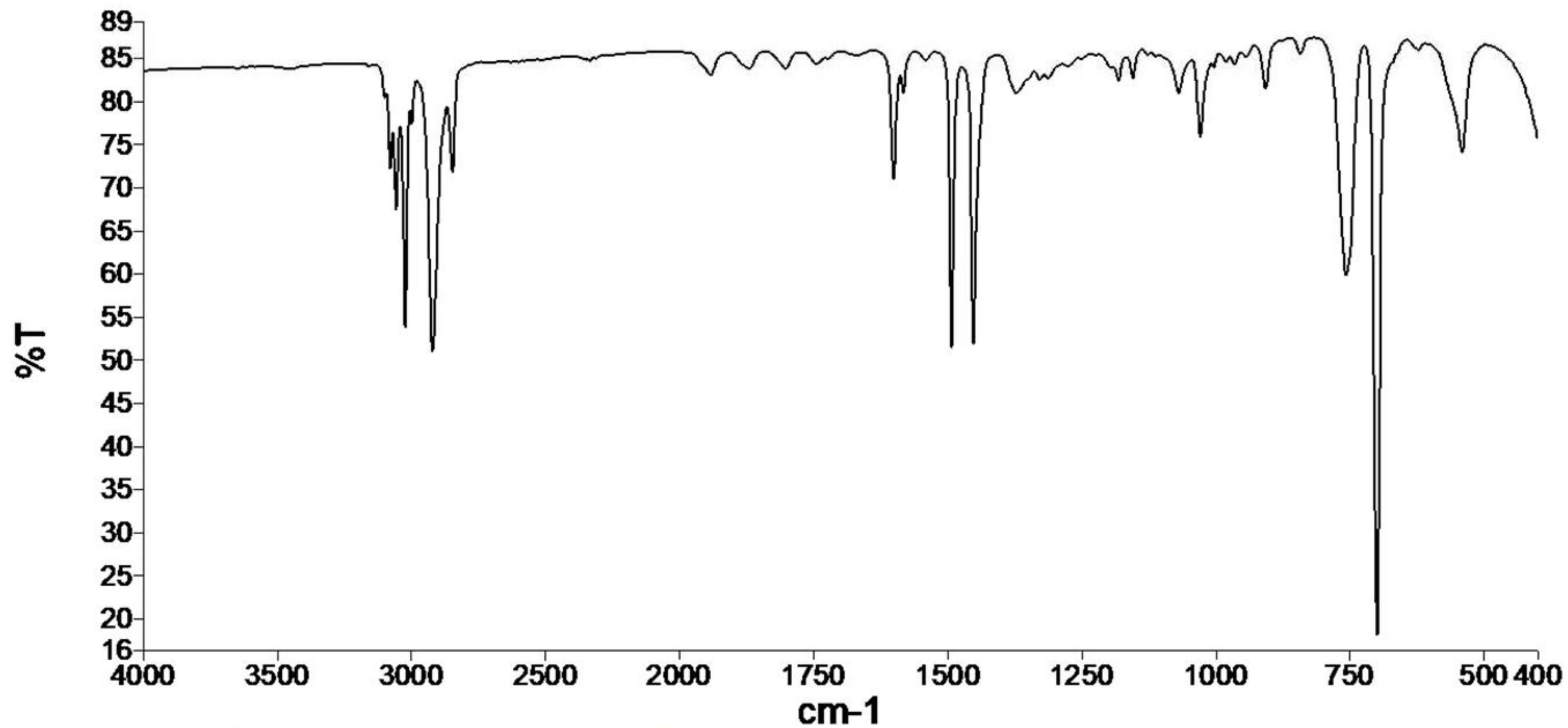
Order No: F201042408  
Project No: 1000941889  
File No: E257516  
Vol No: 1  
Issue Date: 2020-05-28

**HORIZONTAL BURNING FOAMED MATERIAL TEST (Oven-Aged)**

Test Name	Test Result
Specimen Number	5
Thickness	5.1960 mm
After Flame Time (T1)	0.0 s
After Glow Time (t2)	0.0 s
t1+t2	0 s
Damaged Length (L1_2)	28.0 mm
Burning Duration - beyond 25mm	7.0 s
Damaged Length - beyond 25mm	3.0 mm
Burning Rate	N/A mm/min
Observation (X1)	Specimen did NOT drip;Ceased to burn before the 125 mm gauge mark; rate not determined

## IR

Sample dissolved in hot o-dichlorobenzene,  
cast on a KBr crystal, dried at  $70 \pm 3$  °C.



Name

Description

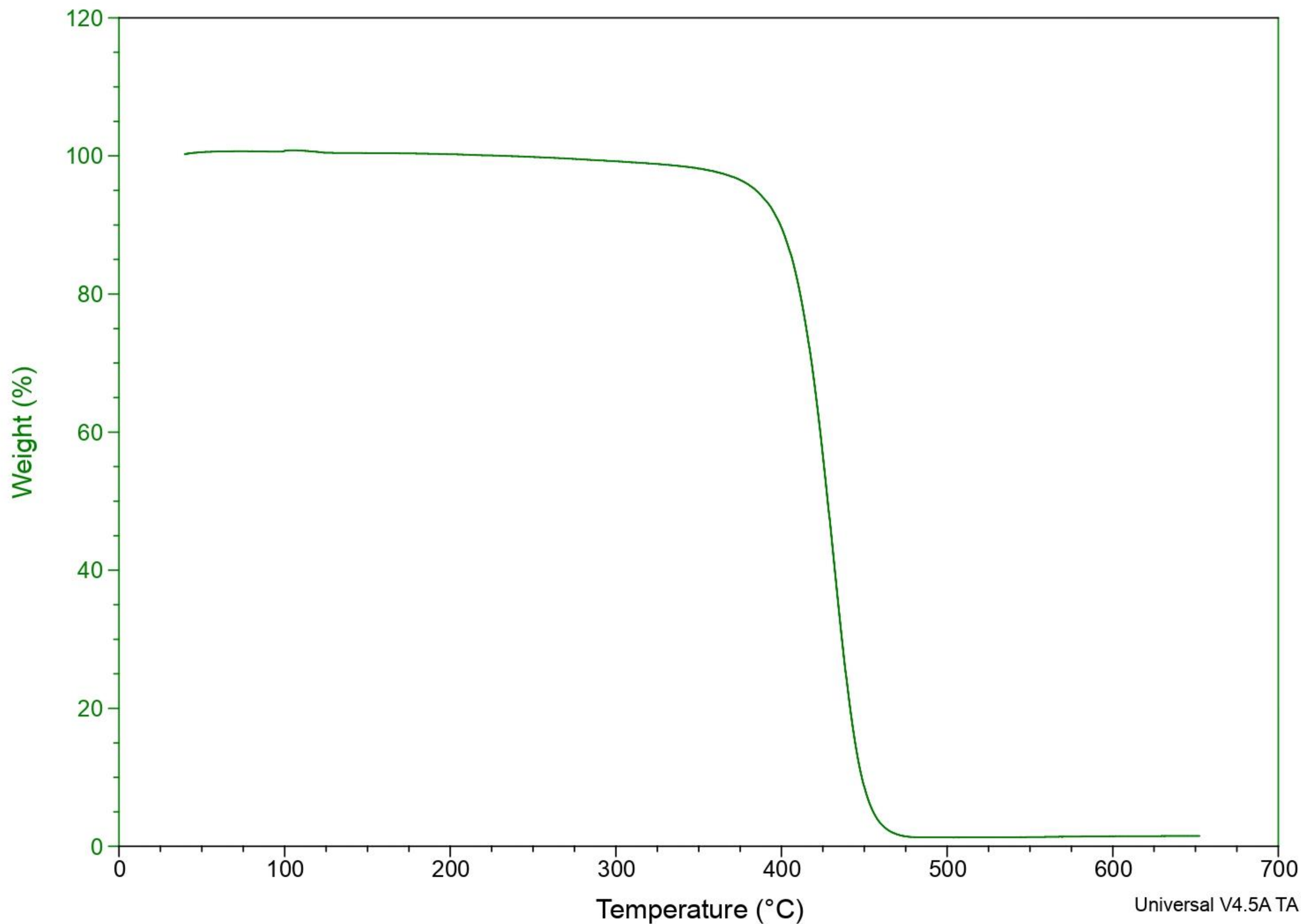
F201042408T E257516, EPS-F, 09, N, F, WT, S, 22.6/57.2, MC.

Creation Date 5/15/2020 9:45:00 AM

Sample: EPS-F,PS,WT  
Size: 2.5650 mg  
Method: 40°C-650°C@20°C/min  
Comment: E257516,22.2°C/58.1%RH

## TGA

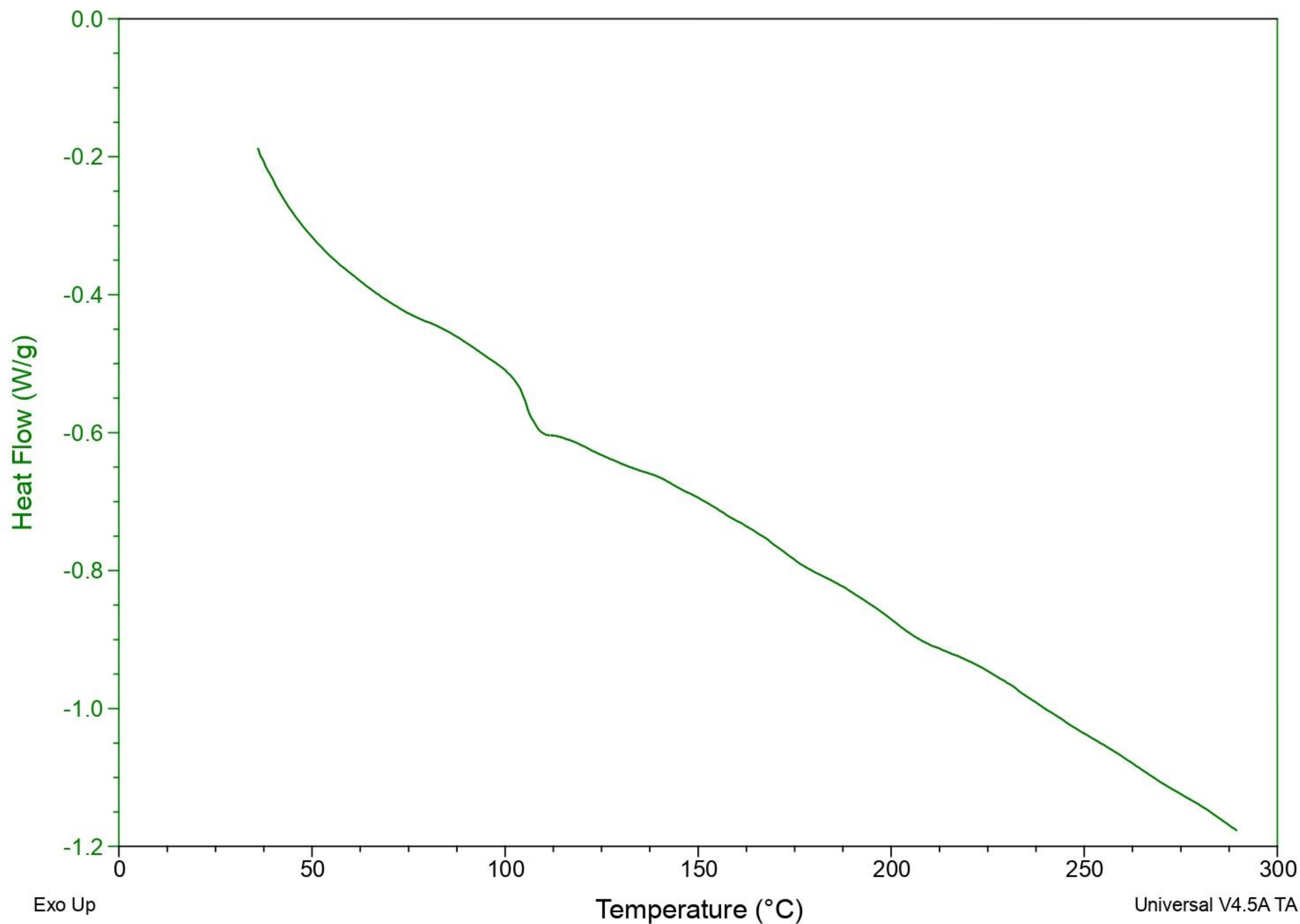
File: \\...\\FUS\\2020\\F201042408\\F201042408.TGT  
Operator: ES,T,N2@100CCM,WE029  
Run Date: 16-May-2020 06:20  
Instrument: TGA Q500 V20.13 Build 39



Sample: EPS-F,PS,WT  
Size: 0.8100 mg  
Method: 20oC/min-290oC  
Comment: E257516,22.2°C/57.6%RH

## DSC

File: \\...\\FUS\\2020\\F201042408\\F201042408.DST  
Operator: ES,T,N2@50CCM,DS004  
Run Date: 19-May-2020 04:35  
Instrument: DSC Q2000 V24.11 Build 124



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