Log Normalized ΔH Fusion vs. [MFA]

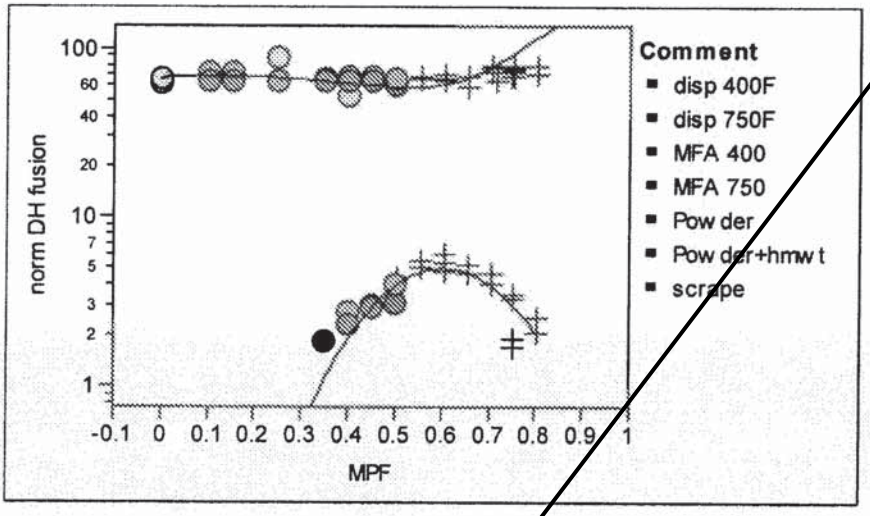


Figure 1

MFA Phase ΔH Fusion vs. [MFA]

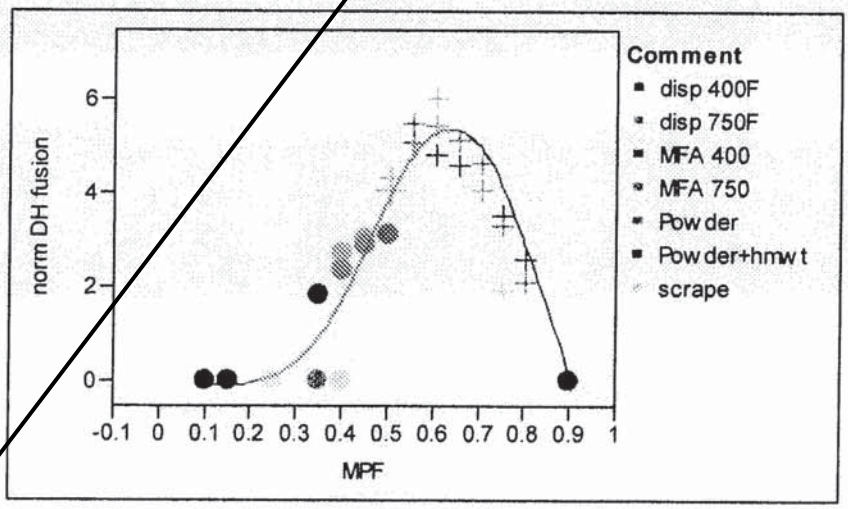


Figure 2

Log Normalized 2nd Melt ΔH vs. [MFA]

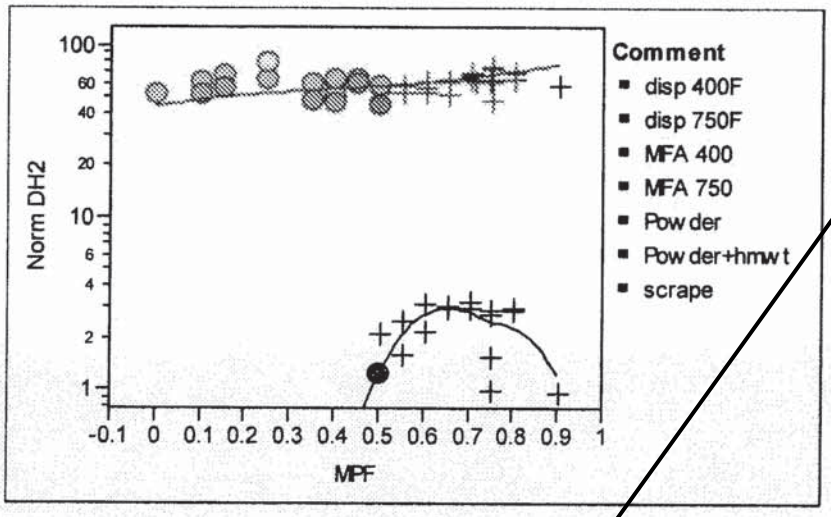


Figure 3

MFA Phase Normalized 2nd Melt ΔH vs. [MFA]

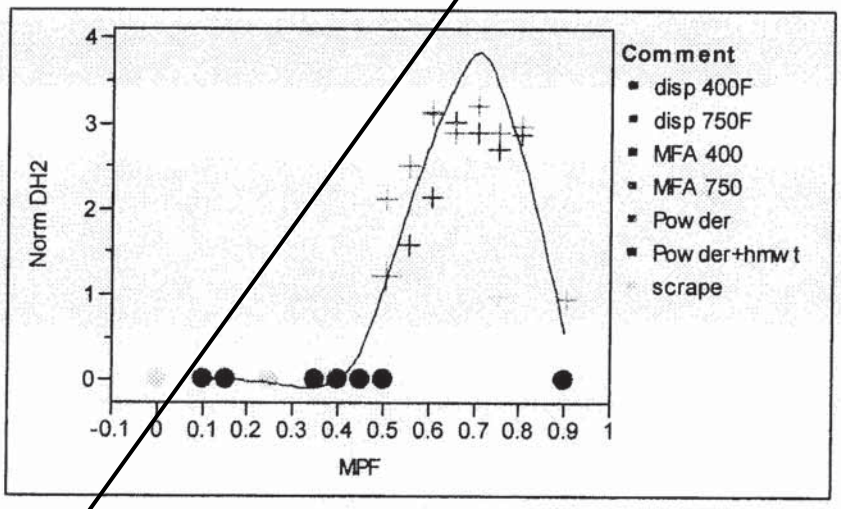


Figure 4

MFA Phase 2nd Melt mpt vs. [MFA]

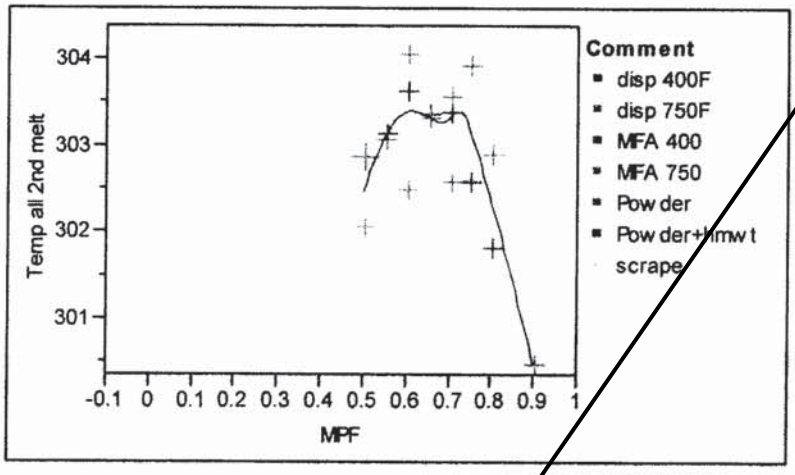


Figure 5

MFA Phase ΔH of fusion vs. [MFA]

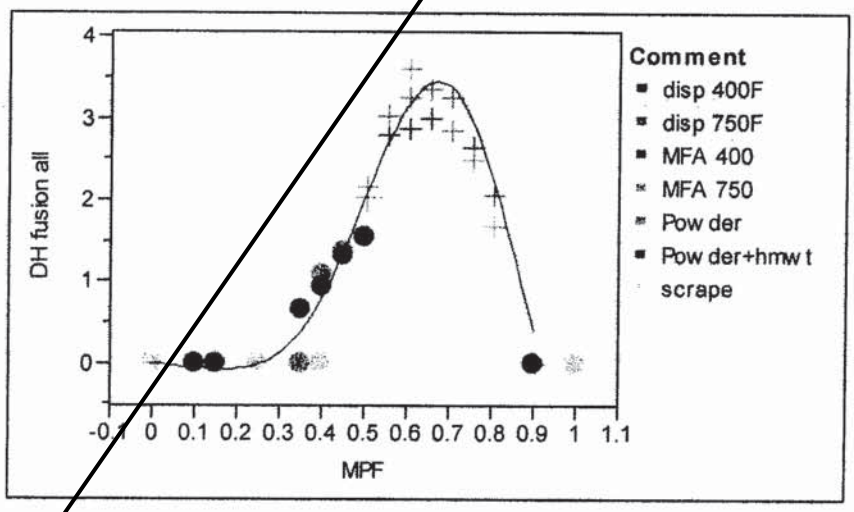


Figure 6

MFA Phase 2nd melt ΔH vs. [MFA]

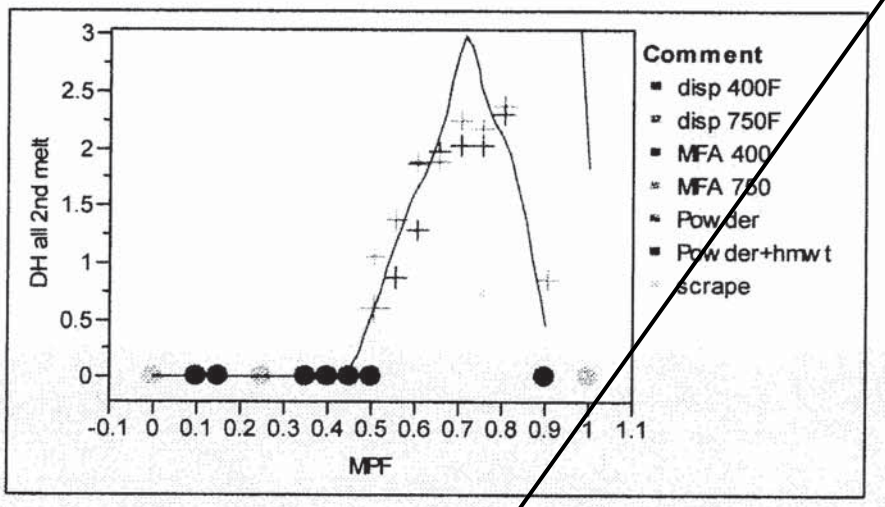


Figure 7

LPTFE (SFN-D) Phase Fusion Temp vs. [MFA]

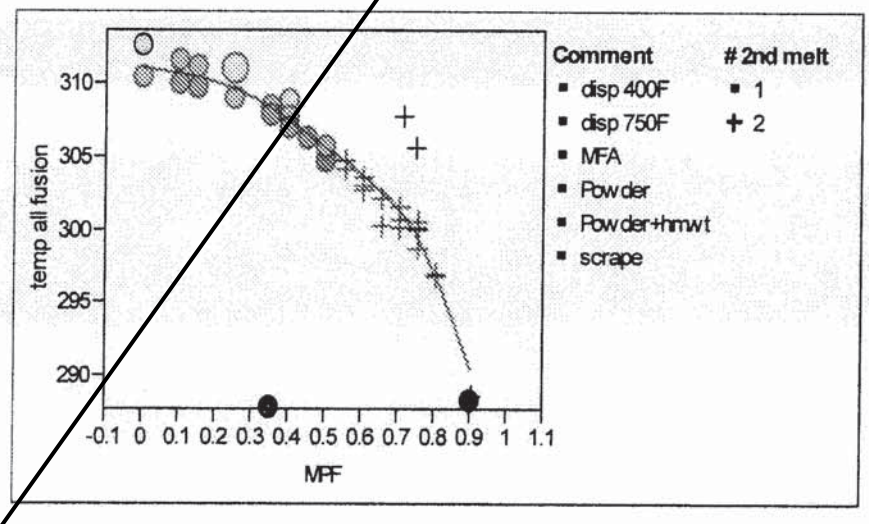


Figure 8

LPTFE (SFN-D) Phase 2nd Melt mpt vs. [MFA]

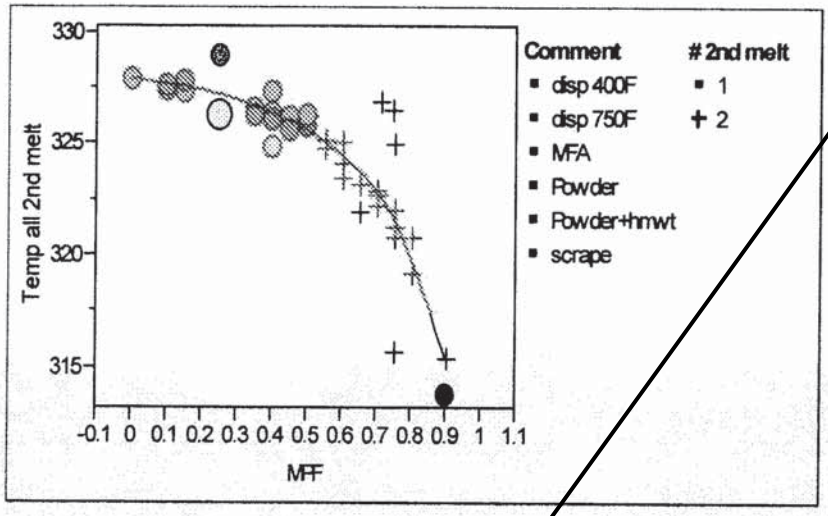


Figure 9

LPTFE (SFN-D) Phase Normalized Fusion ΔH vs. [MFA]

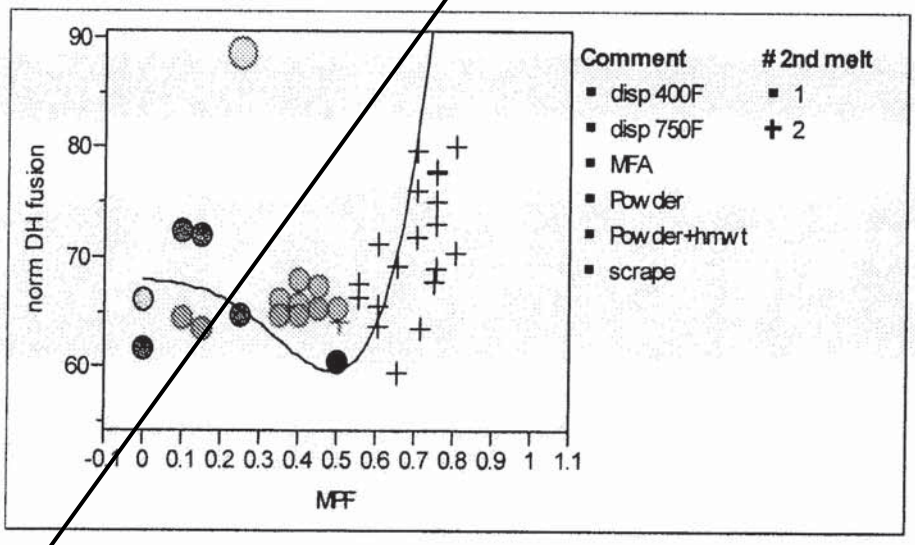


Figure 10

LPTFE (SFN-D) Phase Normalized 2nd Melt ΔH vs. [MFA]

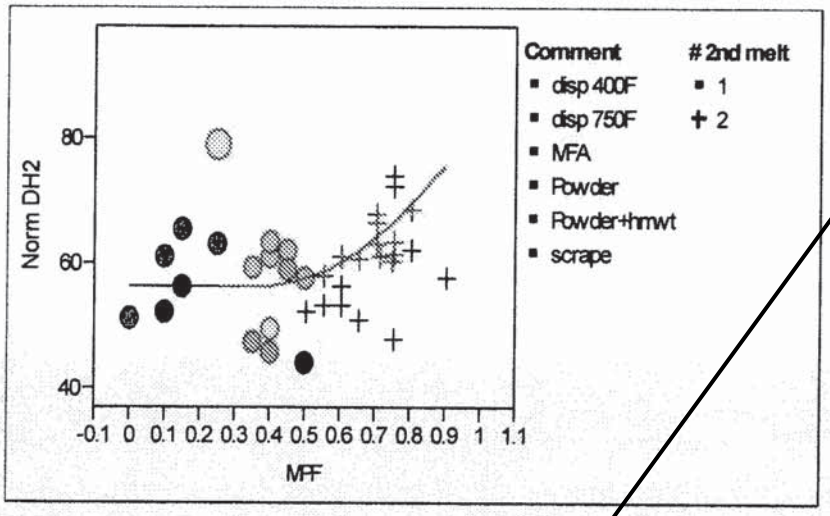


Figure 11

LPTFE (SFN-D) Phase Fusion mpt vs. [FEP]

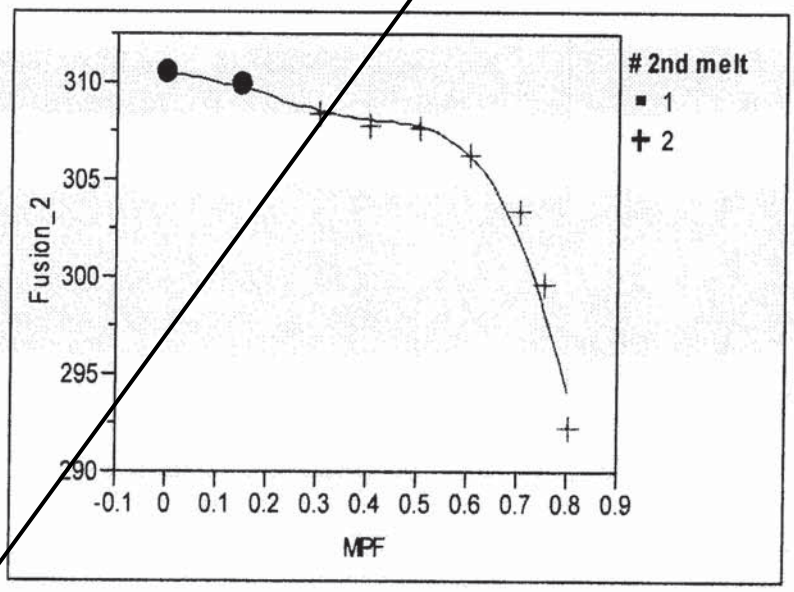


Figure 12

LPTFE (SFN-D) Phase 2nd Melt mpt vs. [FEP]

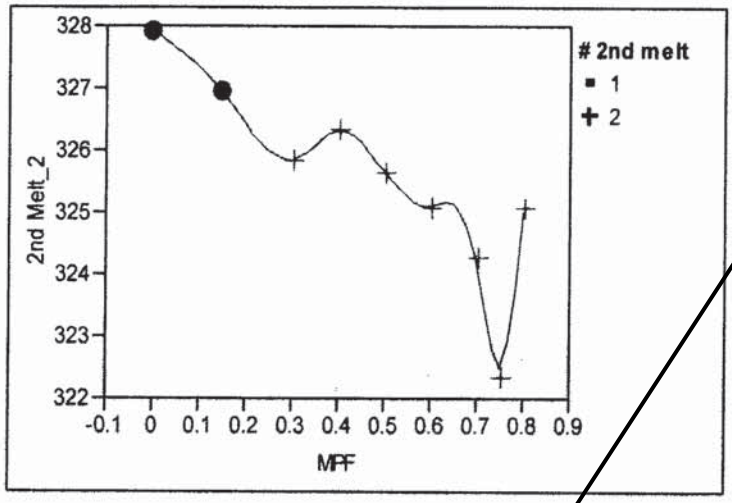


Figure 13

FEP Phase Fusion mpt vs. [FEP]

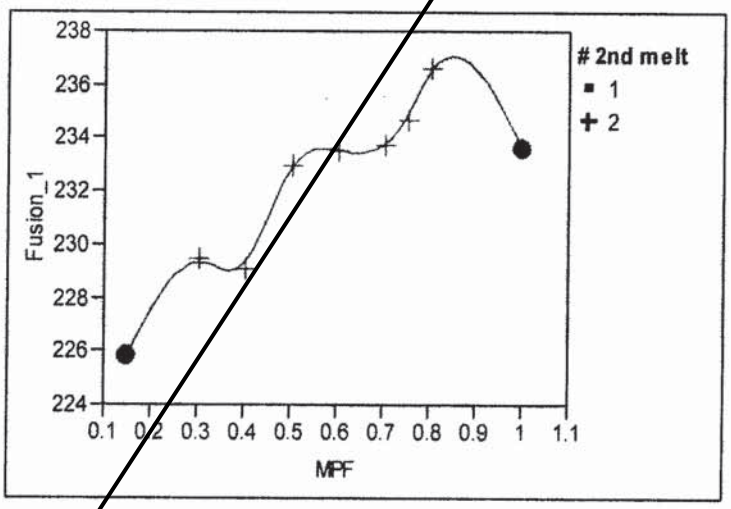


Figure 14

FEP Phase 2nd Melt mpt vs. [FEP]

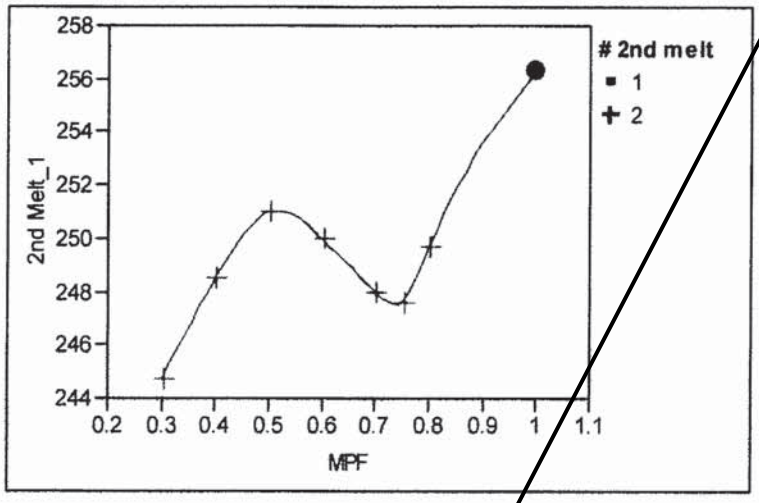


Figure 15

Normalized Fusion ΔH vs. [FEP]

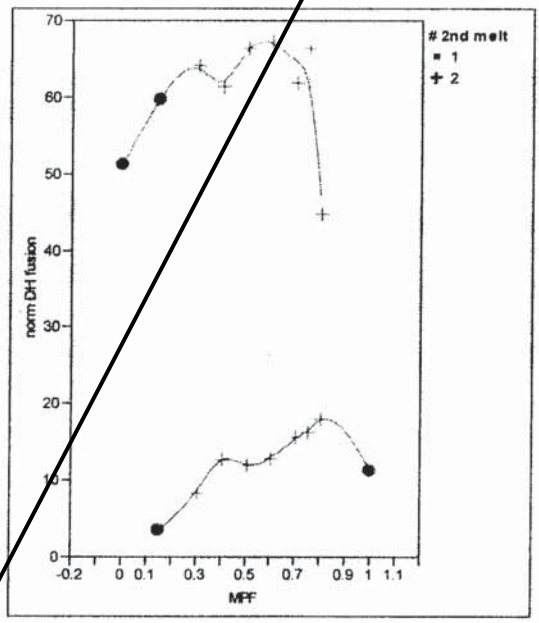


Figure 16

Normalized 2nd melt ΔH vs. [FEP]

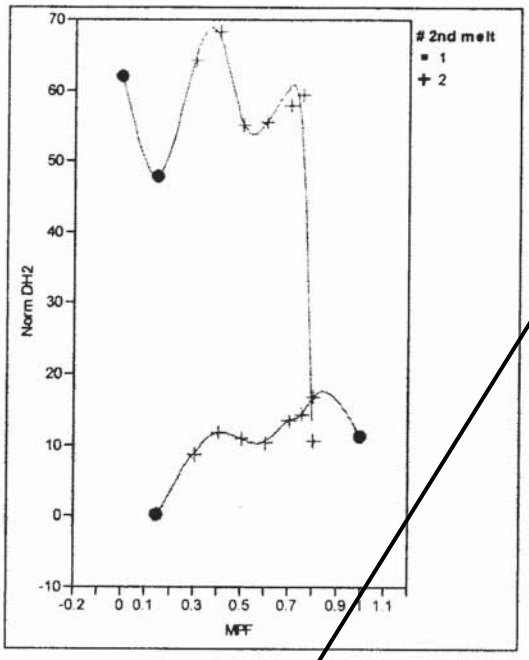


Figure 17

FEP Phase 1st mpt vs. [FEP]

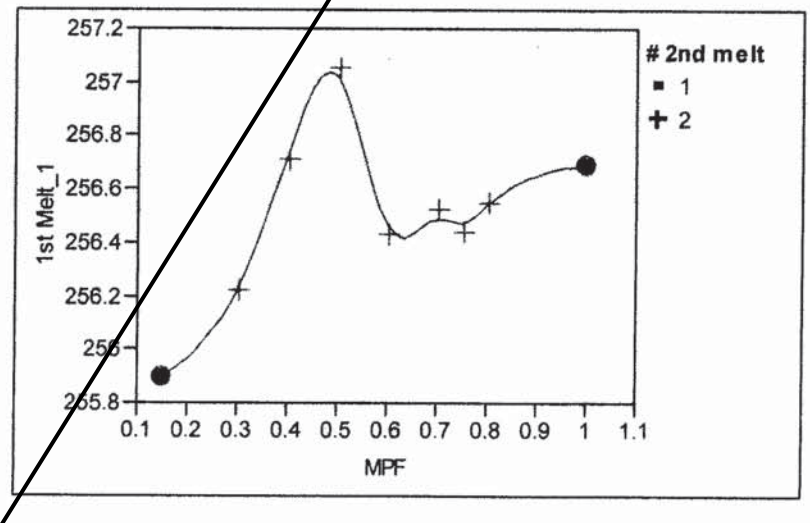


Figure 18

LPTFE (SFN-D) Phase 1st mpt vs. [FEP]

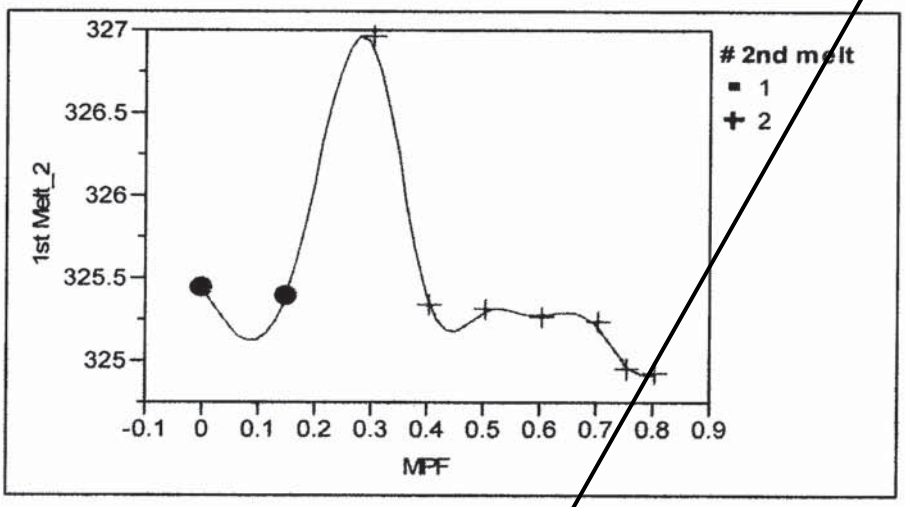


Figure 19

Fusion Temp vs. [PFA]

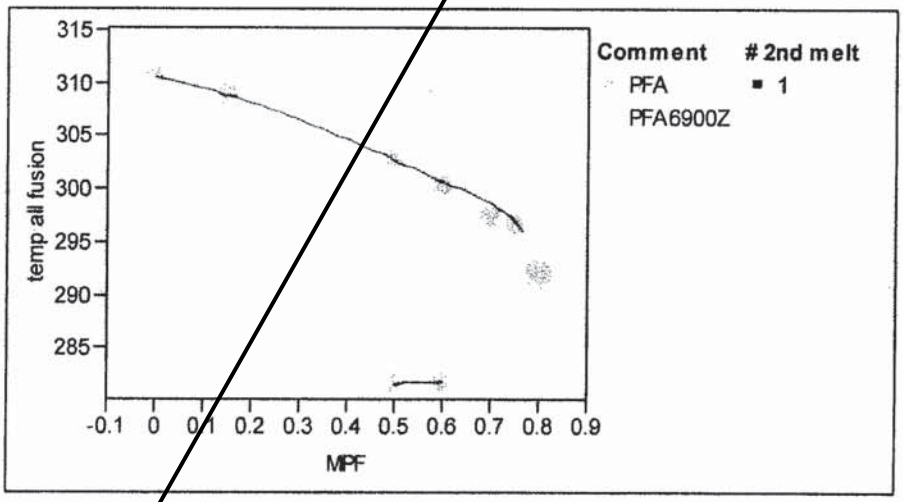


Figure 20

2nd Melt mpt vs. [PFA]

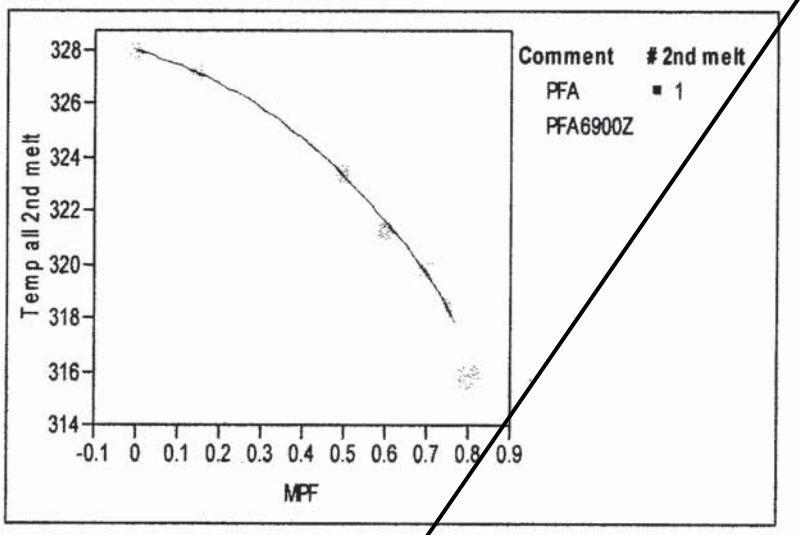


Figure 21

PFA Phase Normalized Fusion ΔH vs. [PFA]

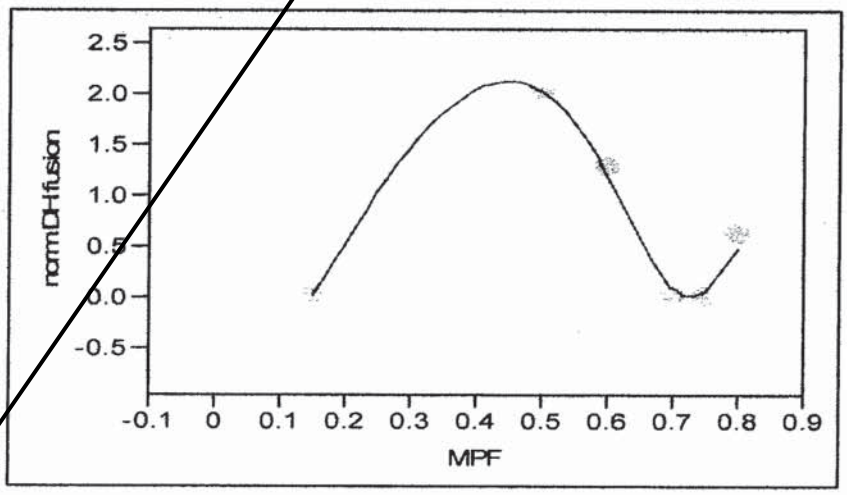


Figure 22

LPTFE (SFN-D) Phase Fusion ΔH vs. [PFA]

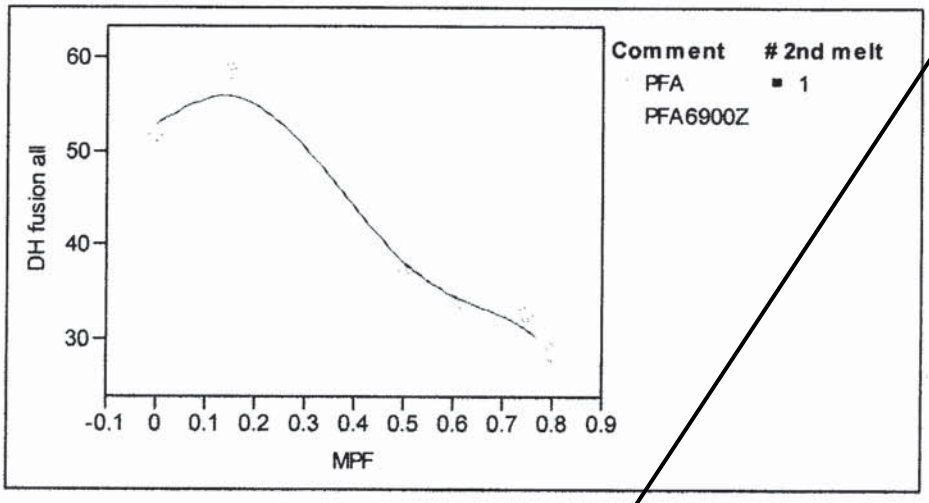


Figure 23

LPTFE (SFN-D) Phase Normalized Fusion ΔH vs. [PFA]

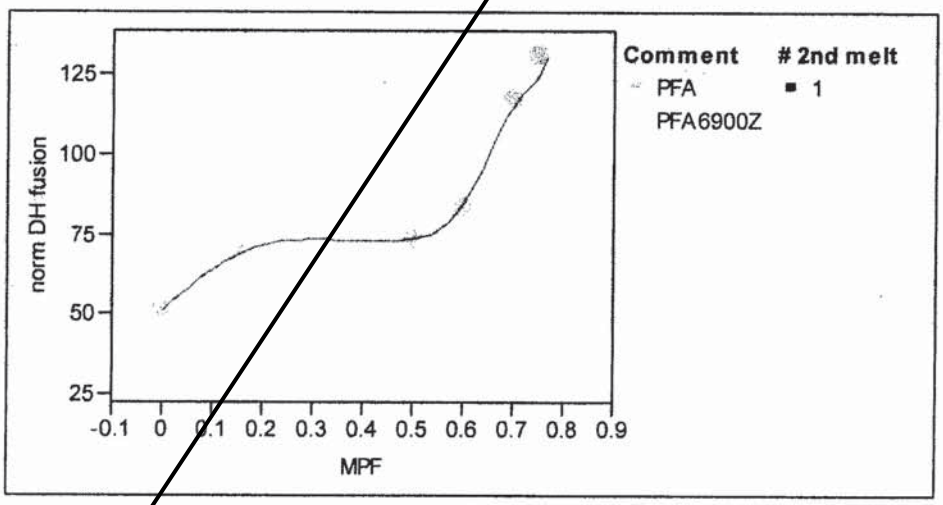


Figure 24

LPTFE (SFN-D) Phase Normalized 2nd Melt ΔH vs. [PFA]

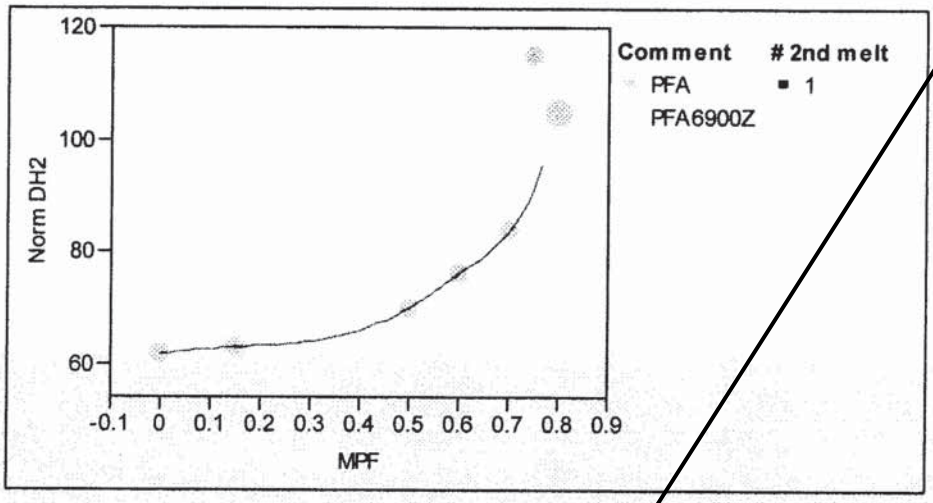


Figure 25

Acid Etch Testing of PFA/LPTFE Blend Films

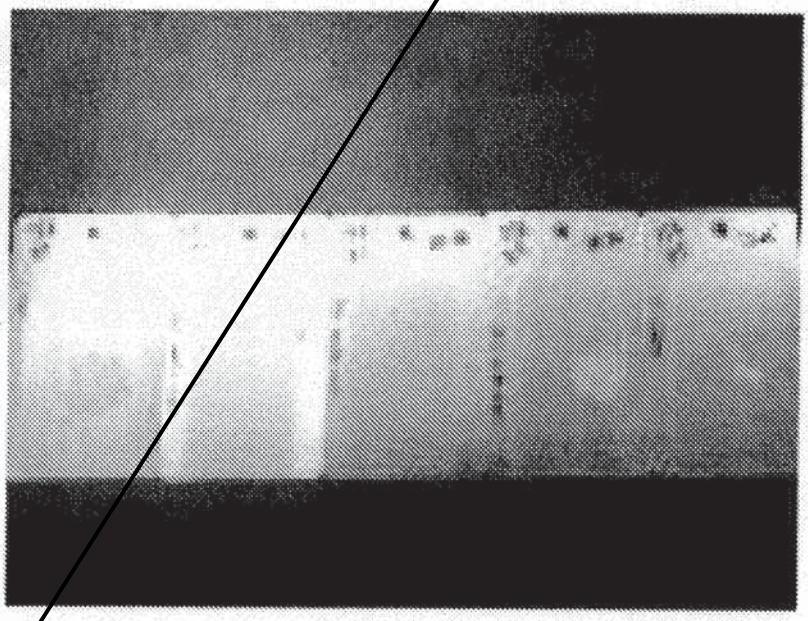


Figure 26A

Contact Angles for Water on PFA/LPTFE Blends

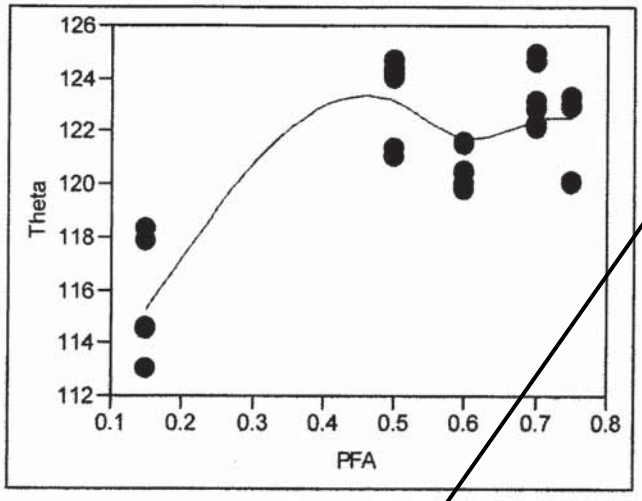


Figure 26B

MPF Peak Normalized 2nd Melt ΔH vs. [MPF]

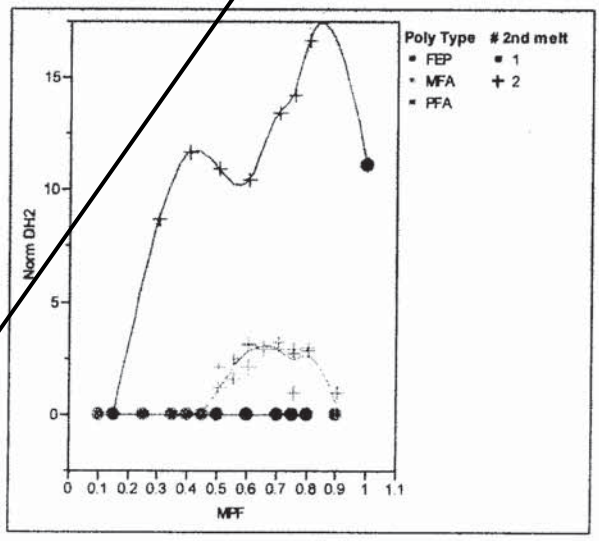


Figure 27

MPF Peak Normalized Fusion ΔH vs. [MPF]

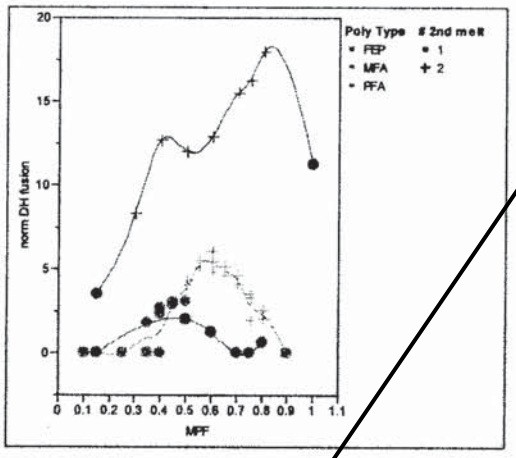


Figure 28

LPTFE (SFN-D) Peak Normalized 2nd Melt ΔH vs. [MPF]

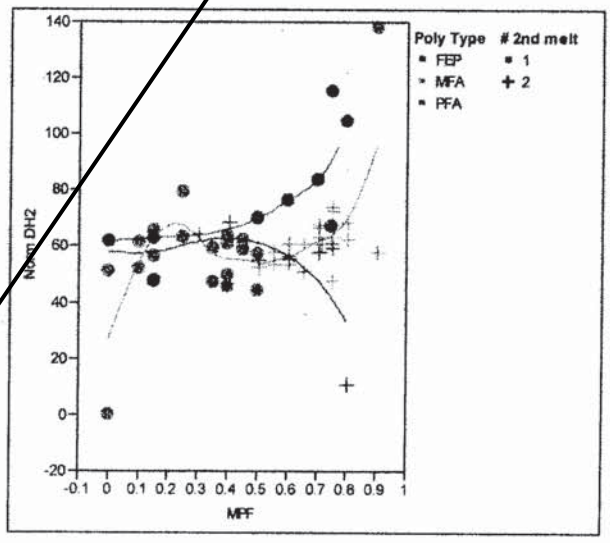


Figure 29

LPTFE (SFN-D) Peak Normalized Fusion ΔH vs. [MPF]

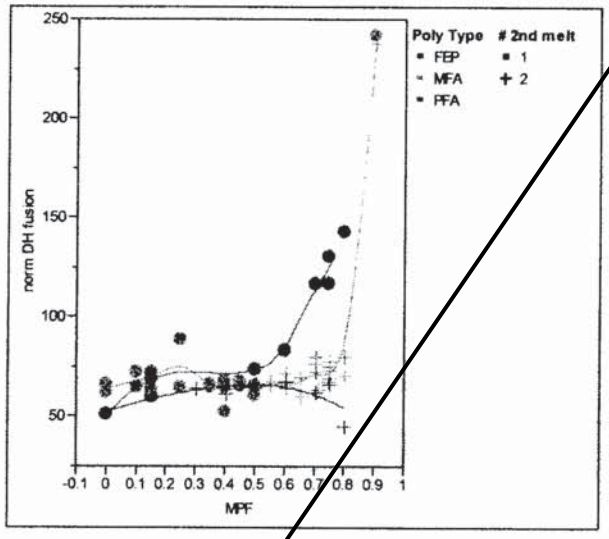


Figure 30

LPTFE (SFN-D) 2nd mpt vs. [MPF]

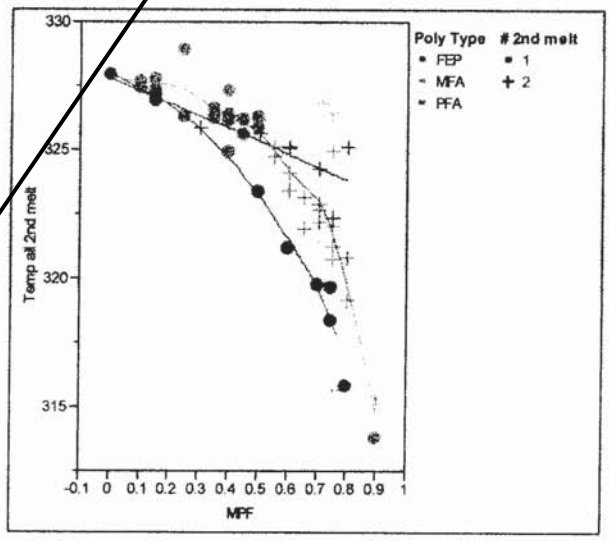


Figure 31

LPTFE (SFN-D) Fusion Temp vs. [MPF]

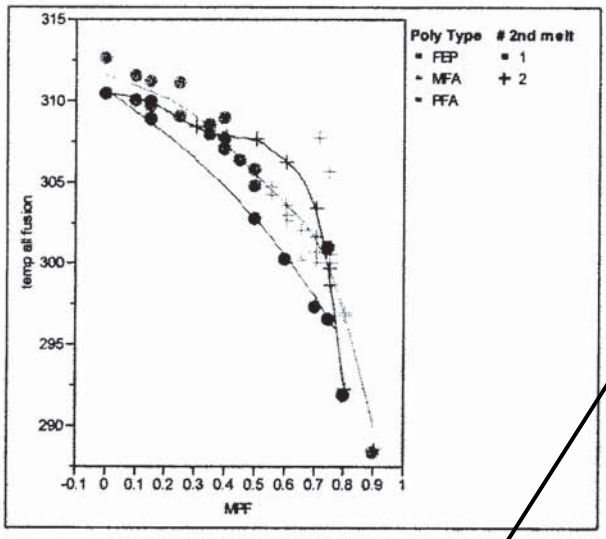


Figure 32

MPF Phase 2nd mpt vs. [MPF]

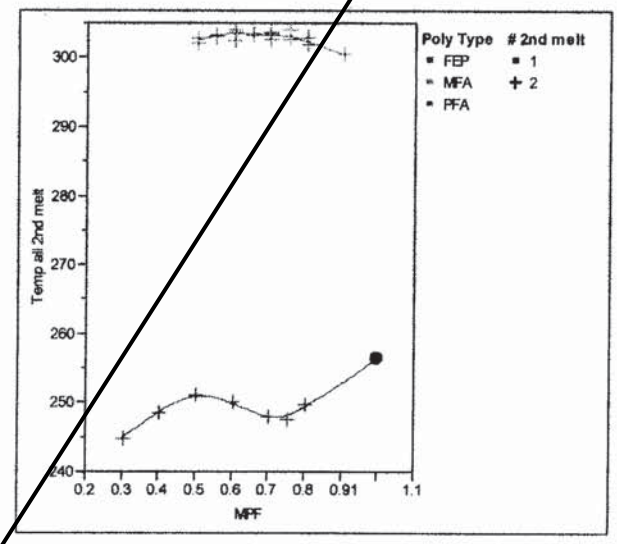


Figure 33

MPF Phase Fusion mpt vs. [MPF]

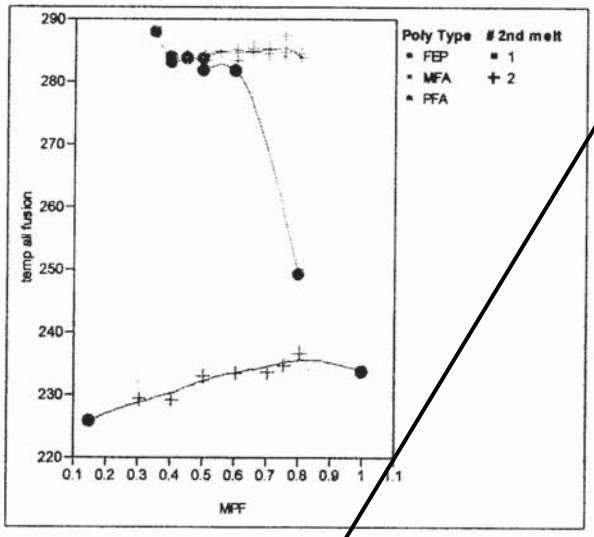


Figure 34

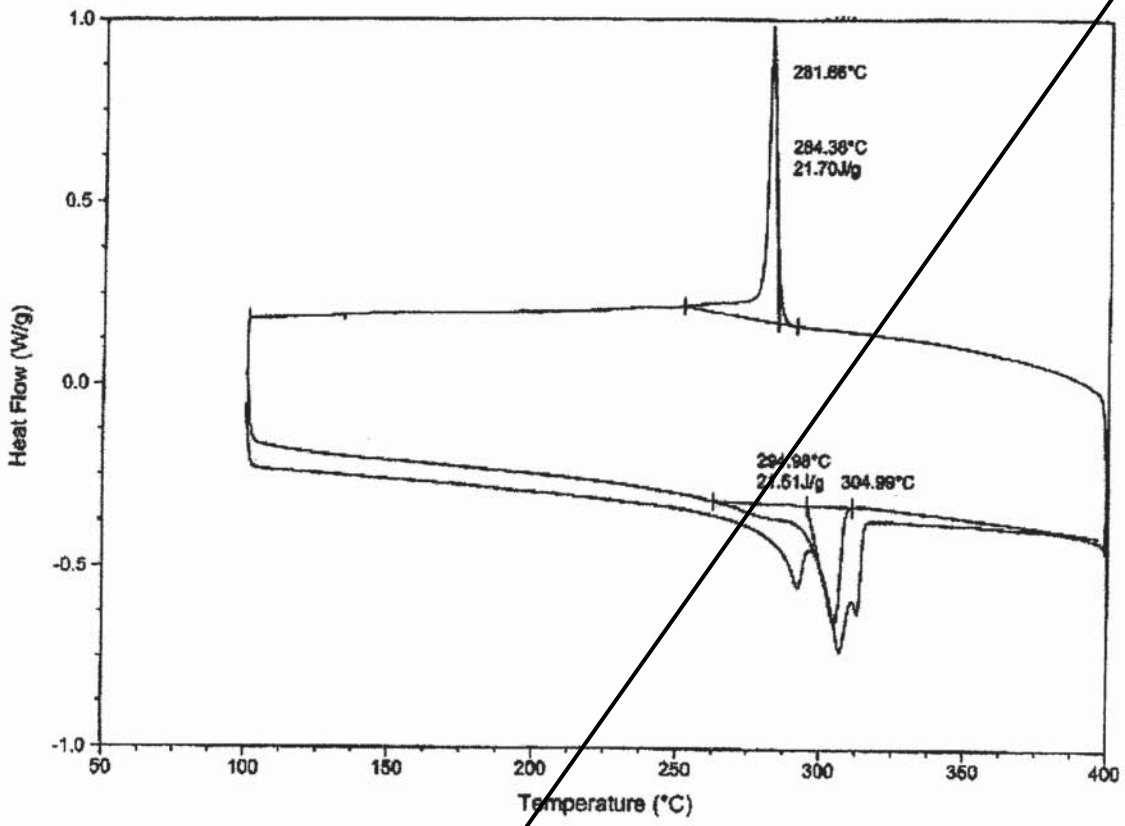

1.0
0.5
0.0
-0.5
-1.0
Heat Flow (W/g)
50
100
150
200
250
300
350
400
Temperature (°C)
281.66°C
284.36°C
21.70J/g
294.98°C
304.99°C

Figure 35

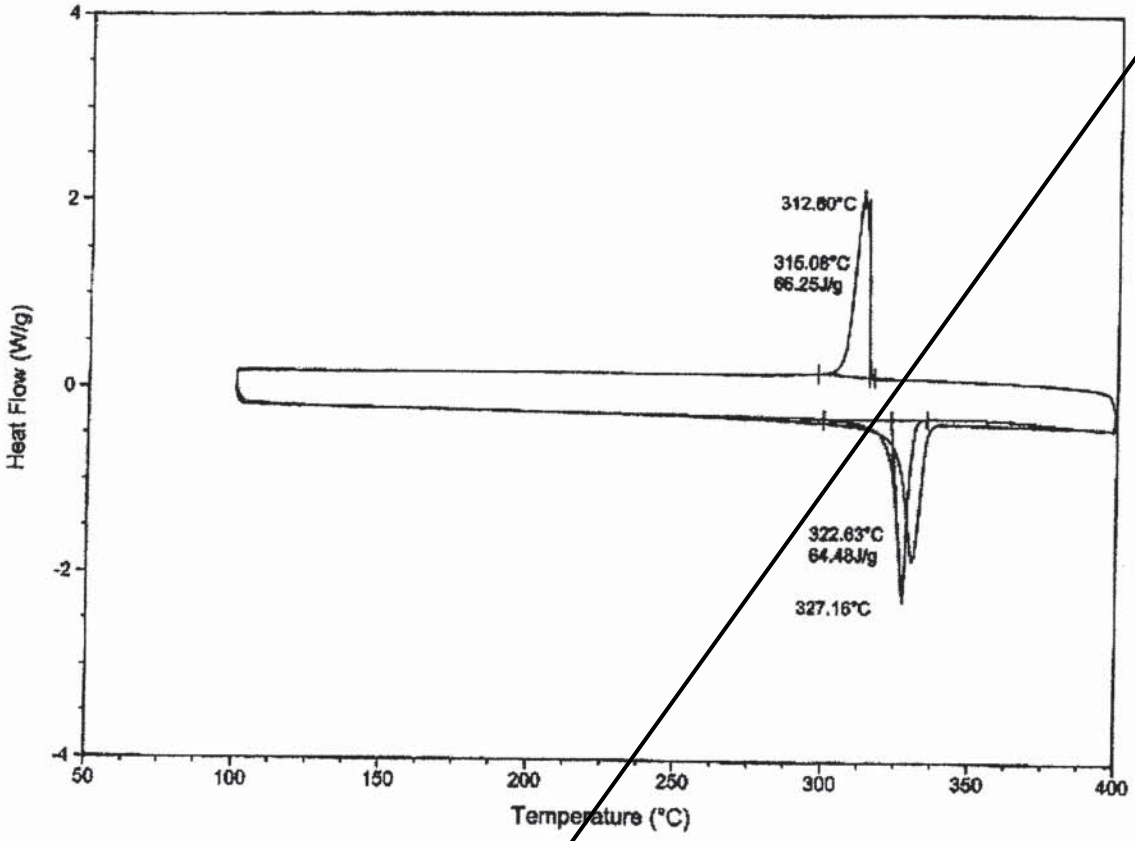

312.80°C
315.08°C
66.25J/g
322.63°C
64.48J/g
327.16°C
Heat Flow (W/g)
Temperature (°C)
4
2
0
-2
-4
50
100
150
200
250
300
350
400

Figure 36

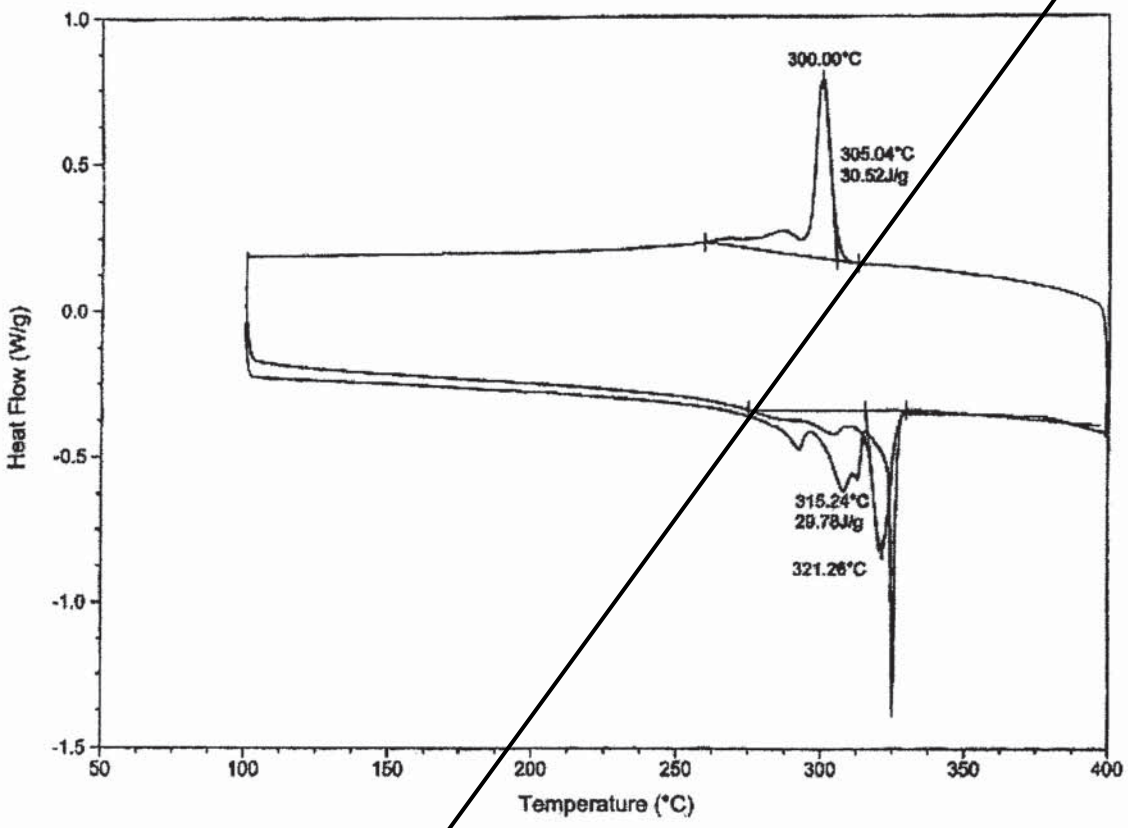

1.0
0.5
0.0
-0.5
-1.0
-1.5
Heat Flow (W/g)
50
100
150
200
250
300
350
400
Temperature (°C)
300.00°C
305.04°C
30.52J/g
315.24°C
29.78J/g
321.26°C

Figure 37

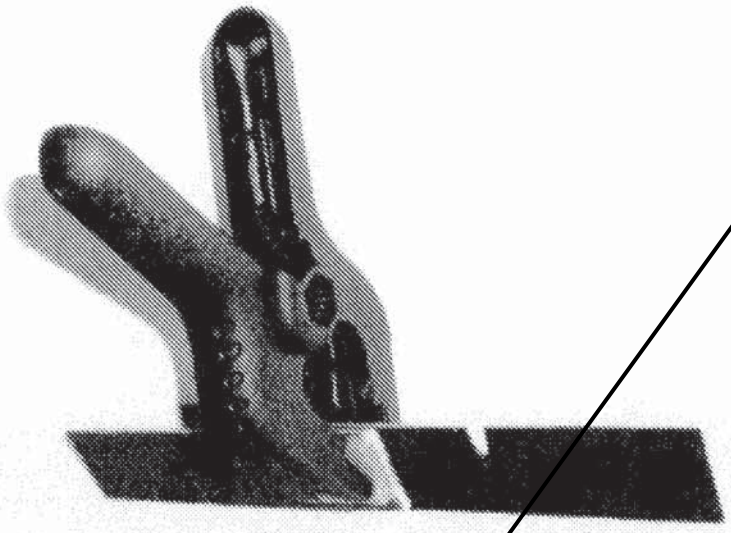


Figure 38

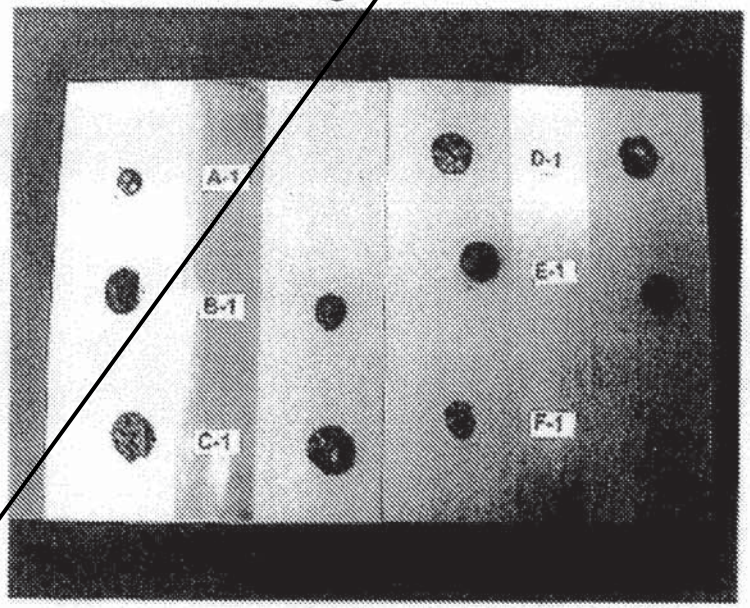


Figure 39

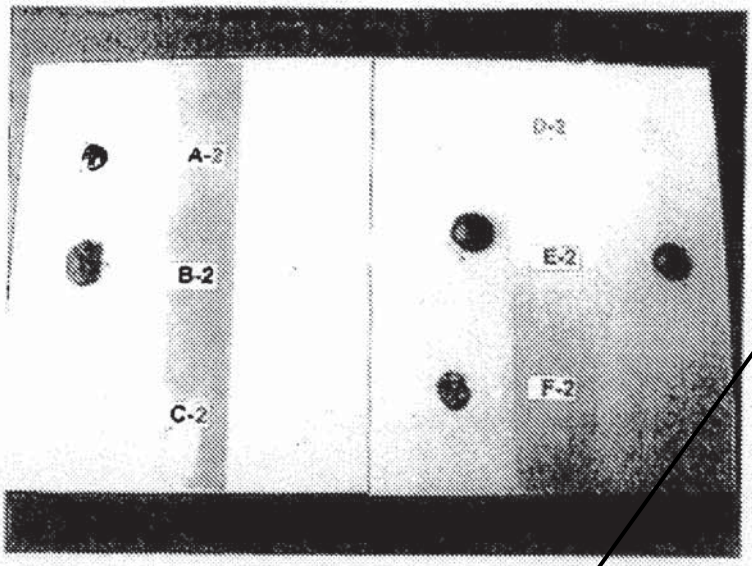


Figure 40

Bivariate Fit of Normalized DH Fusion of PFA vs. MPF (PFA) fraction

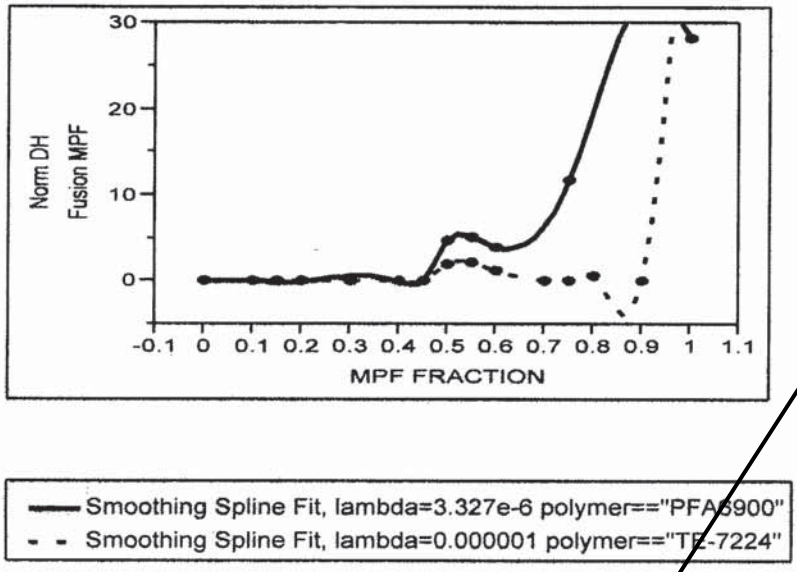


Figure 41

Bivariate Fit of contact angle vs. MPF (PFA) fraction

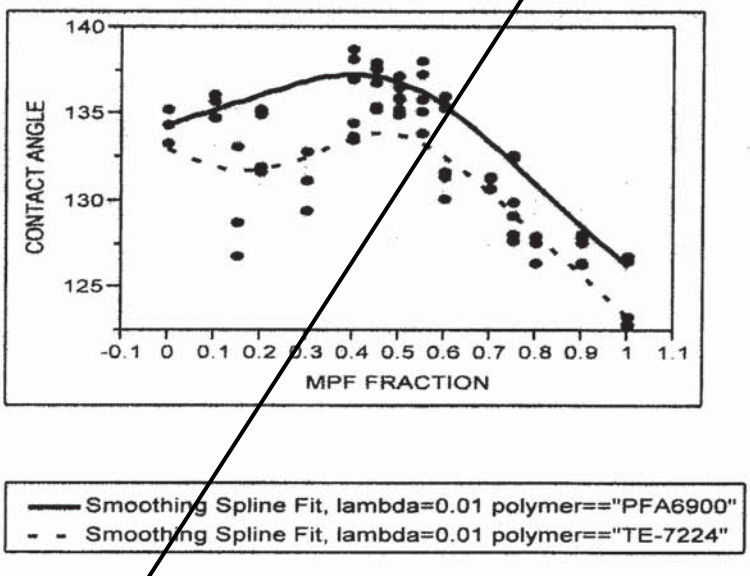


Figure 42

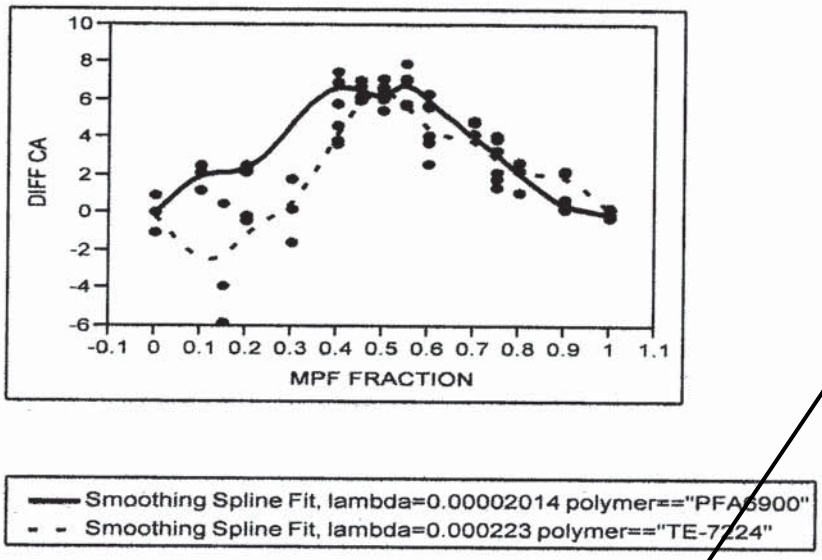


Figure 43

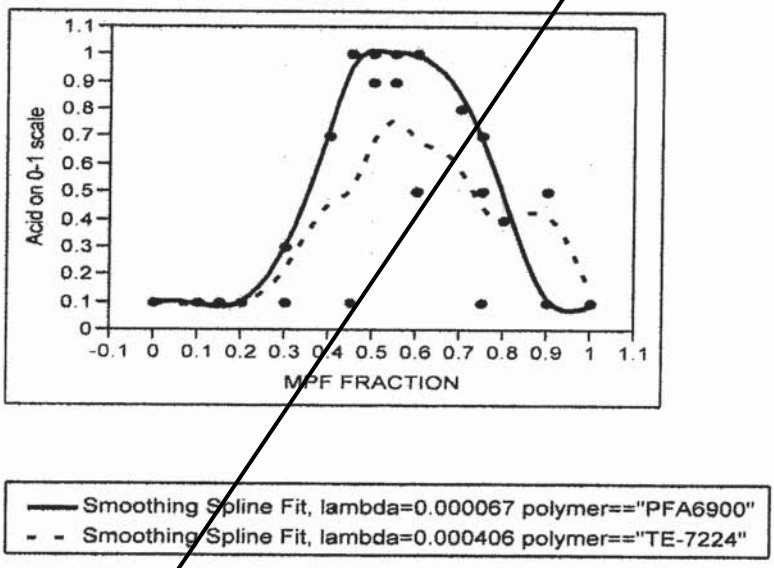


Figure 44

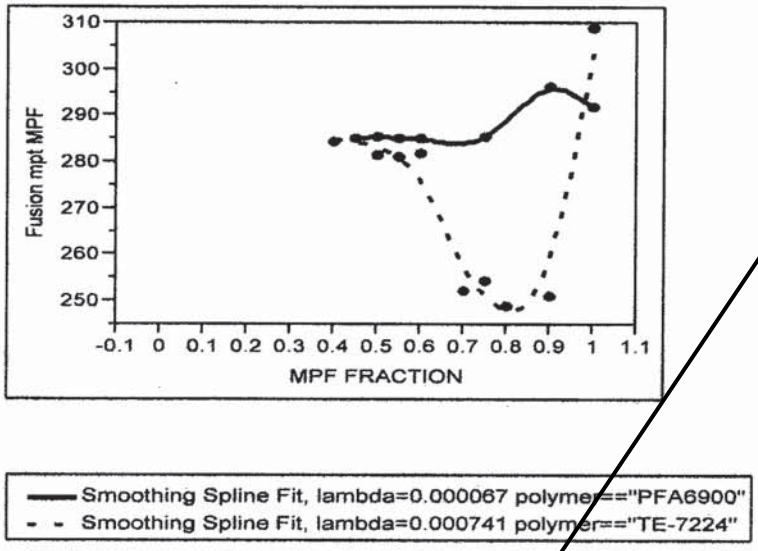


Figure 45

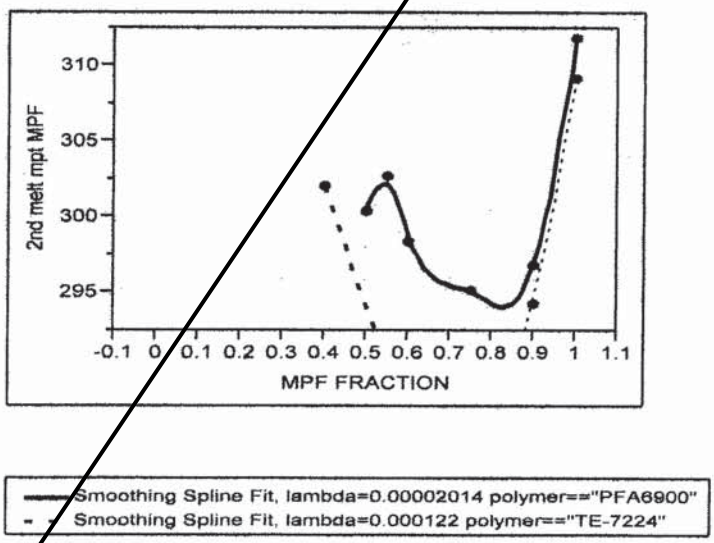


Figure 46

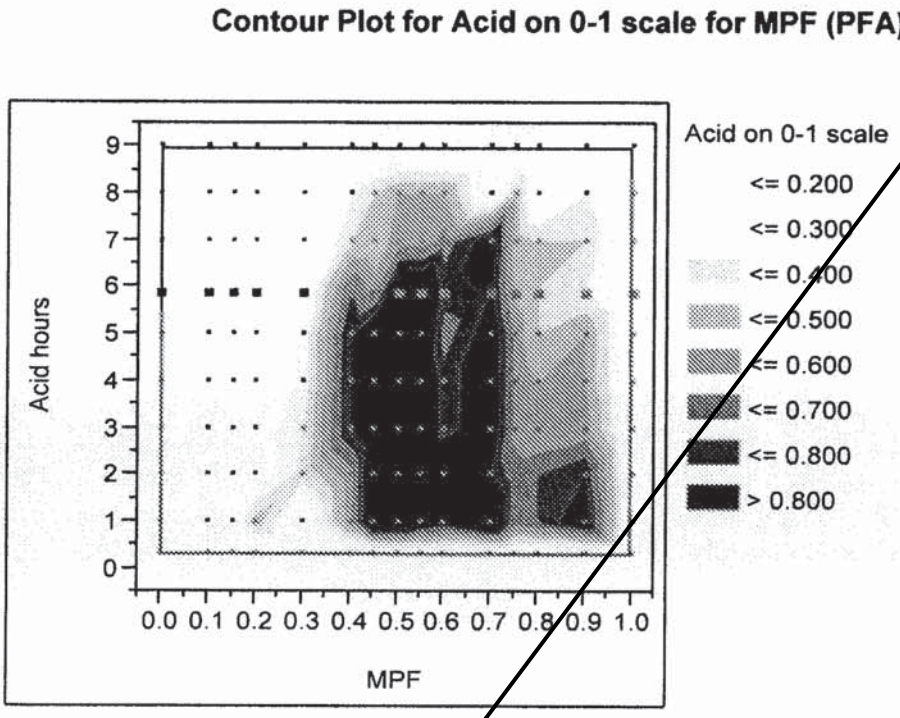

Contour Plot for Acid on 0-1 scale for MPF (PFA)
Acid hours
MPF
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
0 1 2 3 4 5 6 7 8 9
Acid on 0-1 scale
<= 0.200
<= 0.300
<= 0.400
<= 0.500
<= 0.600
<= 0.700
<= 0.800
> 0.800

Figure 47

Bivariate Fit of Normalized DH Fusion MPF (FEP) vs. MPF (FEP) fraction

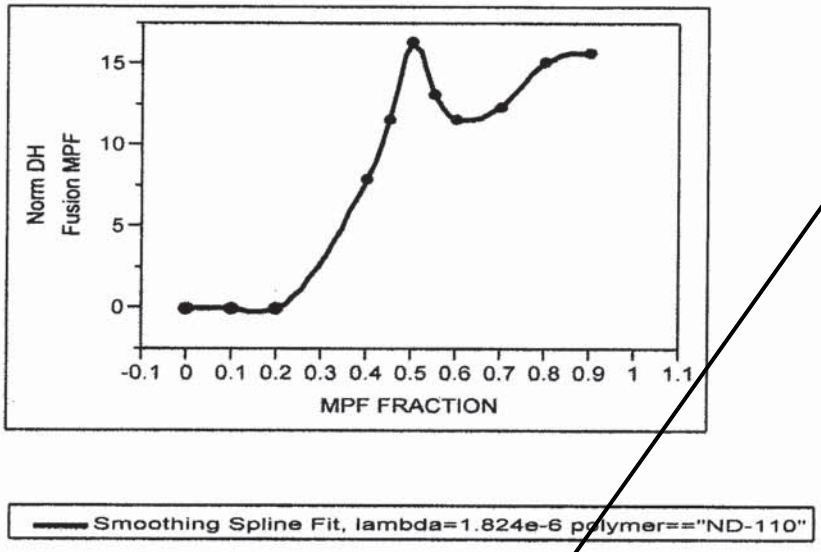


Figure 48

Bivariate Fit of Contact Angle vs. MPF (FEP) fraction

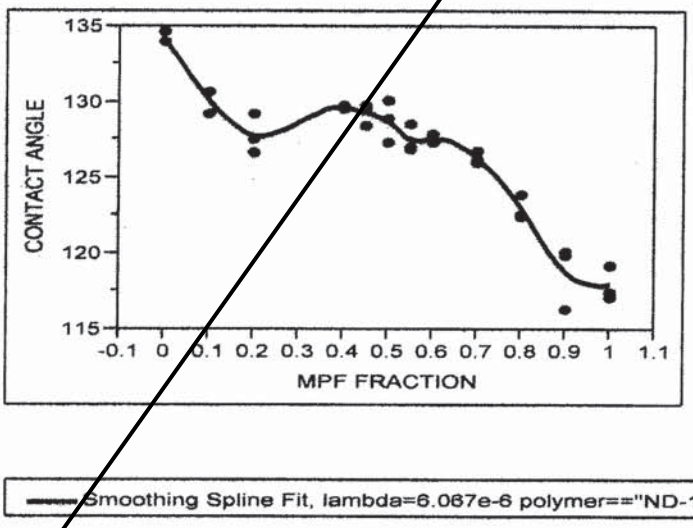


Figure 49

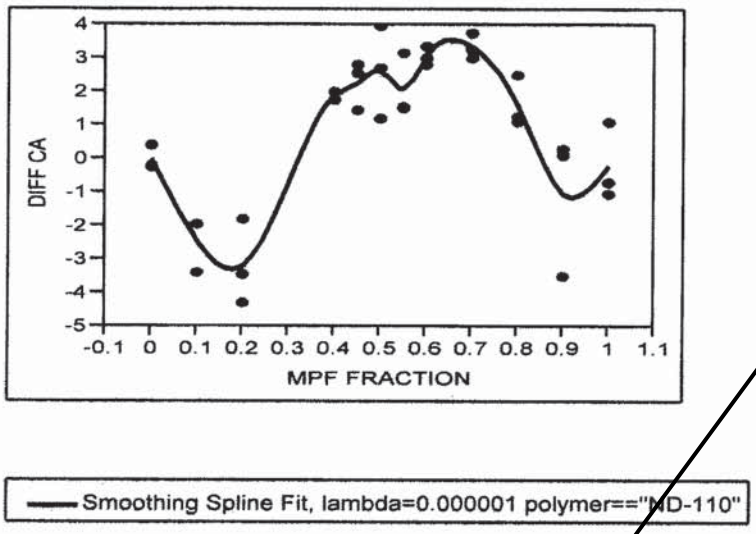


Figure 50

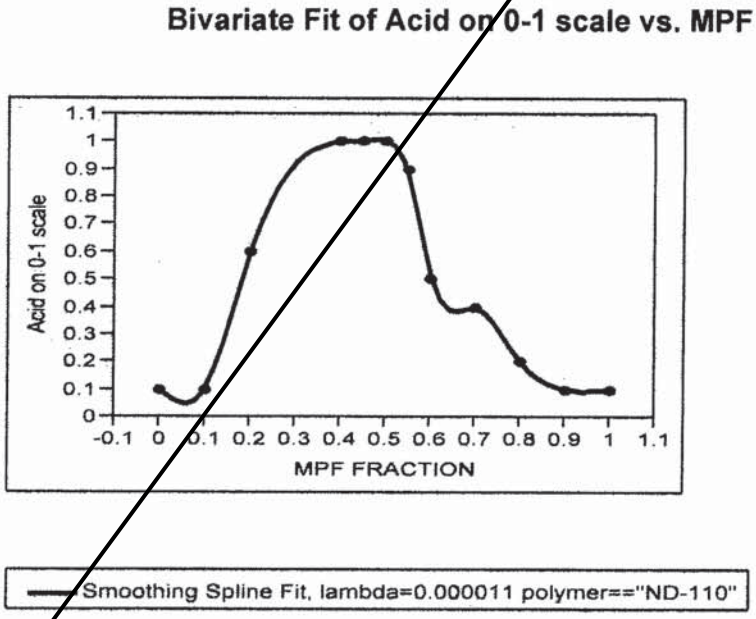


Figure 51

Bivariate Fit of Fusion mpt MPF (FEP) vs. MPF (FEP) fraction

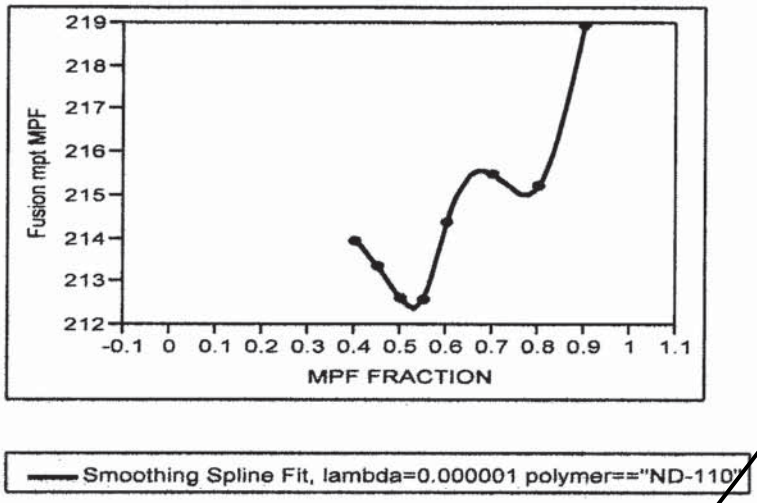


Figure 52

Bivariate Fit of 2nd melt mpt MPF (FEP) vs. MPF (FEP) fraction

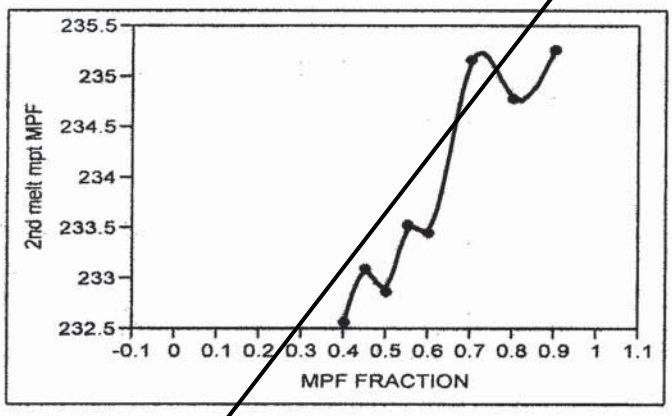


Figure 53

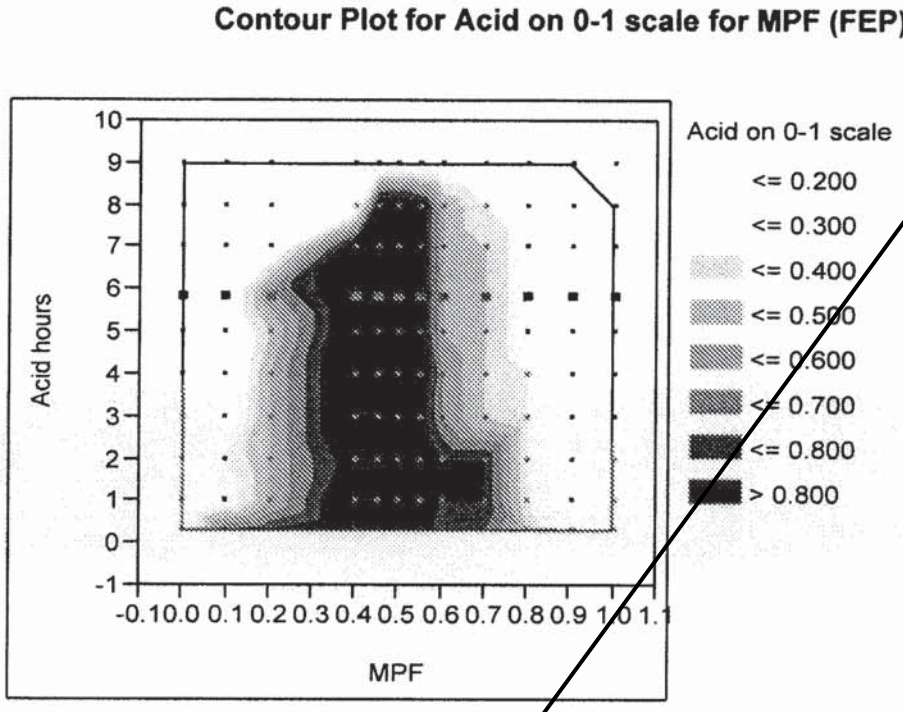

Contour Plot for Acid on 0-1 scale for MPF (FEP)
Acid hours
MPF
Acid on 0-1 scale
<= 0.200
<= 0.300
<= 0.400
<= 0.500
<= 0.600
<= 0.700
<= 0.800
> 0.800

Figure 54

Bivariate Fit of Normalized DH Fusion MPF (MFA) vs. MPF (MFA) fraction

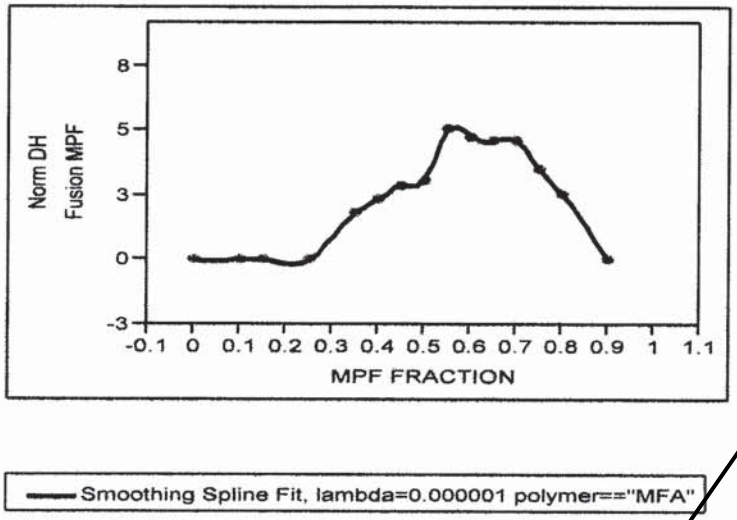


Figure 55

Bivariate Fit of Contact Angle vs. MPF (MFA) fraction

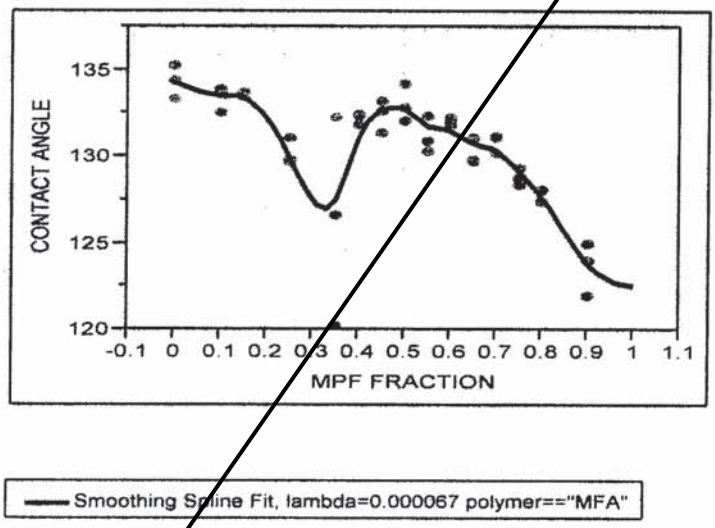


Figure 56

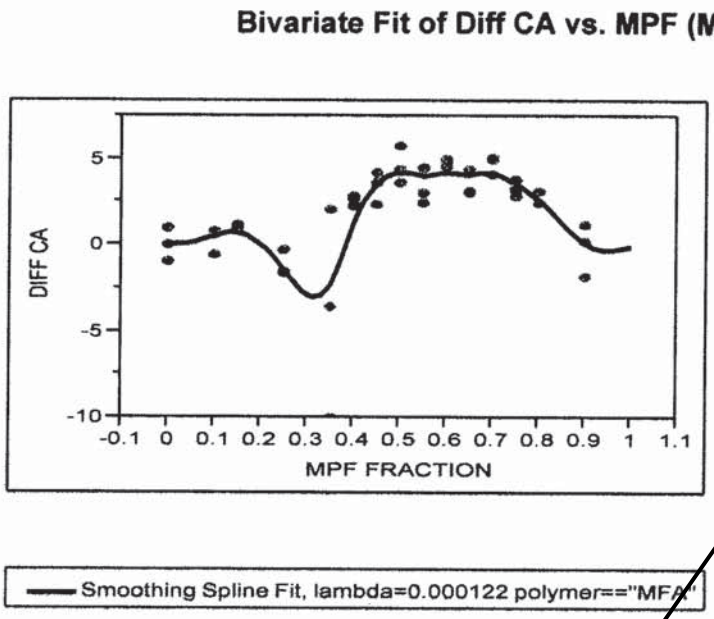


Figure 57

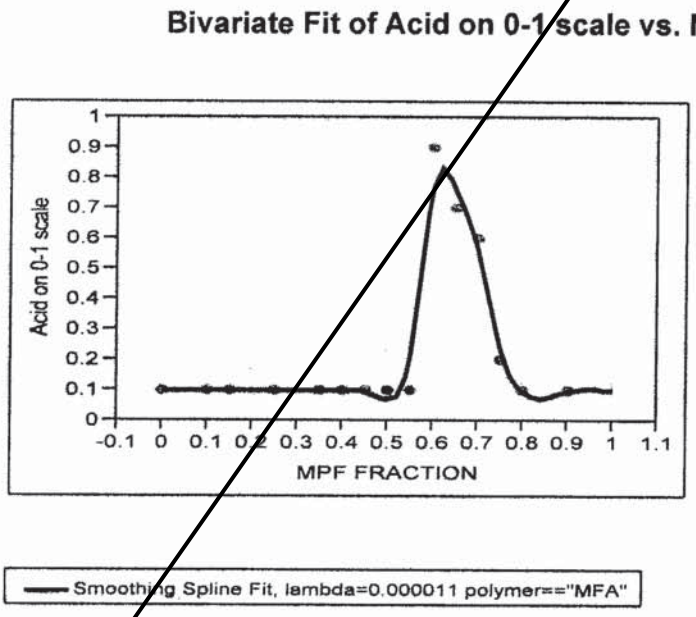


Figure 58

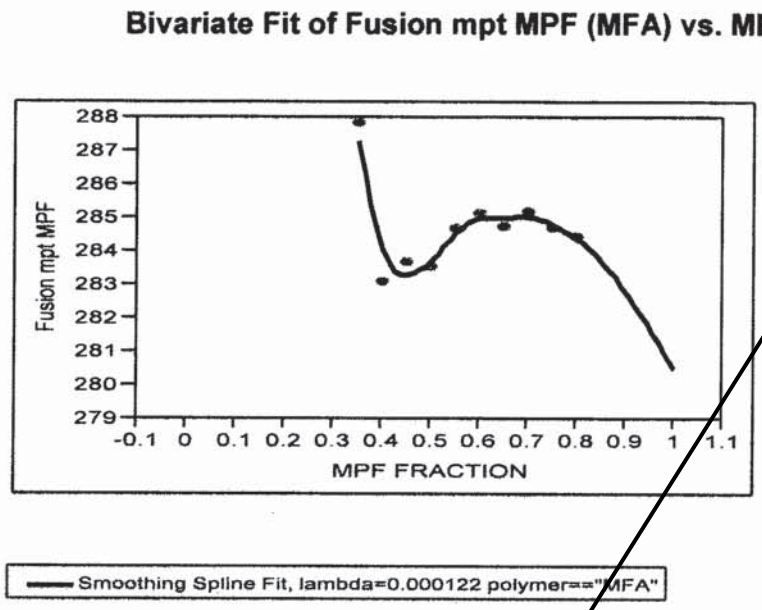


Figure 59

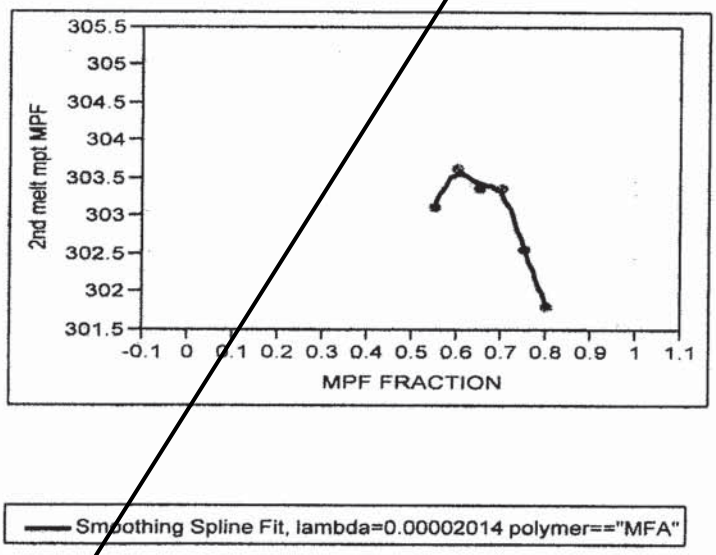


Figure 60

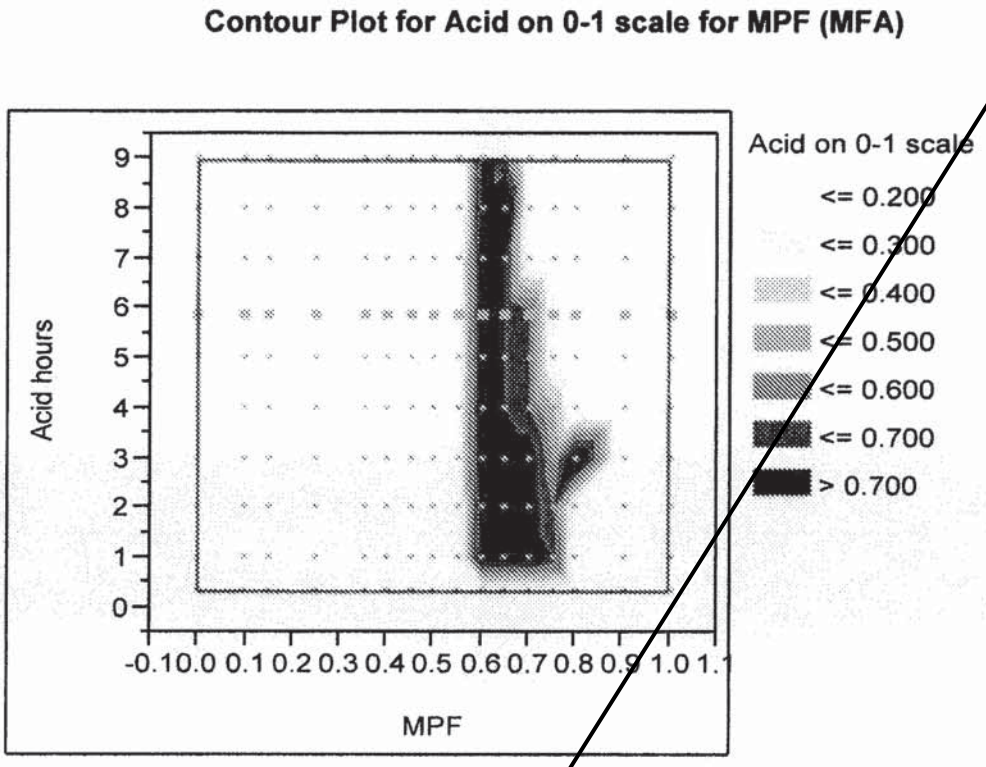


Figure 61

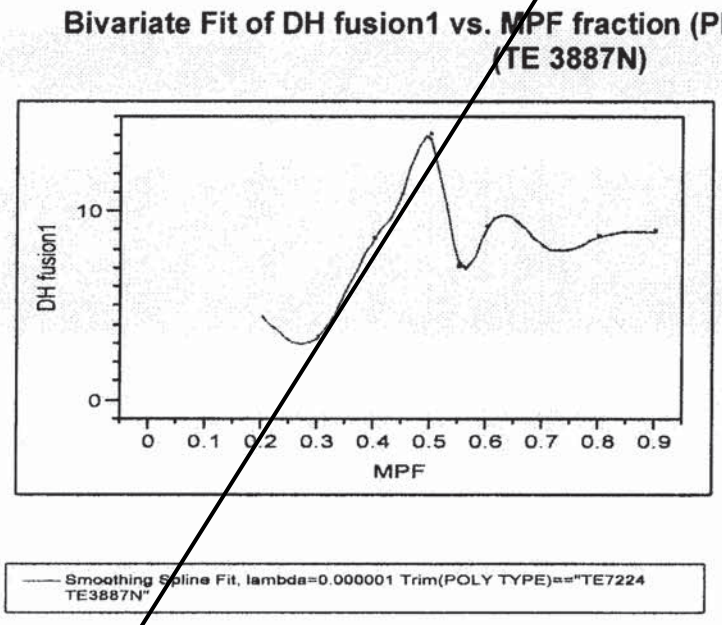


Figure 62

Bivariate Fit of Contact Angle vs. MPF fraction (PFA; TE7224) with LPTFE (TE3887N)

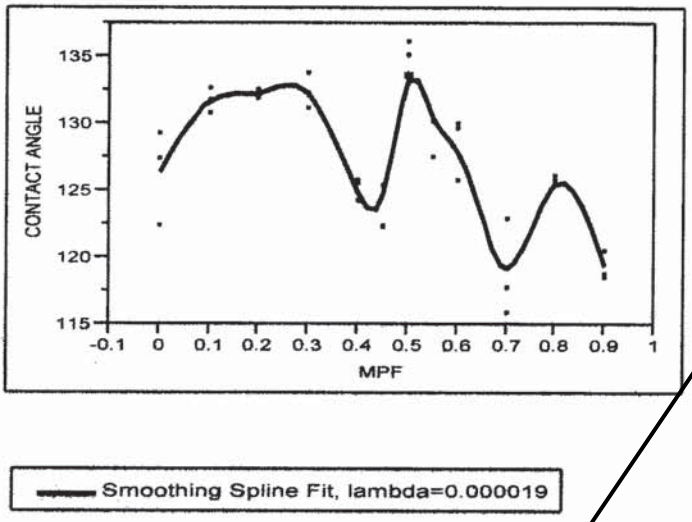


Figure 63

Bivariate Fit of Diff CA vs. MPF (PFA; TE7224) with LPTFE (TE3887N)

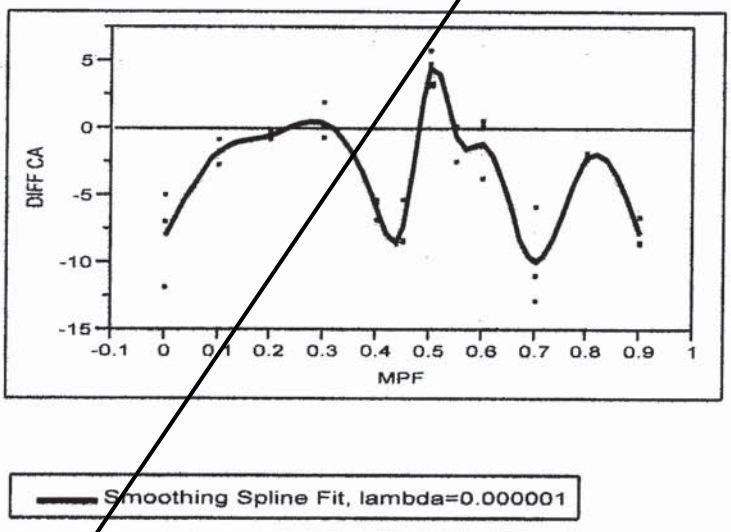


Figure 64

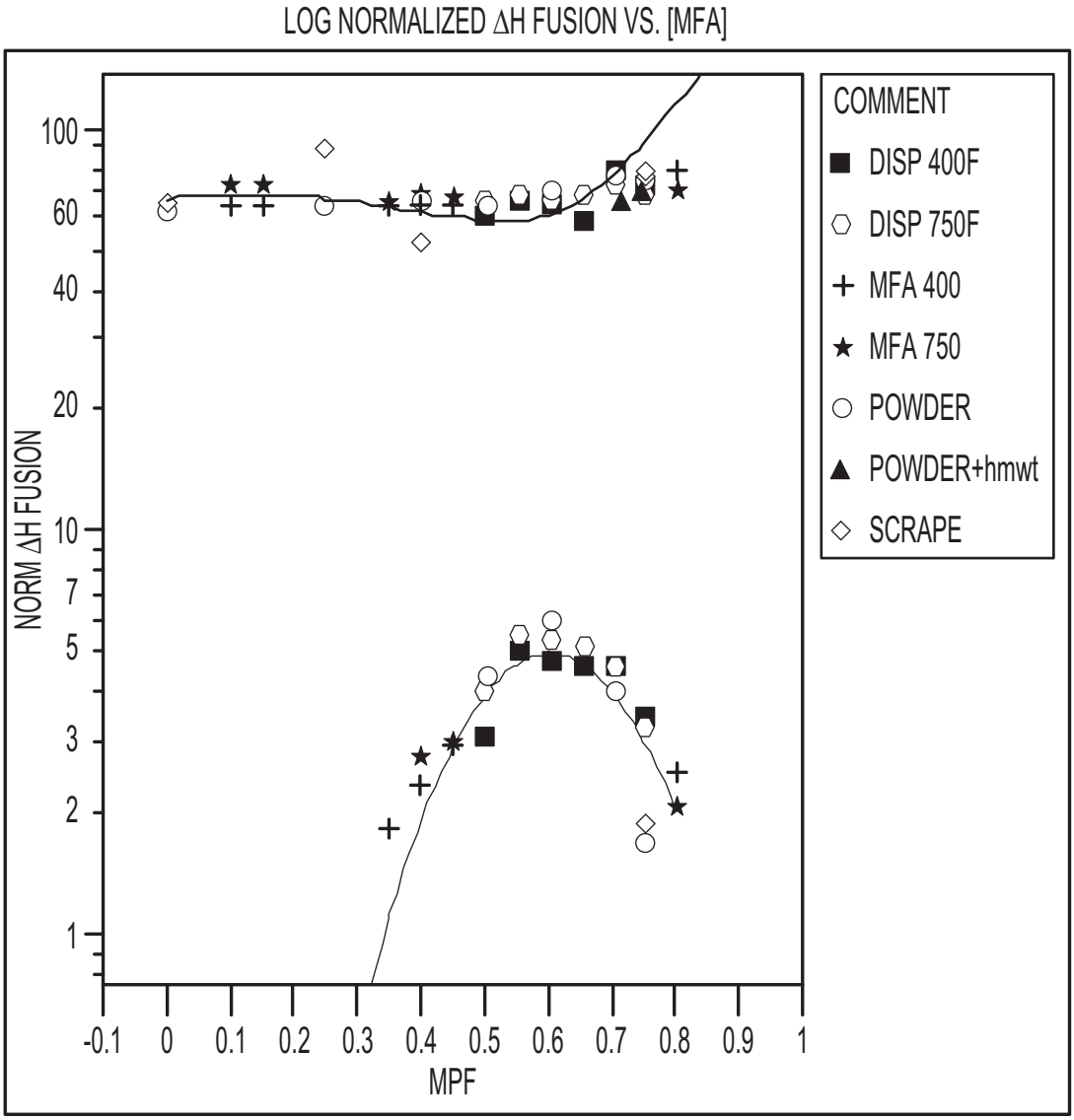

LOG NORMALIZED ΔH FUSION VS. [MFA]
NORM ΔH FUSION
100
60
40
20
10
7
5
3
2
1
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE

FIG. 1

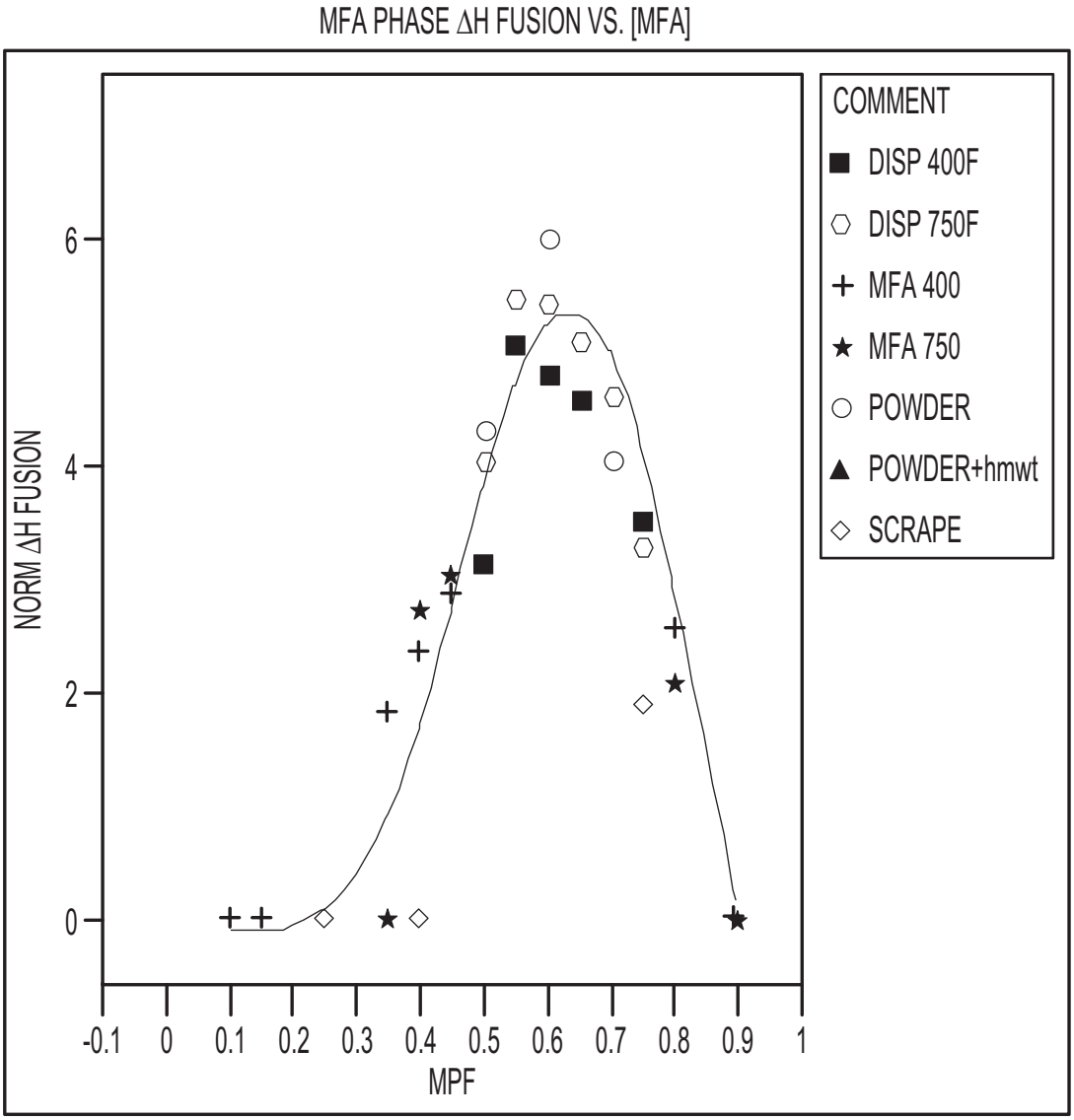

MFA PHASE ΔH FUSION VS. [MFA]
NORM ΔH FUSION
MPF
0
2
4
6
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE

FIG. 2

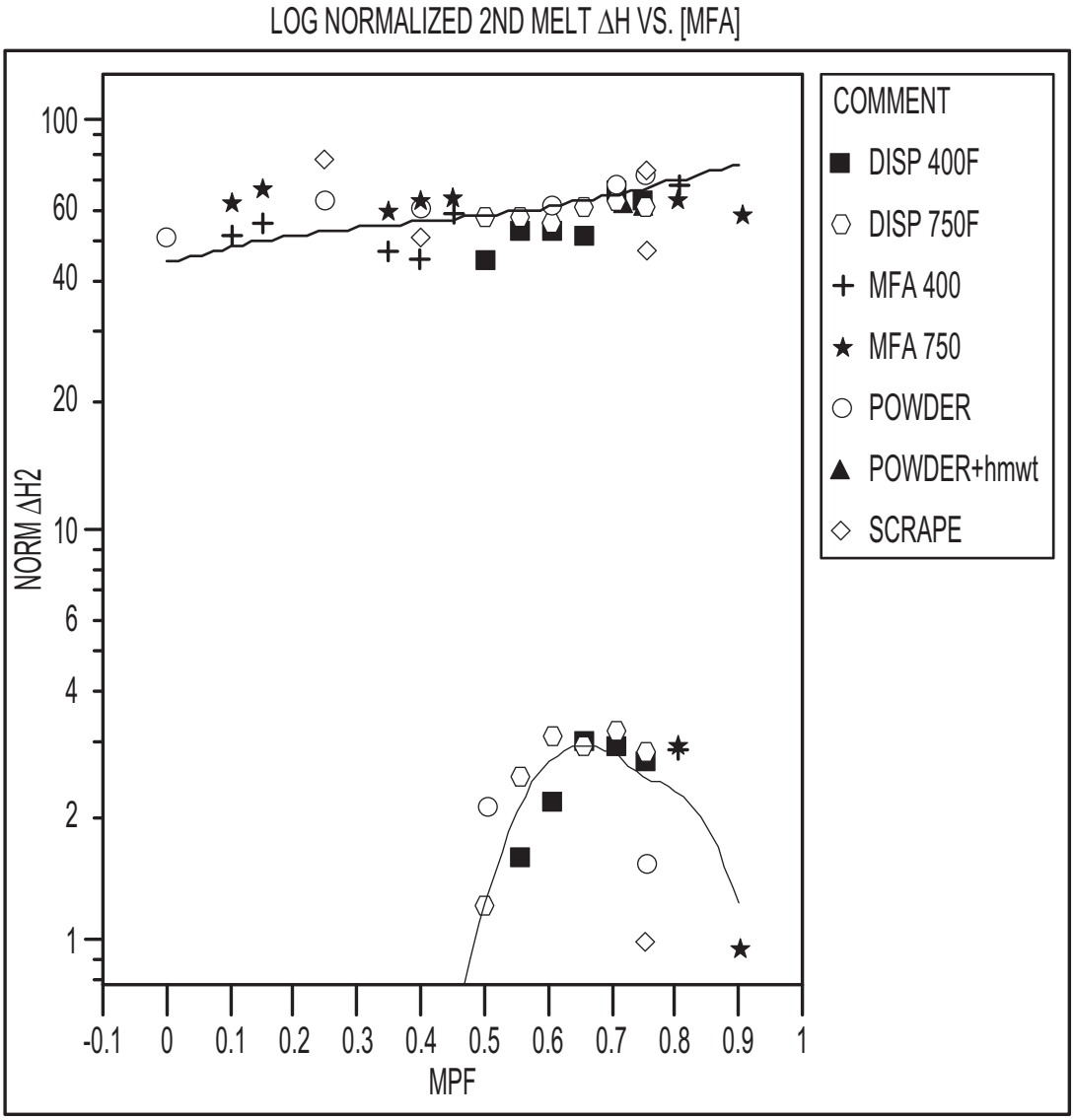

LOG NORMALIZED 2ND MELT ΔH VS. [MFA]
NORM ΔH2
100
60
40
20
10
6
4
2
1
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE

FIG. 3

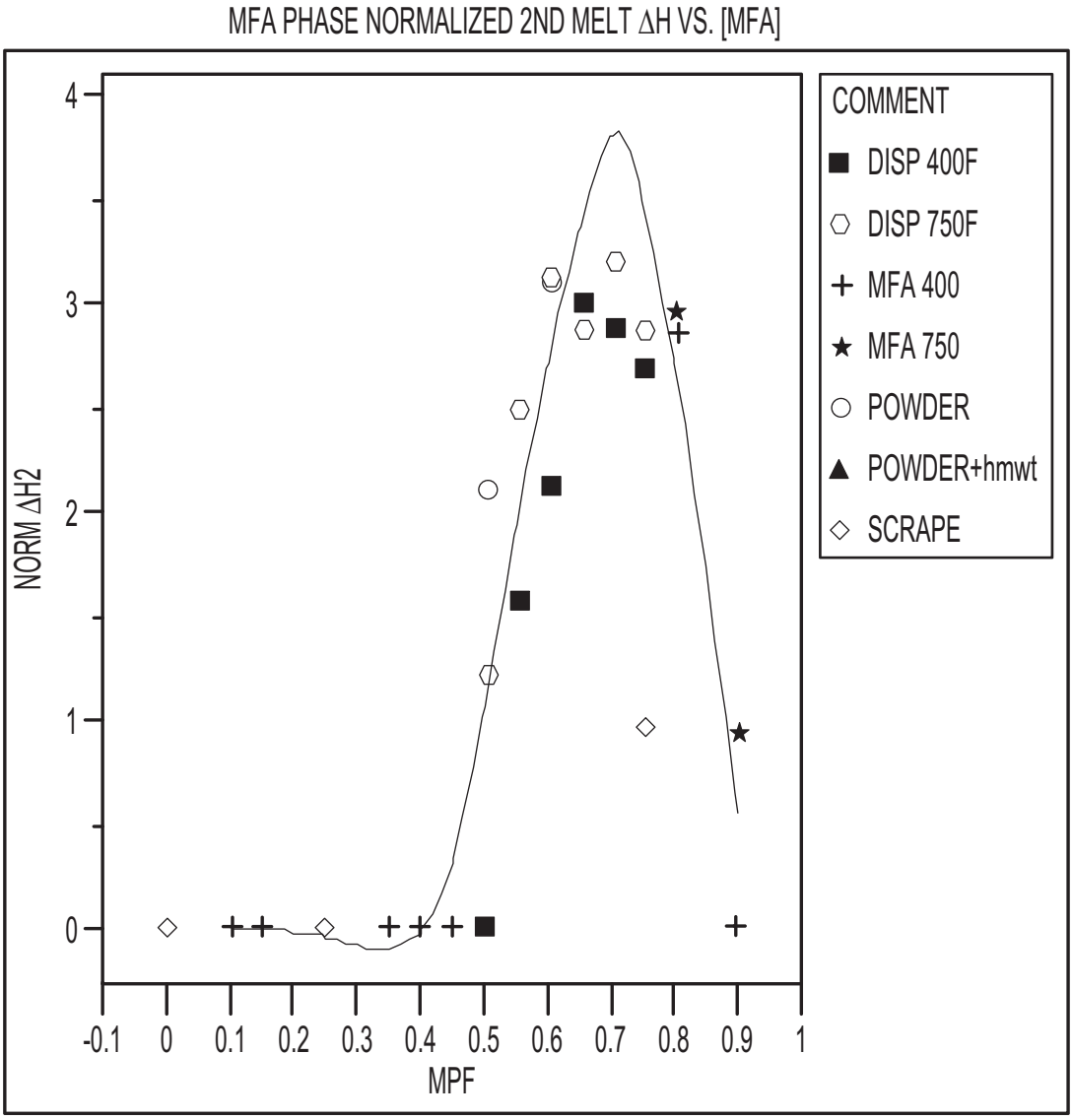

MFA PHASE NORMALIZED 2ND MELT ΔH VS. [MFA]
NORM ΔH2
MPF
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE
0
1
2
3
4
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1

FIG. 4

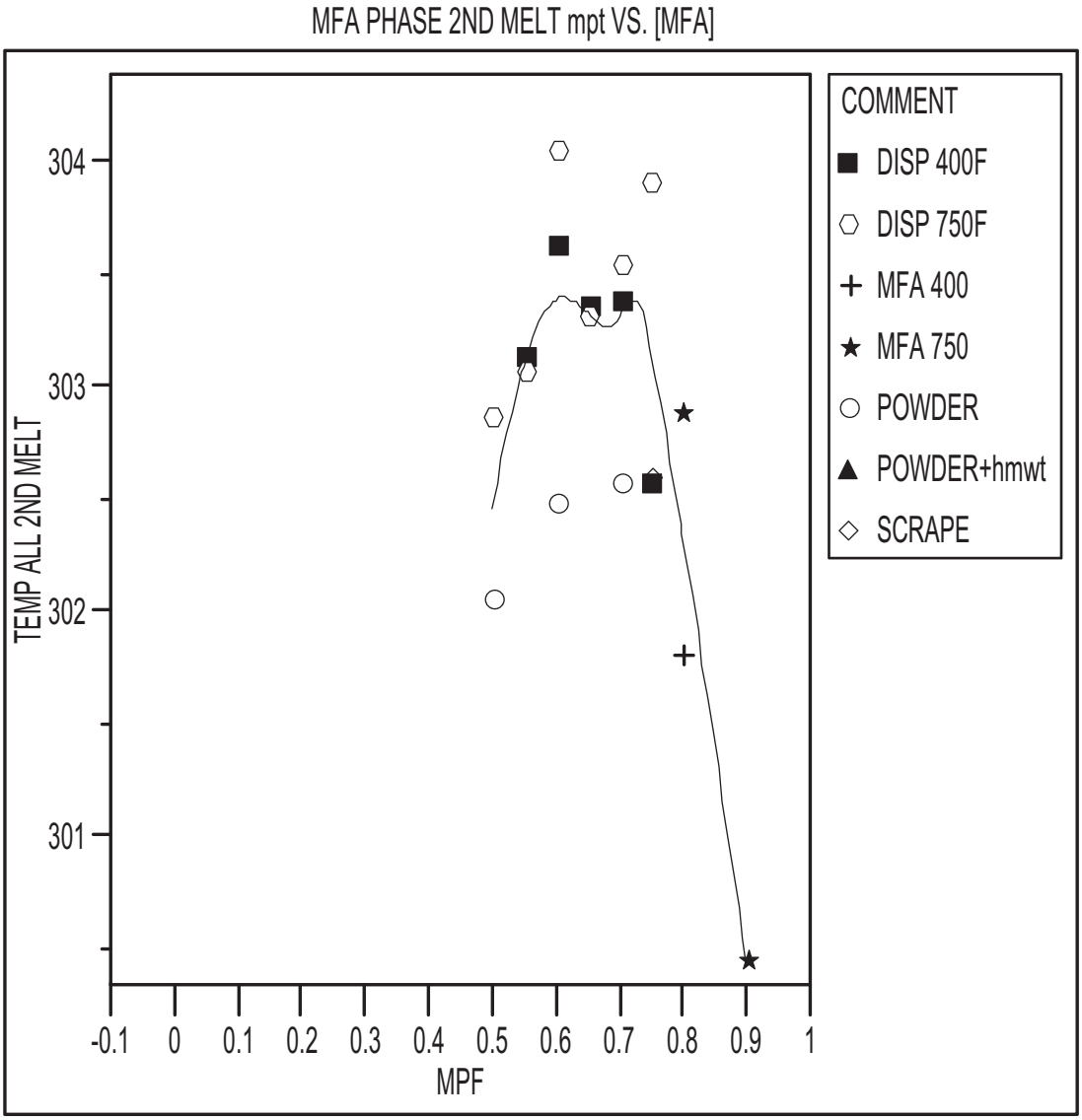

MFA PHASE 2ND MELT mpt VS. [MFA]
TEMP ALL 2ND MELT
304
303
302
301
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE

FIG. 5

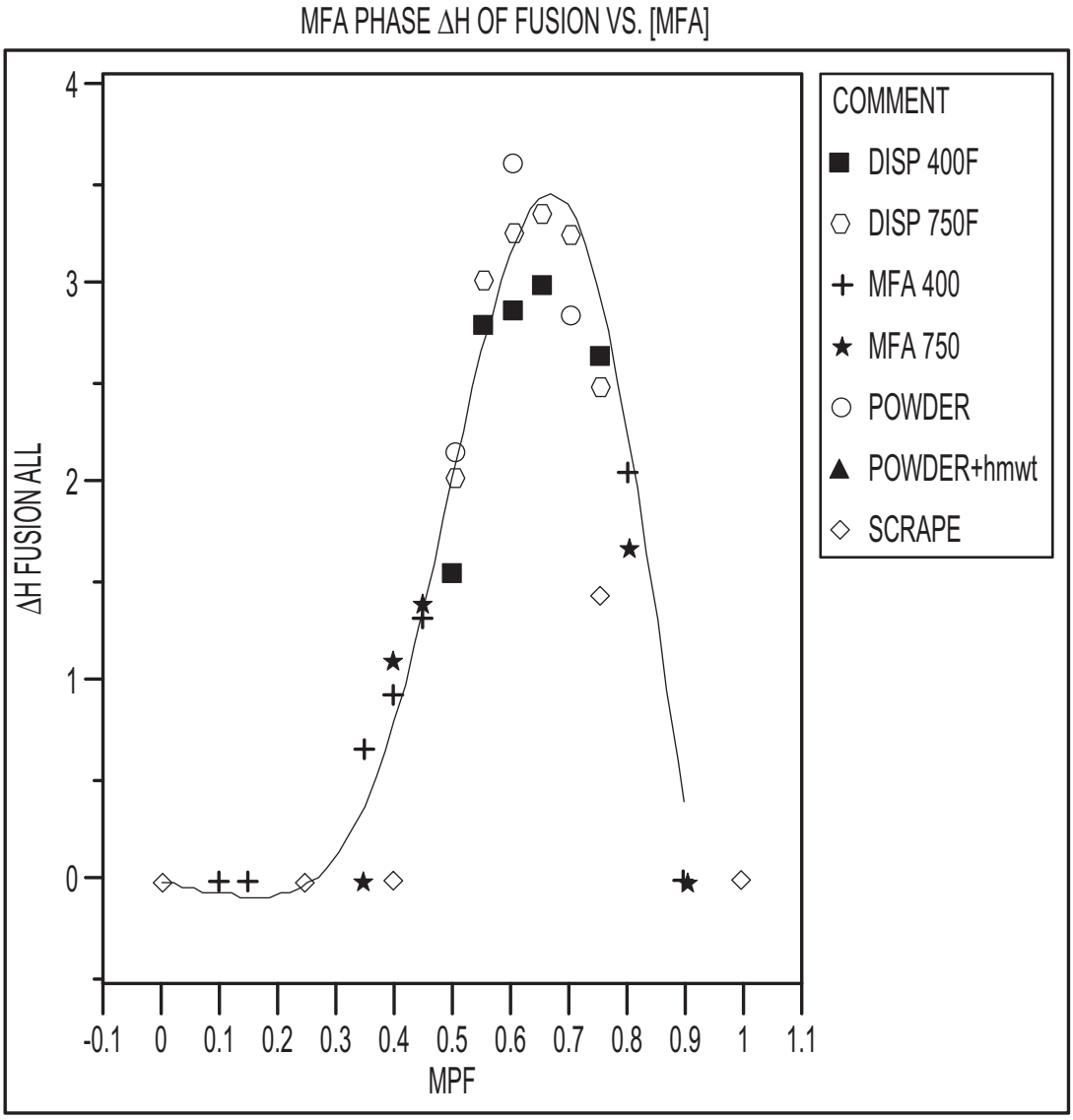

MFA PHASE ΔH OF FUSION VS. [MFA]
ΔH FUSION ALL
MPF
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE
4
3
2
1
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1

FIG. 6

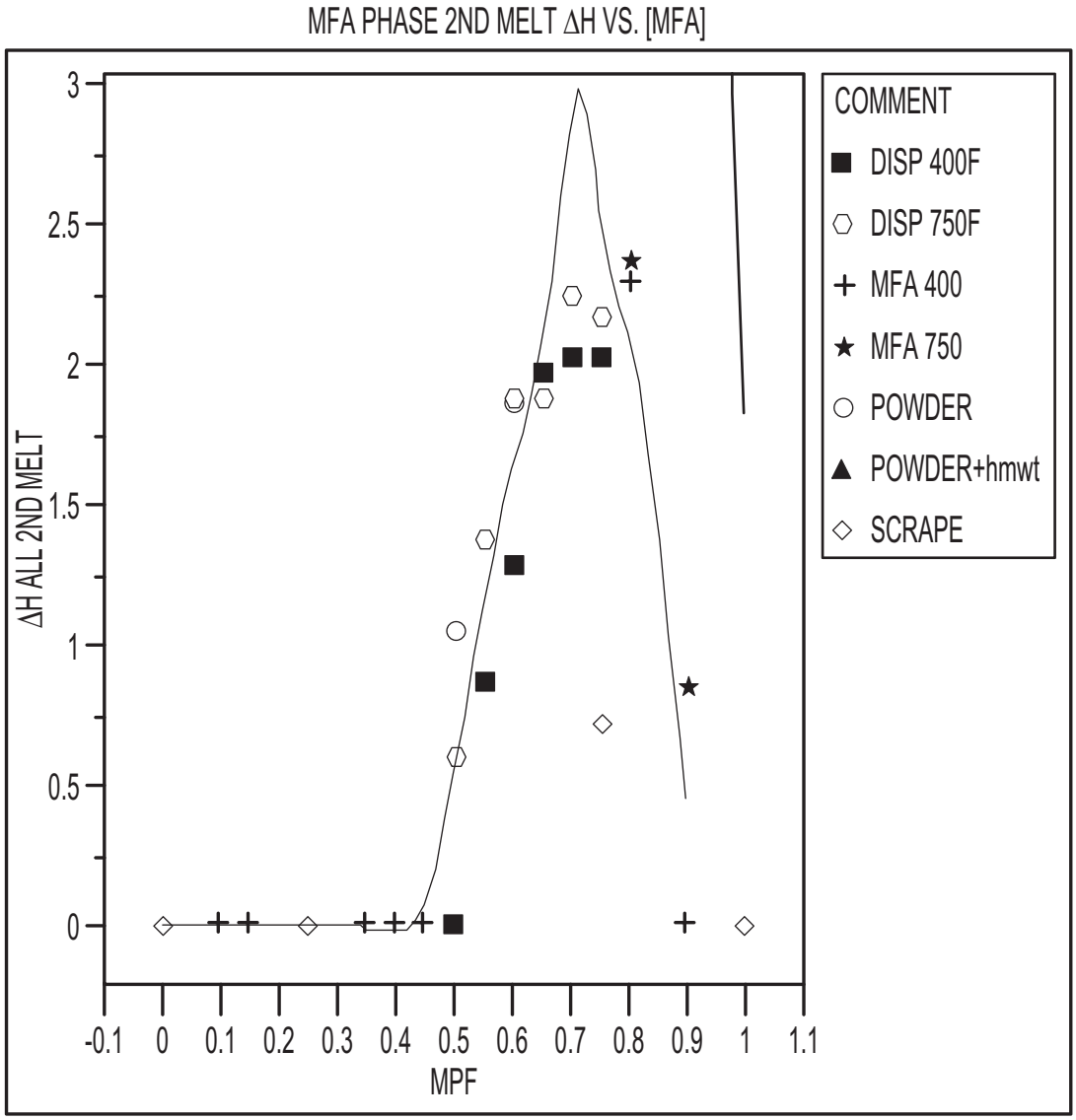

MFA PHASE 2ND MELT ΔH VS. [MFA]
ΔH ALL 2ND MELT
MPF
3
2.5
2
1.5
1
0.5
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
COMMENT
DISP 400F
DISP 750F
MFA 400
MFA 750
POWDER
POWDER+hmwt
SCRAPE

FIG. 7

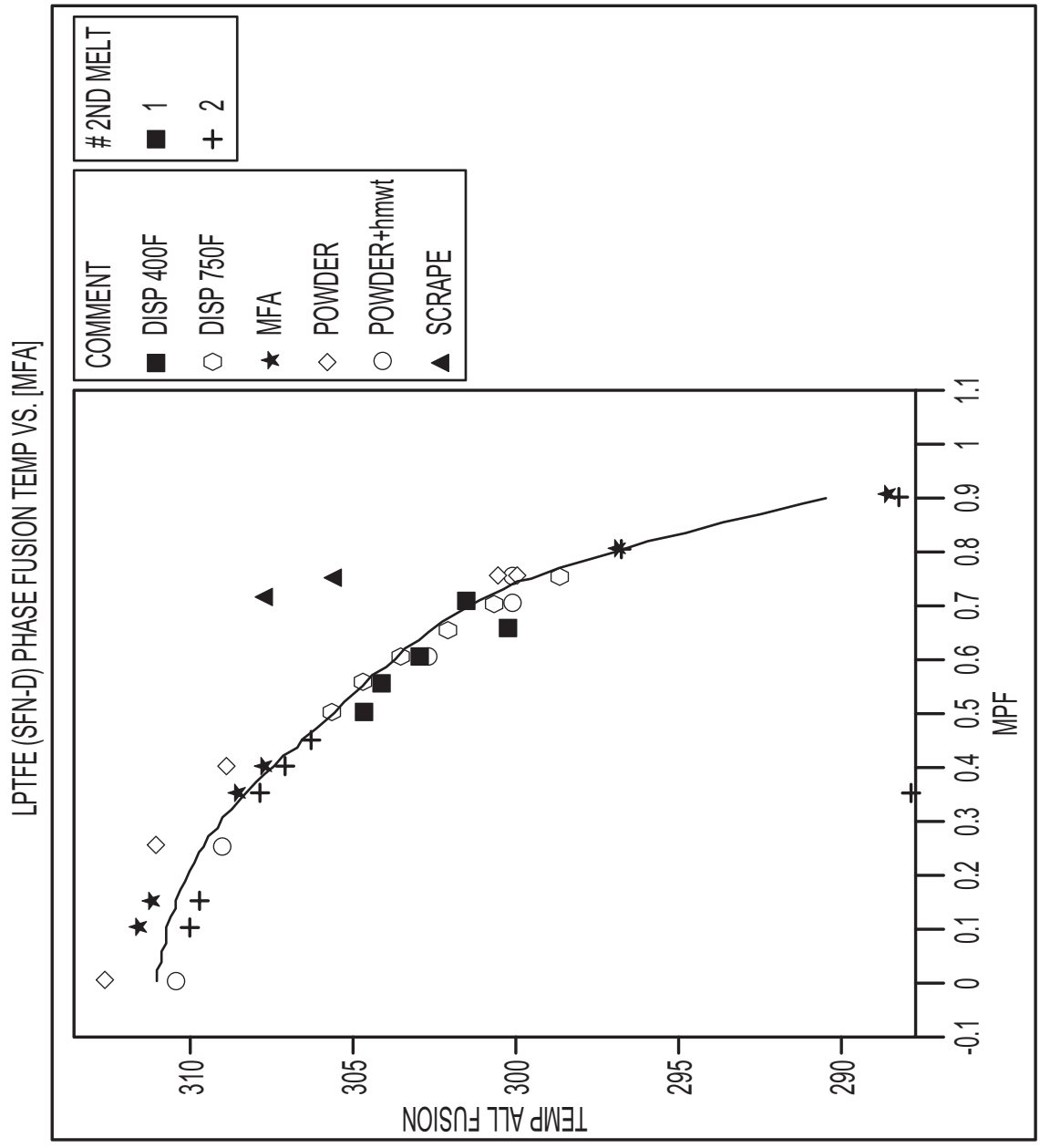

LPTFE (SFN-D) PHASE FUSION TEMP VS. [MFA]
COMMENT
DISP 400F
DISP 750F
MFA
POWDER
POWDER+hmwt
SCRAPE
2ND MELT
1
2
TEMP ALL FUSION
310
305
300
295
290
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF

FIG. 8

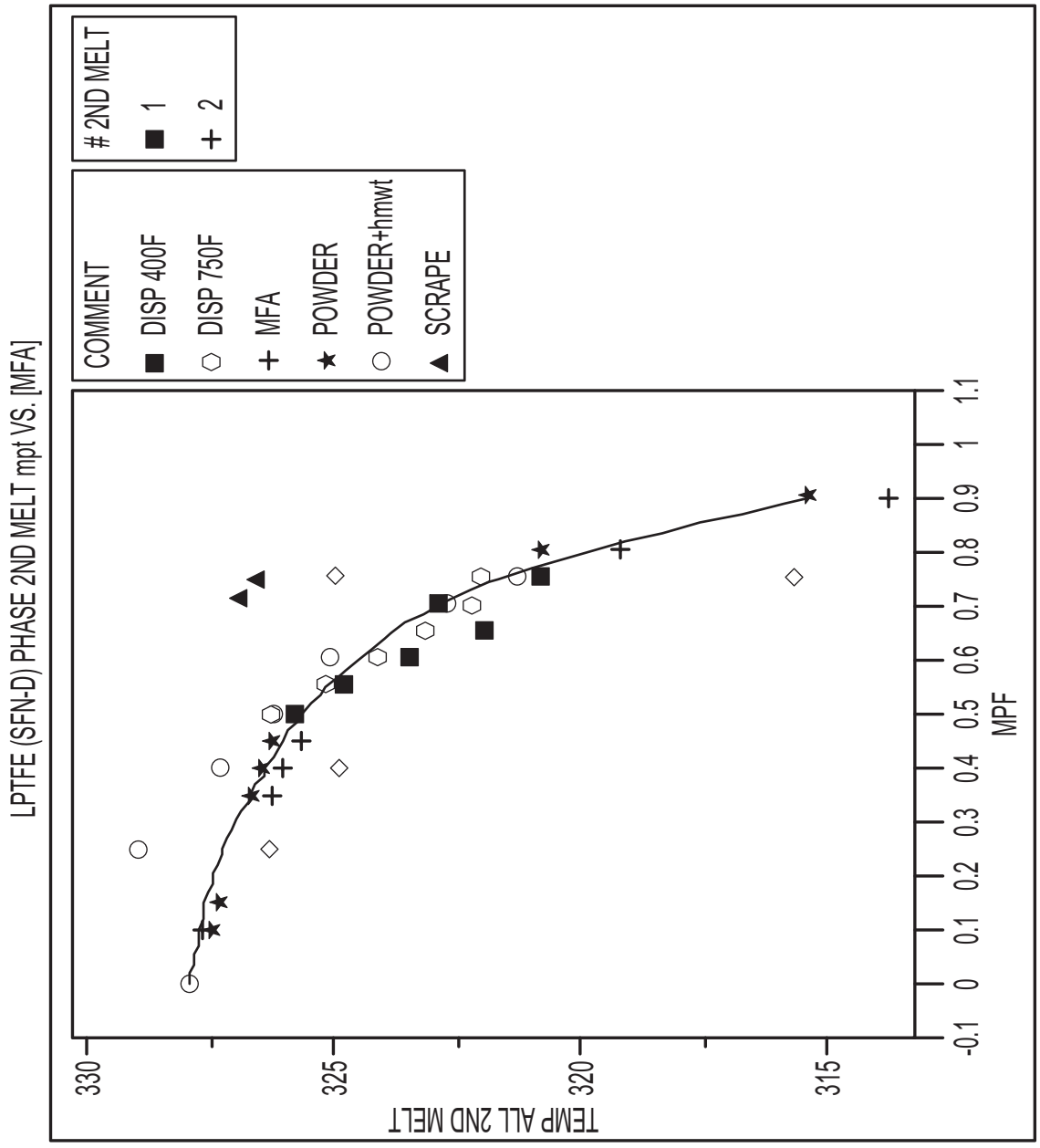

LPTFE (SFN-D) PHASE 2ND MELT mpt VS. [MFA]
COMMENT
DISP 400F
DISP 750F
MFA
POWDER
POWDER+hmwt
SCRAPE
2ND MELT
1
2
TEMP ALL 2ND MELT
330
325
320
315
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF

FIG. 9

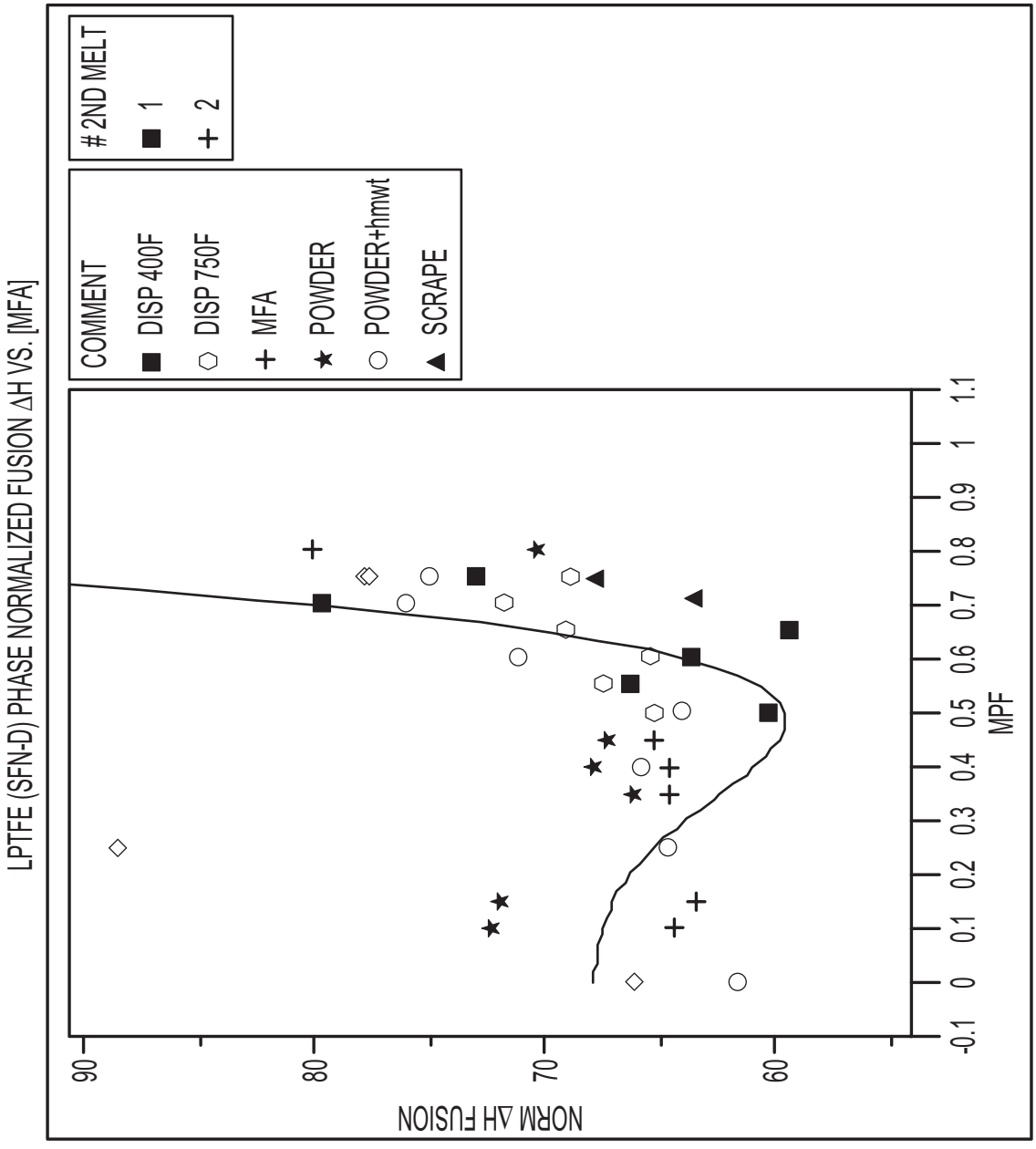

LPTFE (SFN-D) PHASE NORMALIZED FUSION ΔH VS. [MFA]
COMMENT
DISP 400F
DISP 750F
MFA
POWDER
POWDER+hmwt
SCRAPE
2ND MELT
1
2
NORM ΔH FUSION
90
80
70
60
MPF
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1

FIG. 10

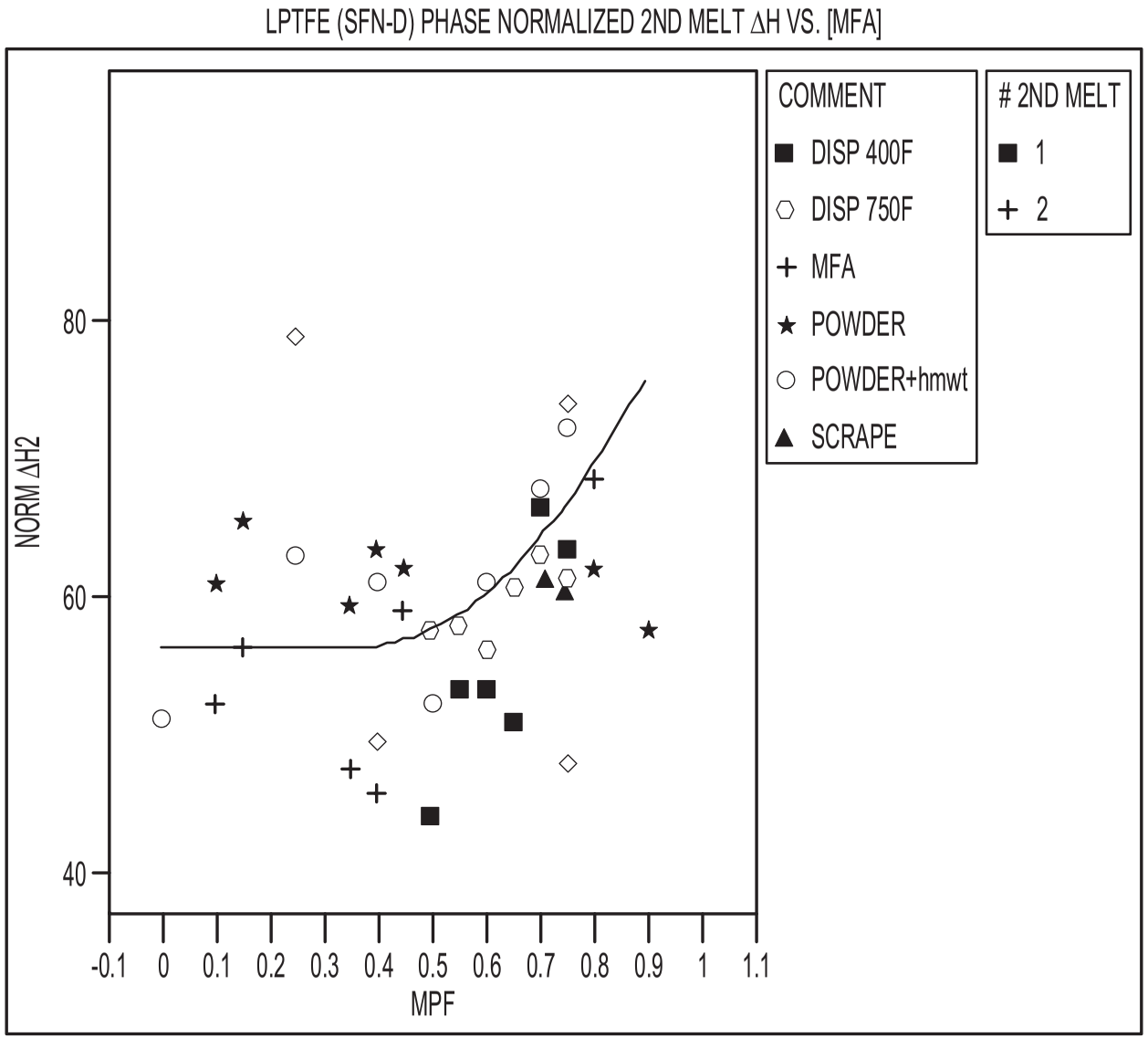

LPTFE (SFN-D) PHASE NORMALIZED 2ND MELT ΔH VS. [MFA]
COMMENT
DISP 400F
DISP 750F
MFA
POWDER
POWDER+hmwt
SCRAPE
2ND MELT
1
2
NORM ΔH2
80
60
40
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF

FIG. 11

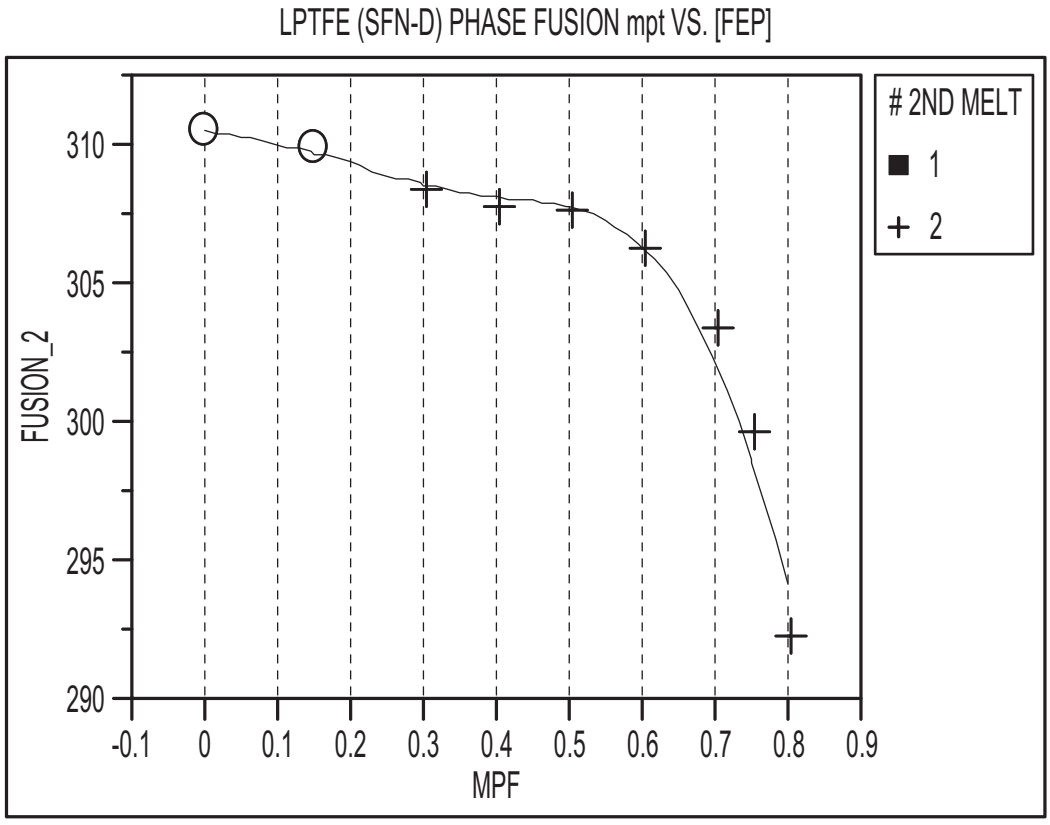

LPTFE (SFN-D) PHASE FUSION mpt VS. [FEP]
2ND MELT
1
2
FUSION_2
310
305
300
295
290
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF

FIG. 12

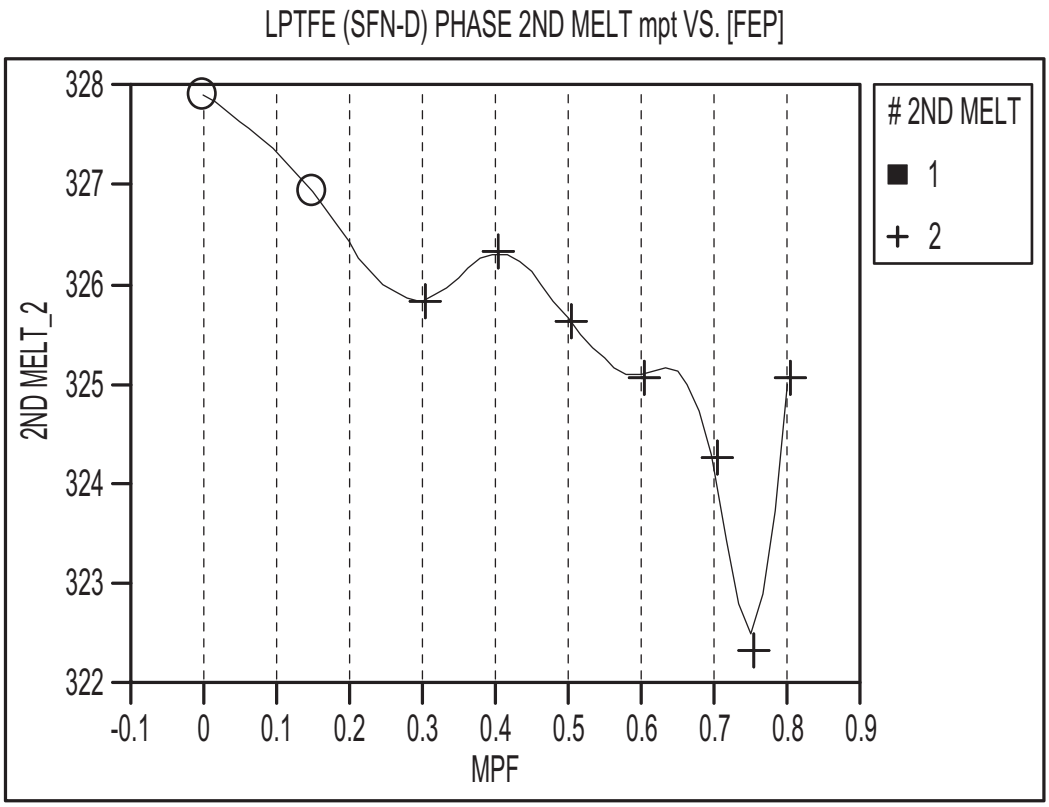

LPTFE (SFN-D) PHASE 2ND MELT mpt VS. [FEP]
2ND MELT_2
328
327
326
325
324
323
322
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
2ND MELT
1
2

FIG. 13

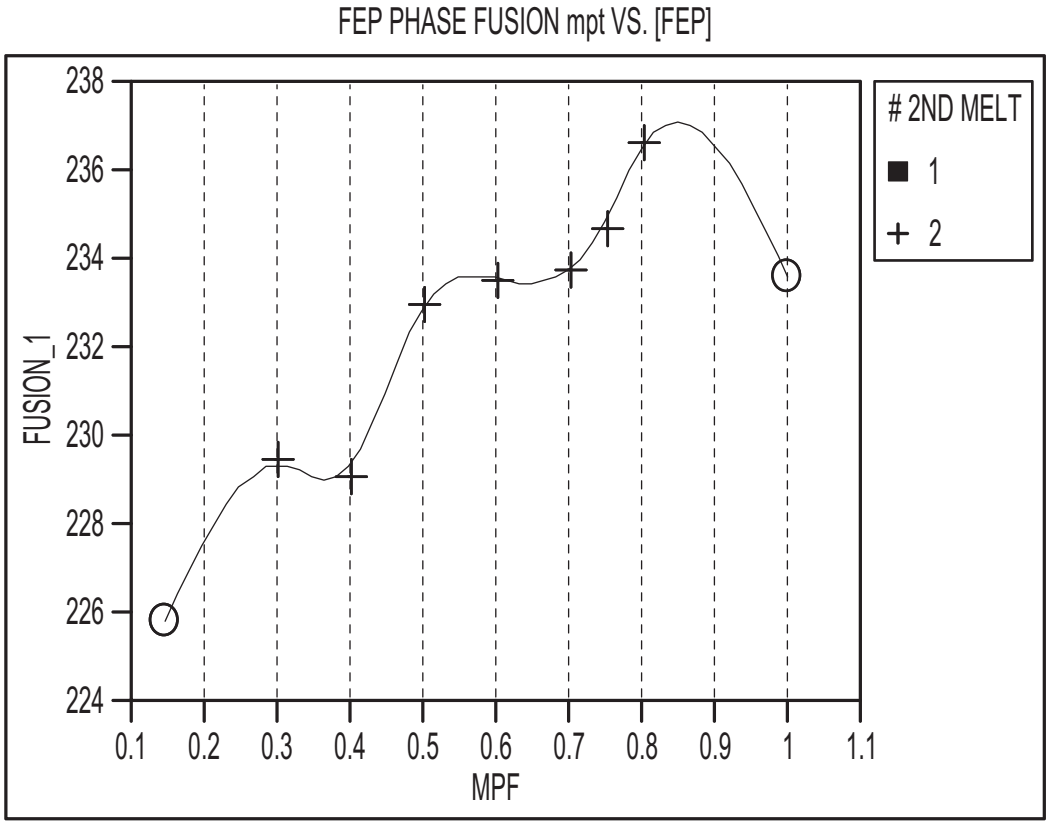

FEP PHASE FUSION mpt VS. [FEP]
FUSION_1
238
236
234
232
230
228
226
224
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
2ND MELT
1
2

FIG. 14

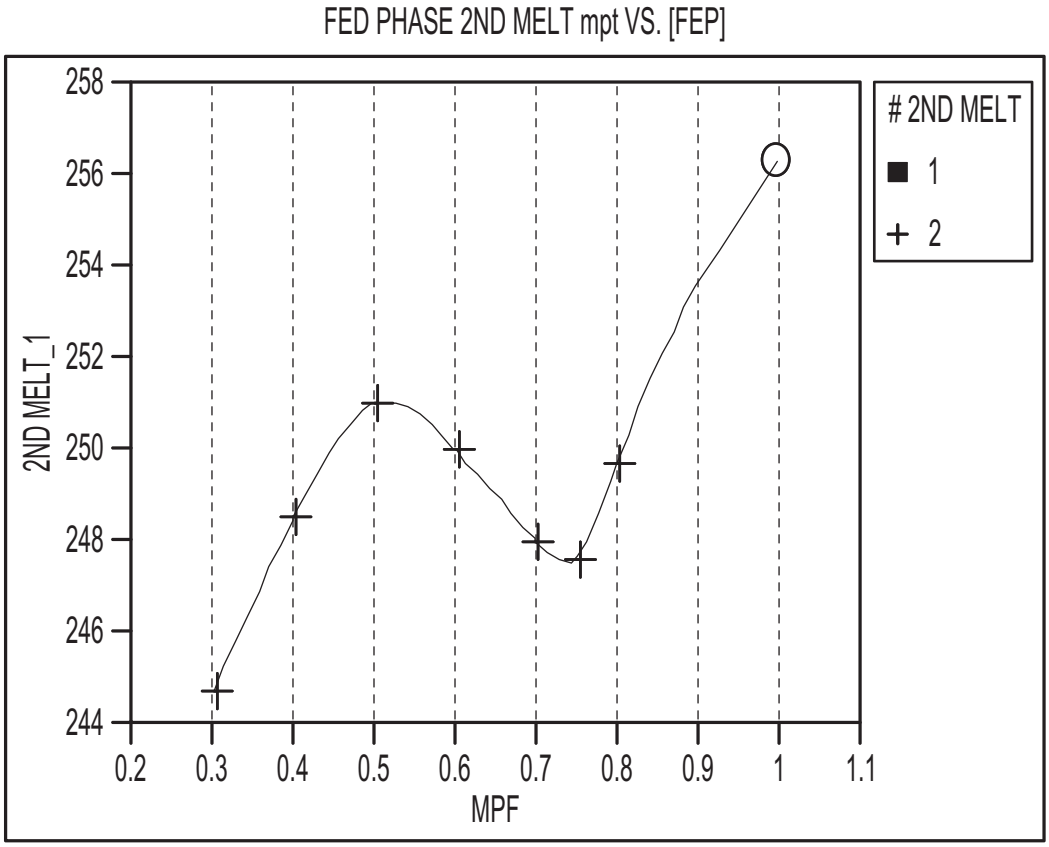

FED PHASE 2ND MELT mpt VS. [FEP]
2ND MELT_1
258
256
254
252
250
248
246
244
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
2ND MELT
1
2

FIG. 15

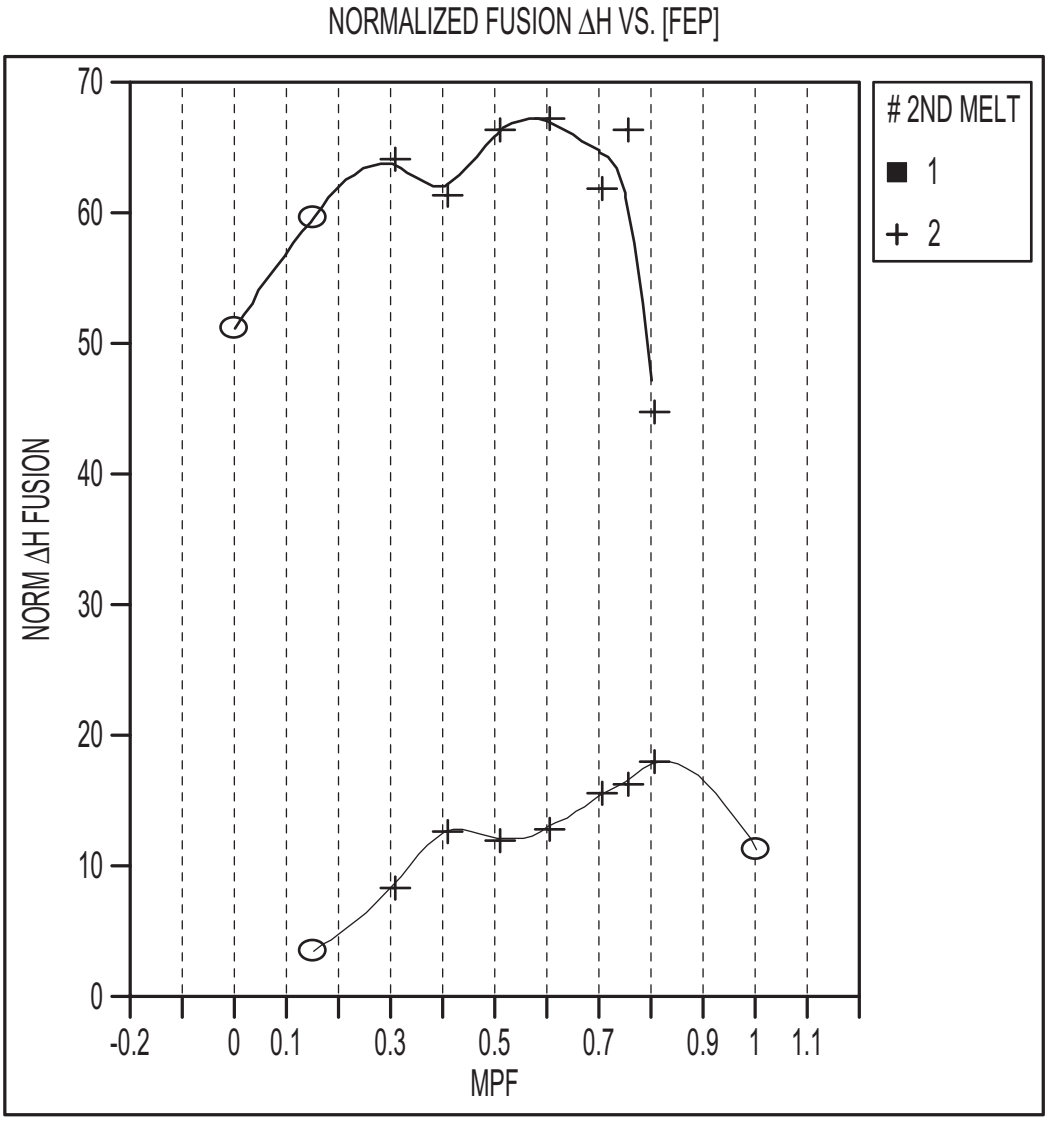

NORMALIZED FUSION ΔH VS. [FEP]
NORM ΔH FUSION
70
60
50
40
30
20
10
0
-0.2
0
0.1
0.3
0.5
0.7
0.9
1
1.1
MPF
2ND MELT
1
2

FIG. 16

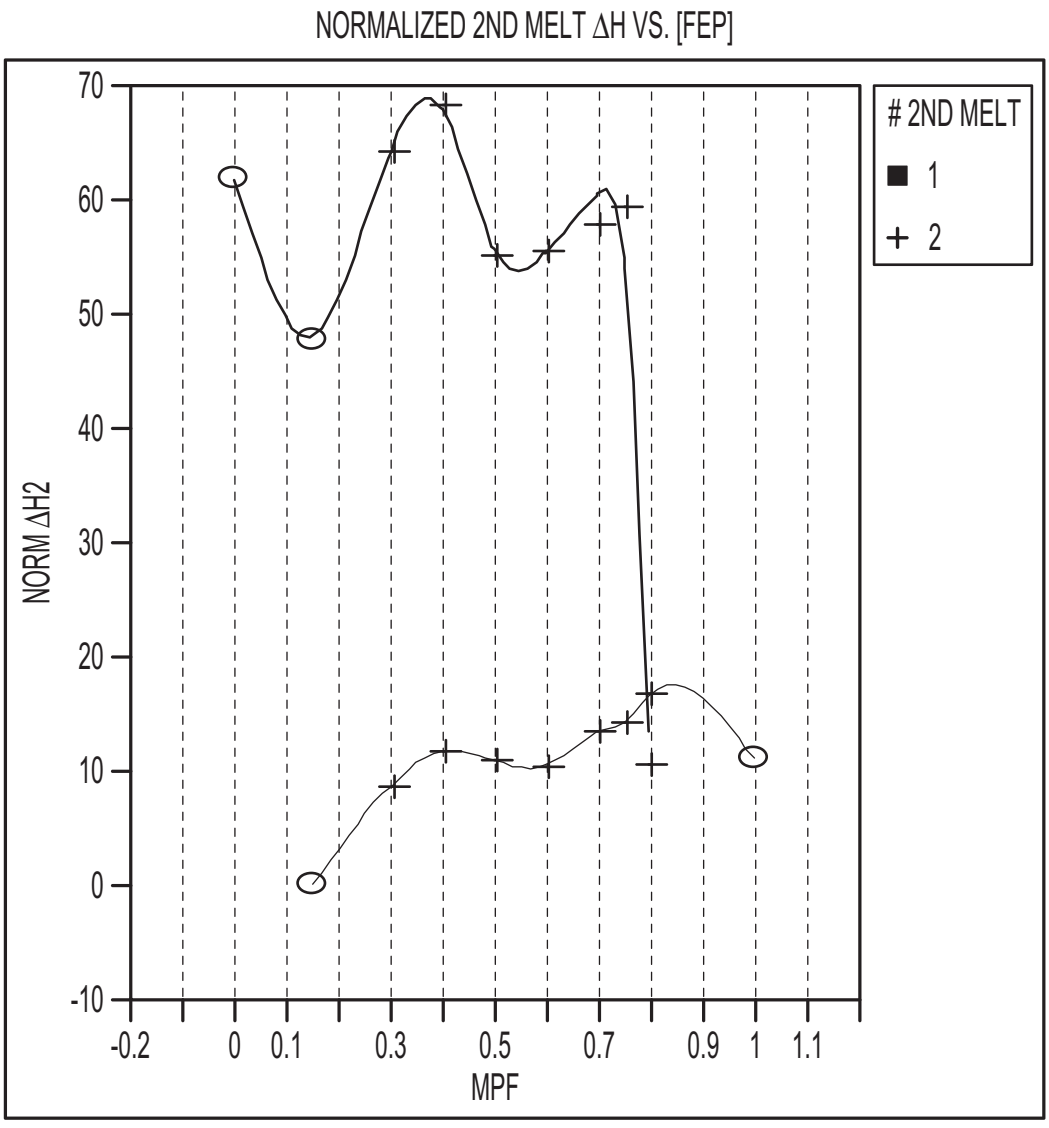

NORMALIZED 2ND MELT ΔH VS. [FEP]
NORM ΔH2
MPF
2ND MELT
1
2
70
60
50
40
30
20
10
0
-10
-0.2
0
0.1
0.3
0.5
0.7
0.9
1
1.1

FIG. 17

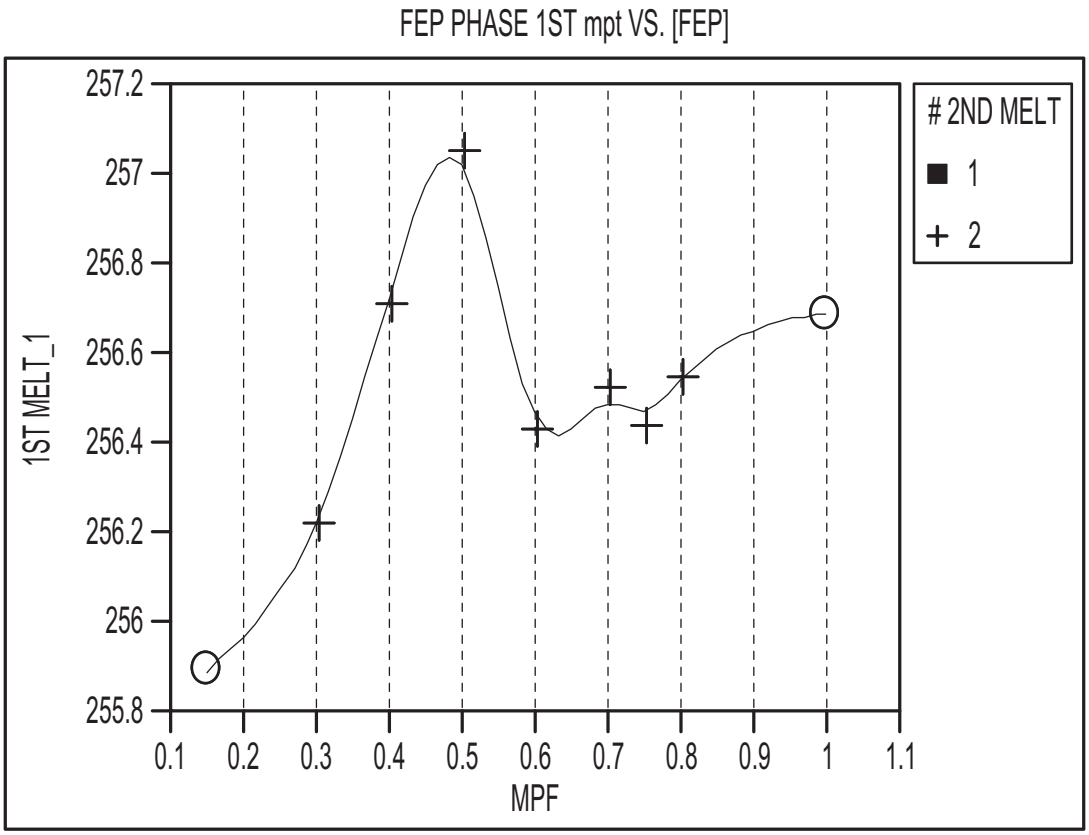

FEP PHASE 1ST mpt VS. [FEP]
257.2
257
256.8
256.6
256.4
256.2
256
255.8
1ST MELT_1
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
2ND MELT
1
2

FIG. 18

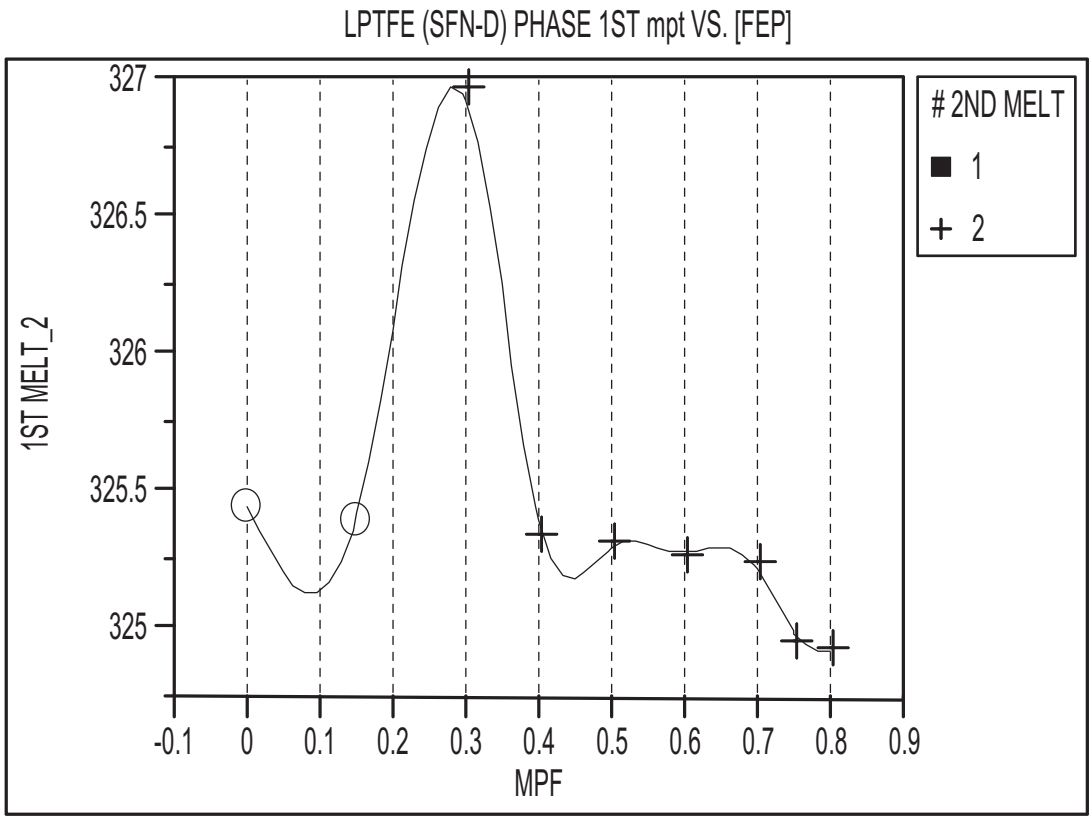

LPTFE (SFN-D) PHASE 1ST mpt VS. [FEP]
1ST MELT_2
327
326.5
326
325.5
325
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
2ND MELT
1
2

FIG. 19

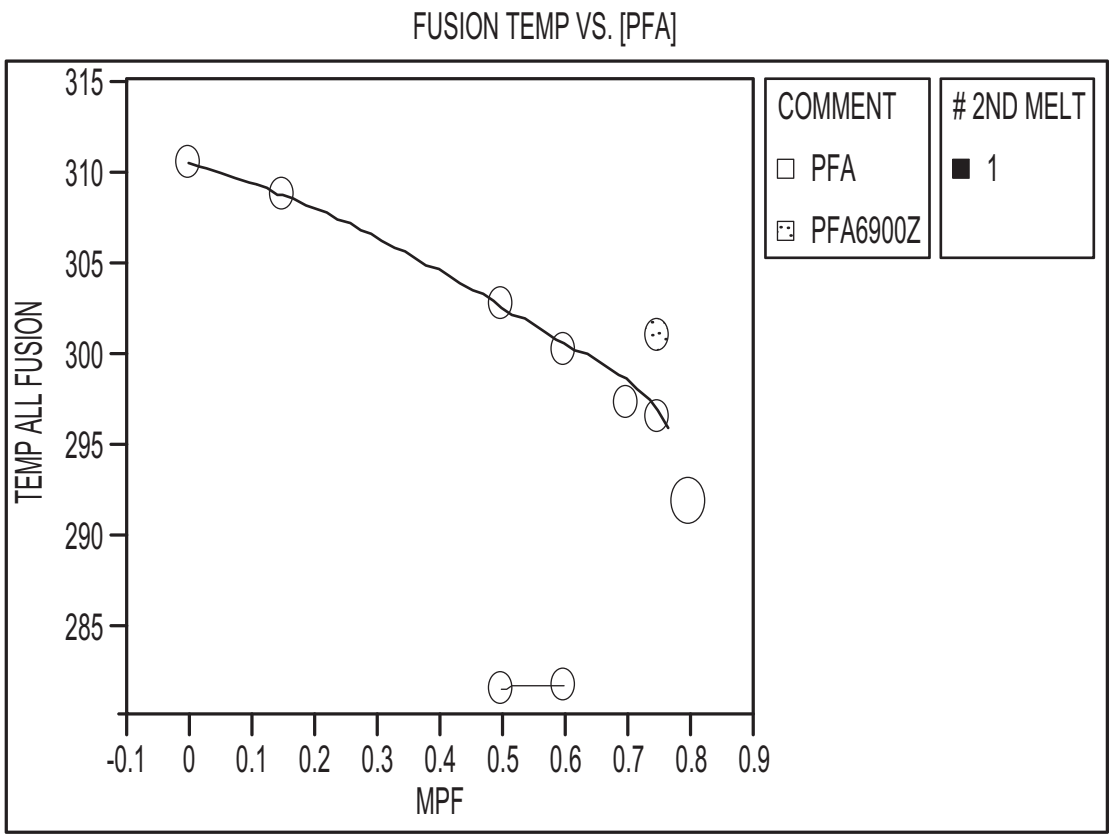

FUSION TEMP VS. [PFA]
TEMP ALL FUSION
315
310
305
300
295
290
285
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
COMMENT
PFA
PFA6900Z
2ND MELT
1

FIG. 20

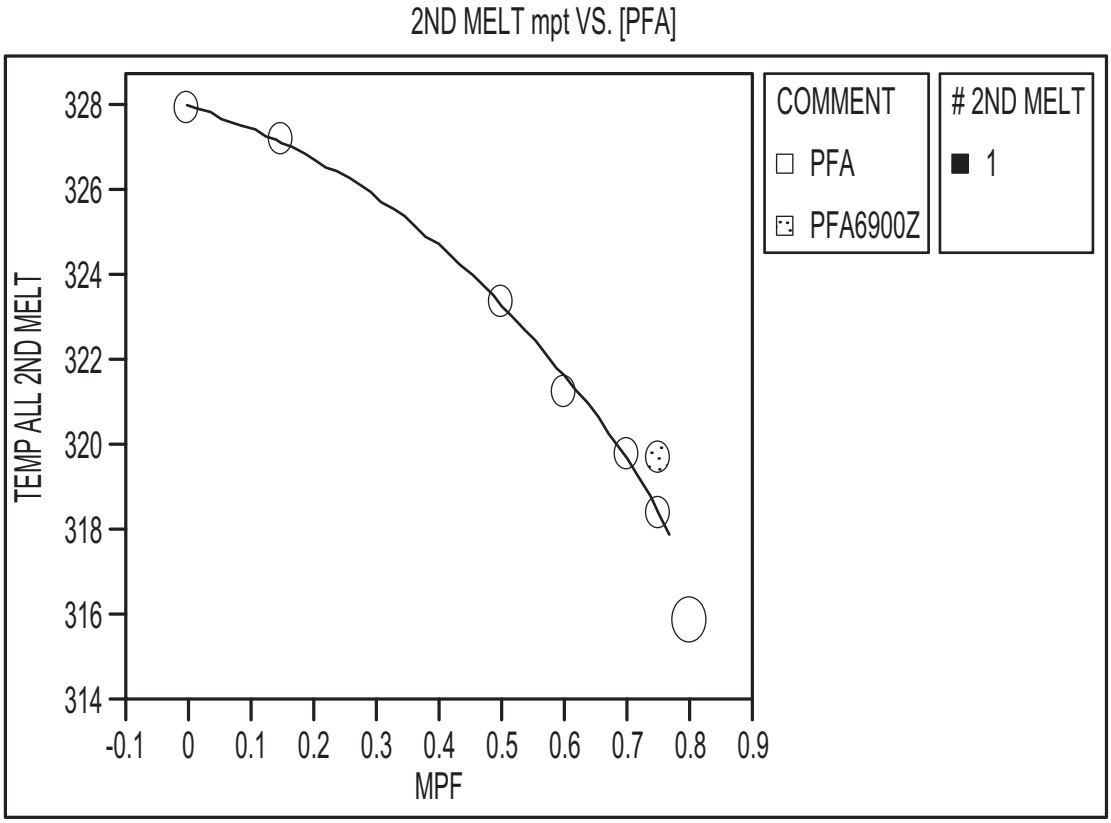

2ND MELT mpt VS. [PFA]
TEMP ALL 2ND MELT
328
326
324
322
320
318
316
314
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
COMMENT
PFA
PFA6900Z
2ND MELT
1

FIG. 21

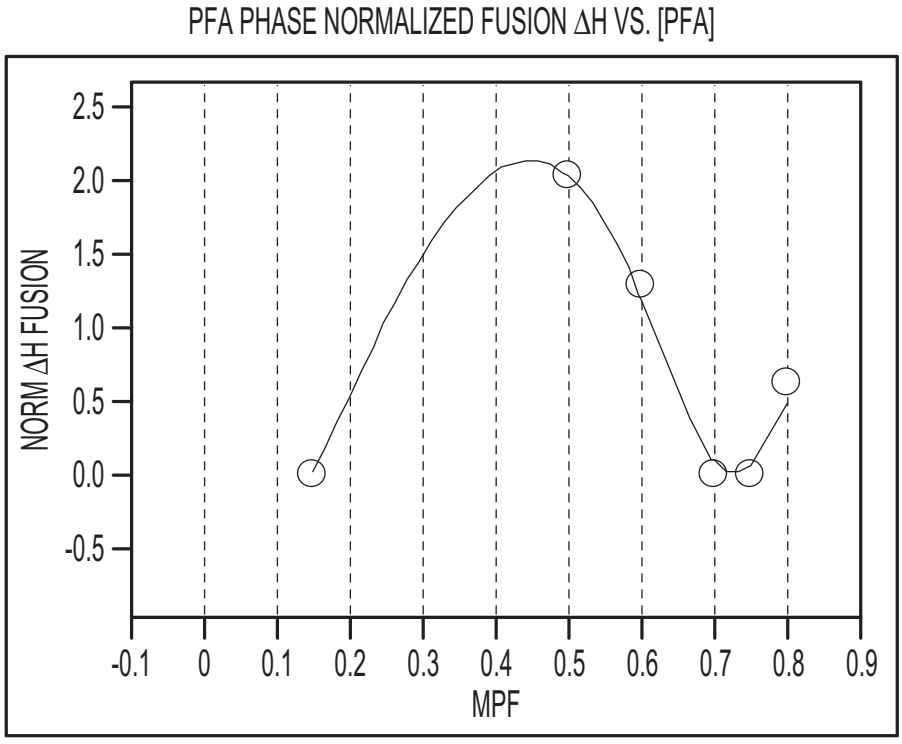

PFA PHASE NORMALIZED FUSION ΔH VS. [PFA]
NORM ΔH FUSION
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF

FIG. 22

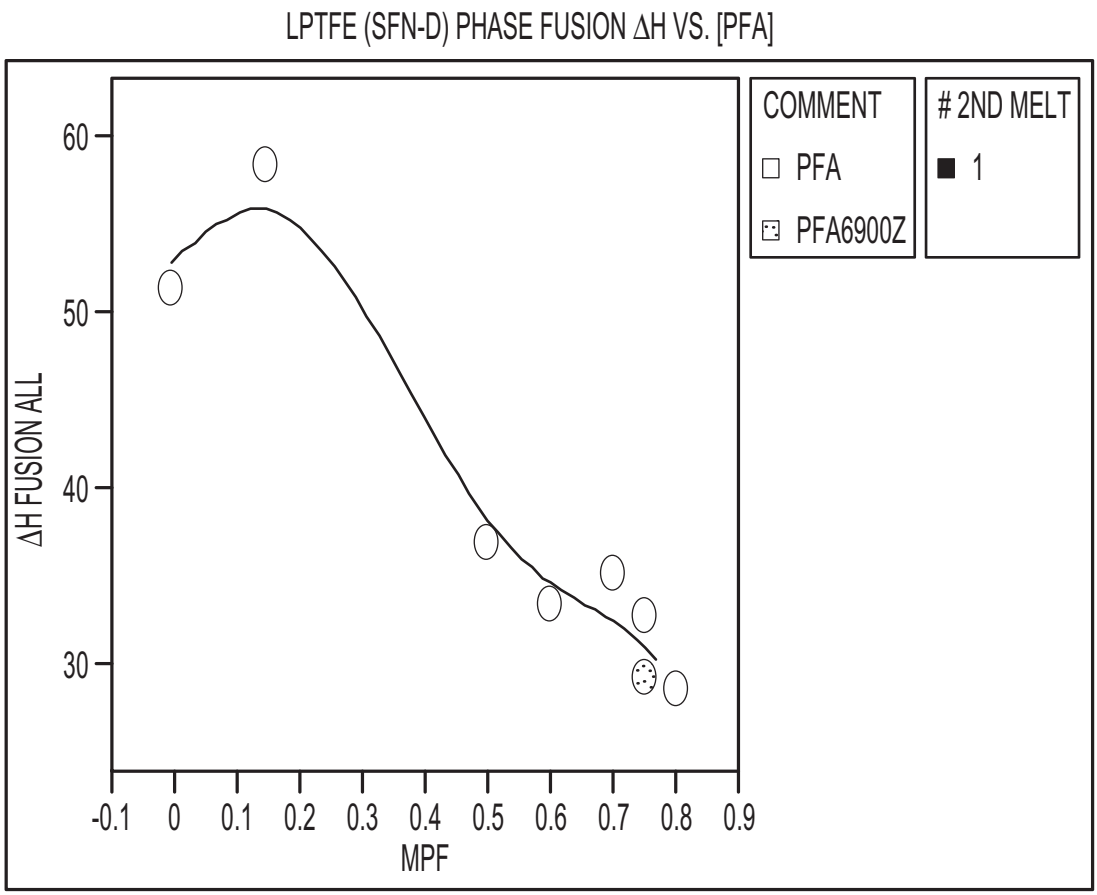

LPTFE (SFN-D) PHASE FUSION ΔH VS. [PFA]
COMMENT
PFA
PFA6900Z
2ND MELT
1
ΔH FUSION ALL
60
50
40
30
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF

FIG. 23

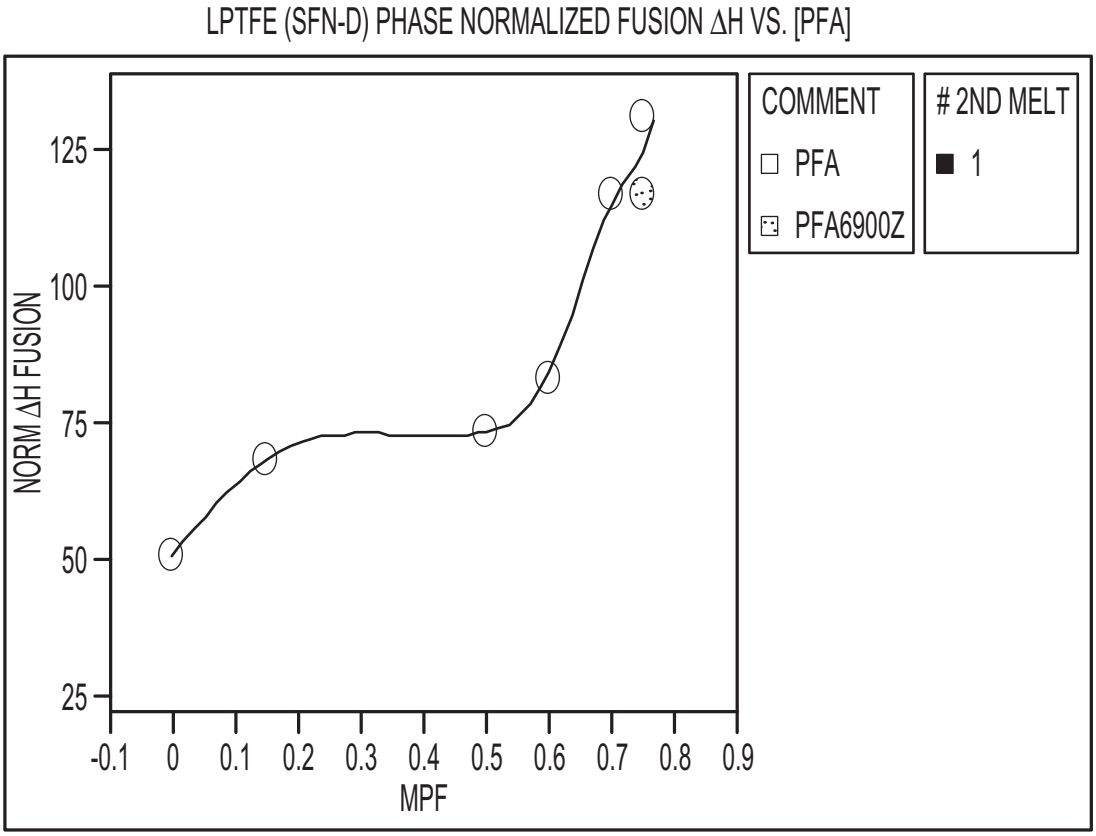

LPTFE (SFN-D) PHASE NORMALIZED FUSION ΔH VS. [PFA]
NORM ΔH FUSION
125
100
75
50
25
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
COMMENT
PFA
PFA6900Z
2ND MELT
1

FIG. 24

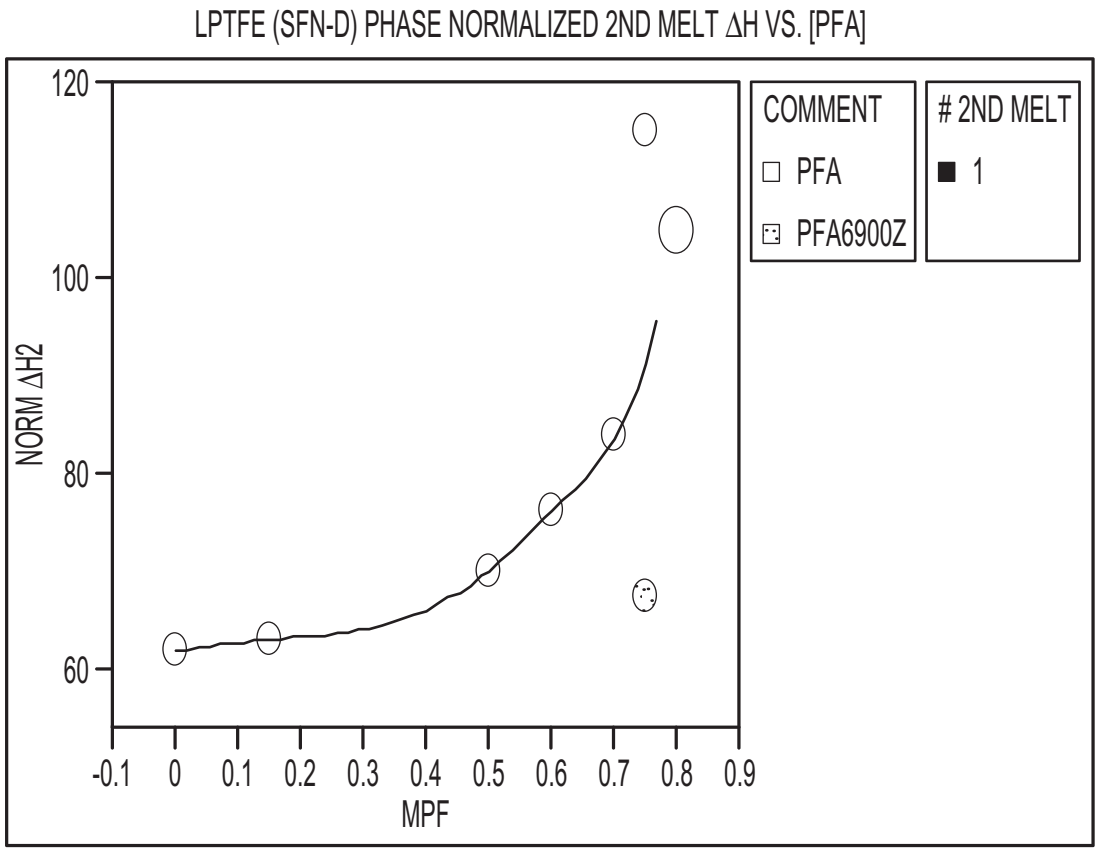

LPTFE (SFN-D) PHASE NORMALIZED 2ND MELT ΔH VS. [PFA]
120
100
80
60
NORM ΔH2
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
COMMENT
PFA
PFA6900Z
2ND MELT
1

FIG. 25

ACID ETCH TESTING OF PFA/LPTFE BLEND FILMS

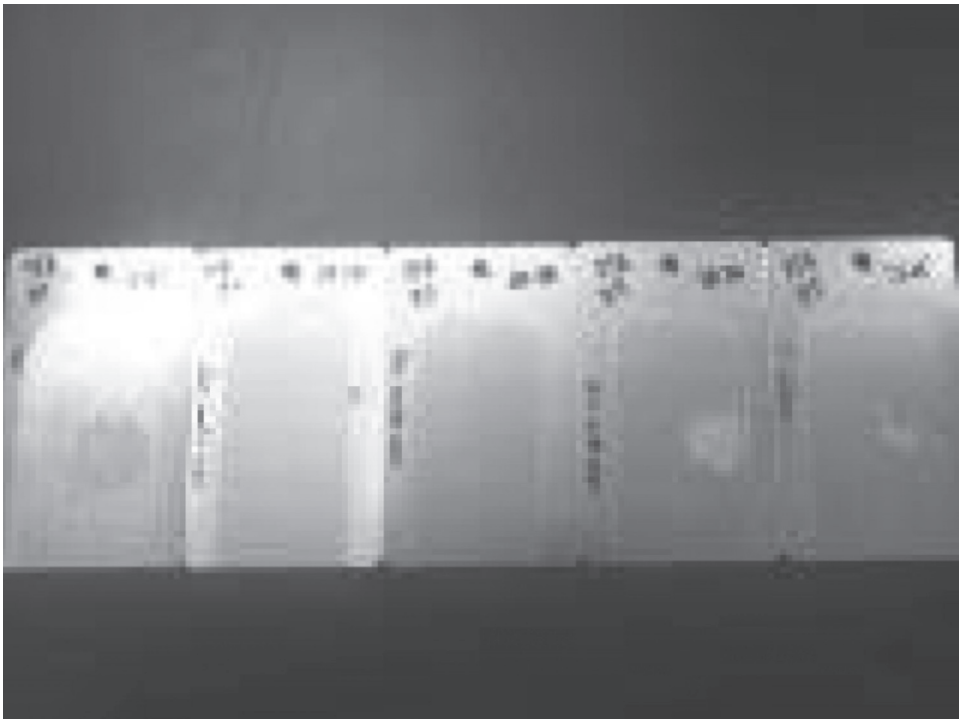


FIG. 26A

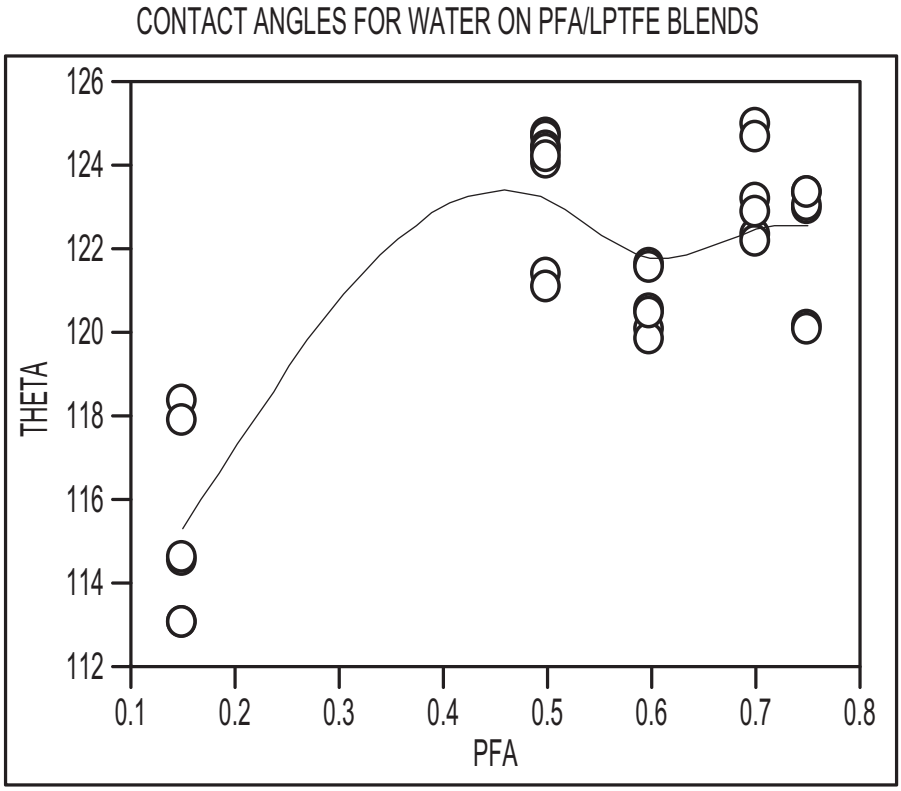

CONTACT ANGLES FOR WATER ON PFA/LPTFE BLENDS
THETA
126
124
122
120
118
116
114
112
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
PFA

FIG. 26B

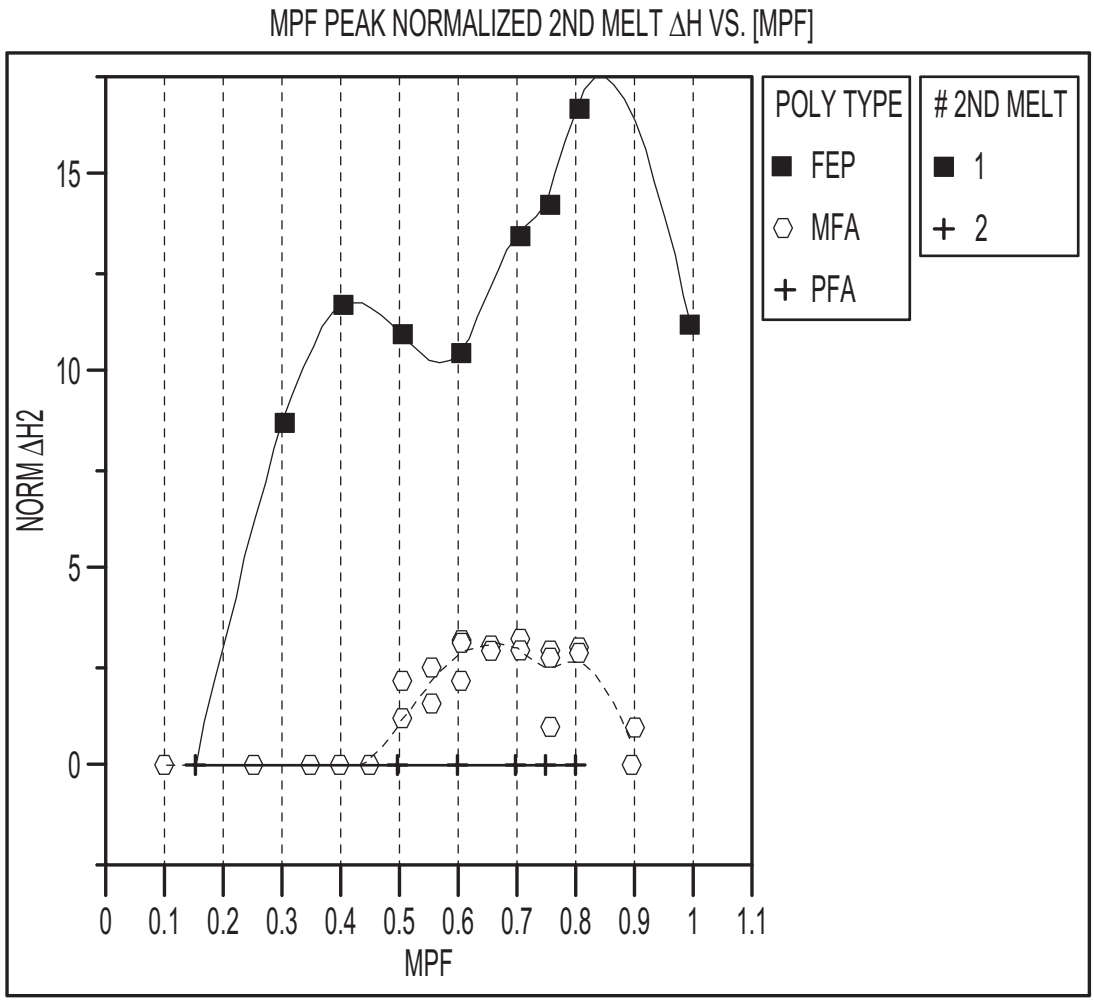

MPF PEAK NORMALIZED 2ND MELT ΔH VS. [MPF]
NORM ΔH2
MPF
0
5
10
15
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 27

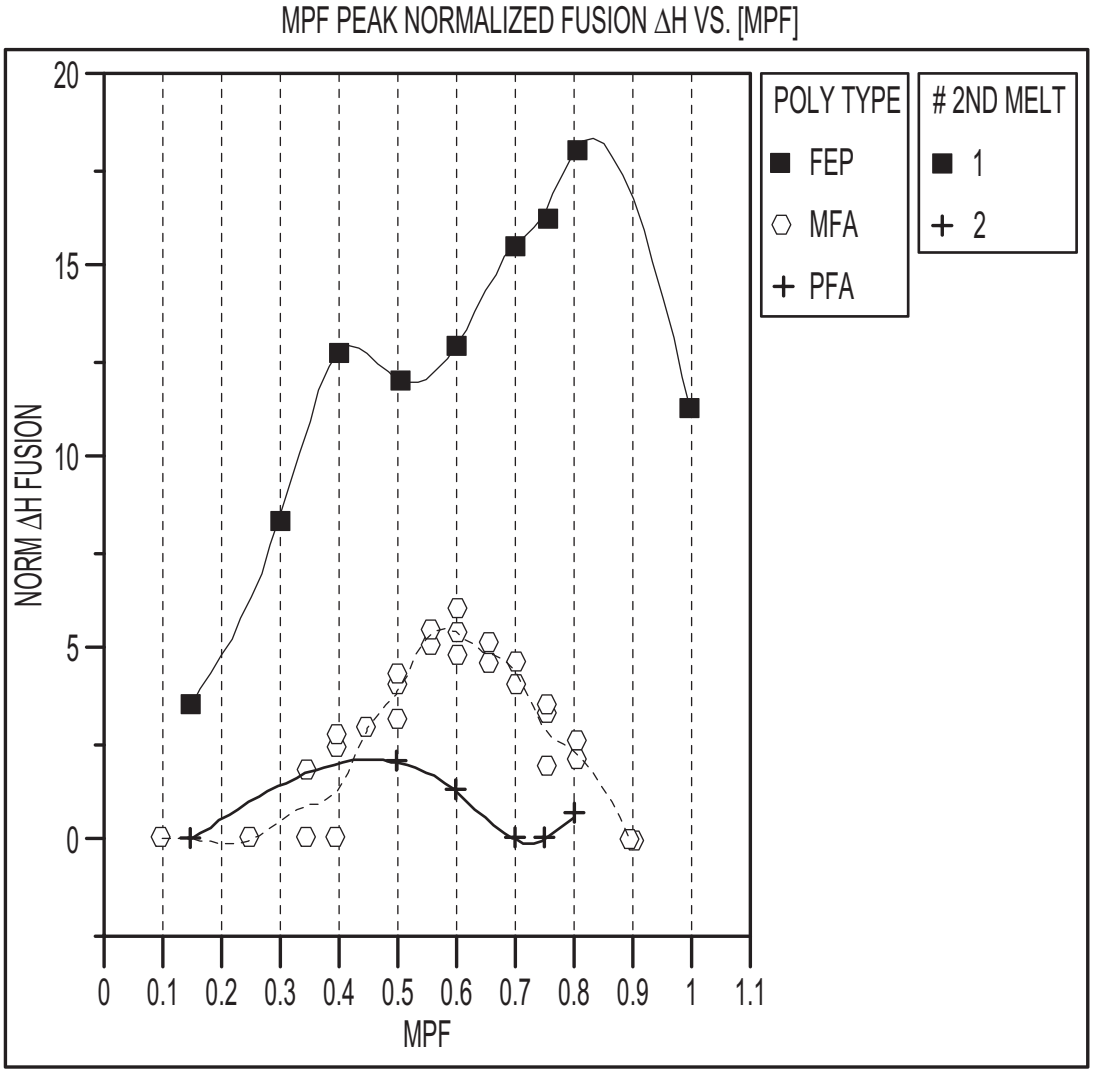

MPF PEAK NORMALIZED FUSION ΔH VS. [MPF]
NORM ΔH FUSION
20
15
10
5
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 28

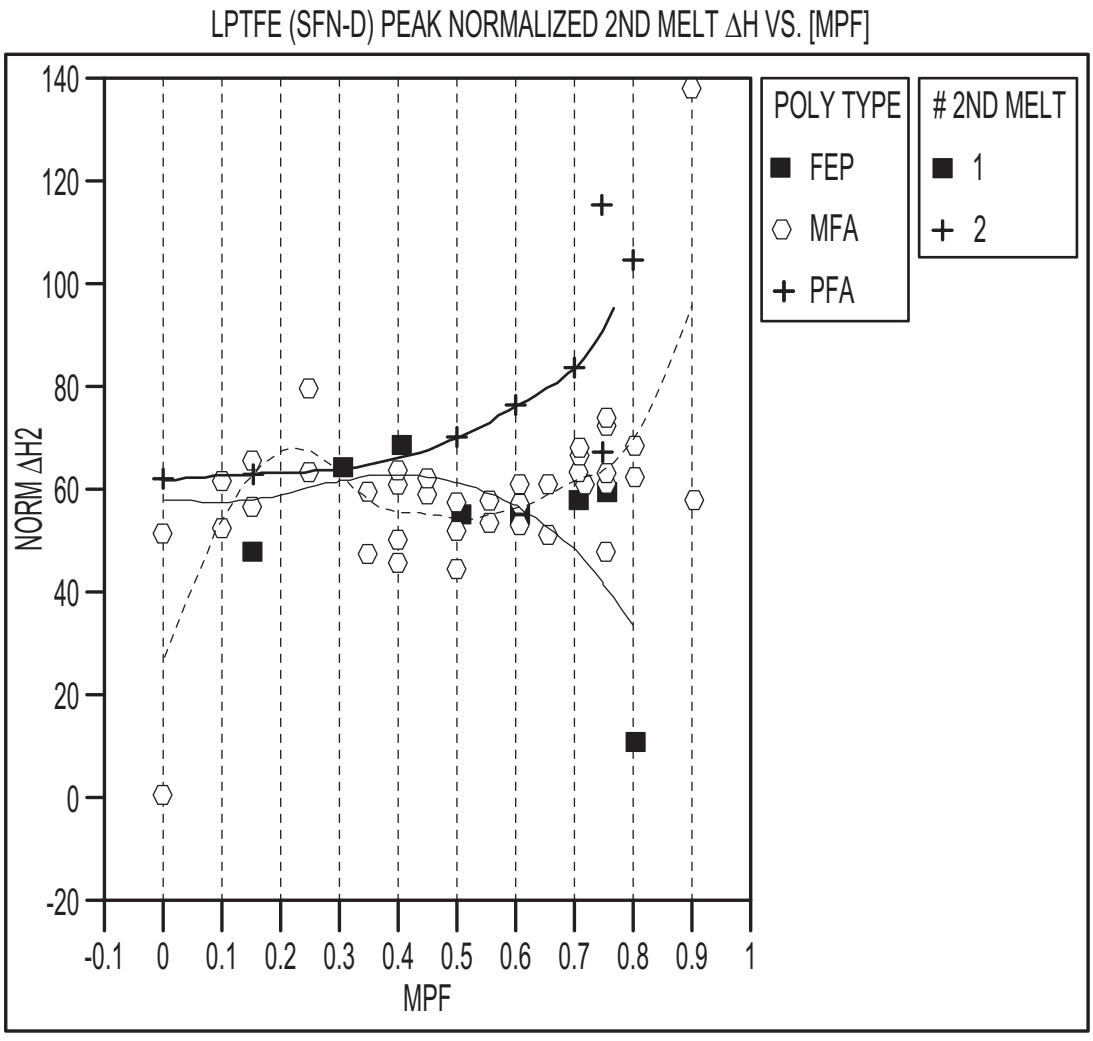

LPTFE (SFN-D) PEAK NORMALIZED 2ND MELT ΔH VS. [MPF]
NORM ΔH2
MPF
140
120
100
80
60
40
20
0
-20
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 29

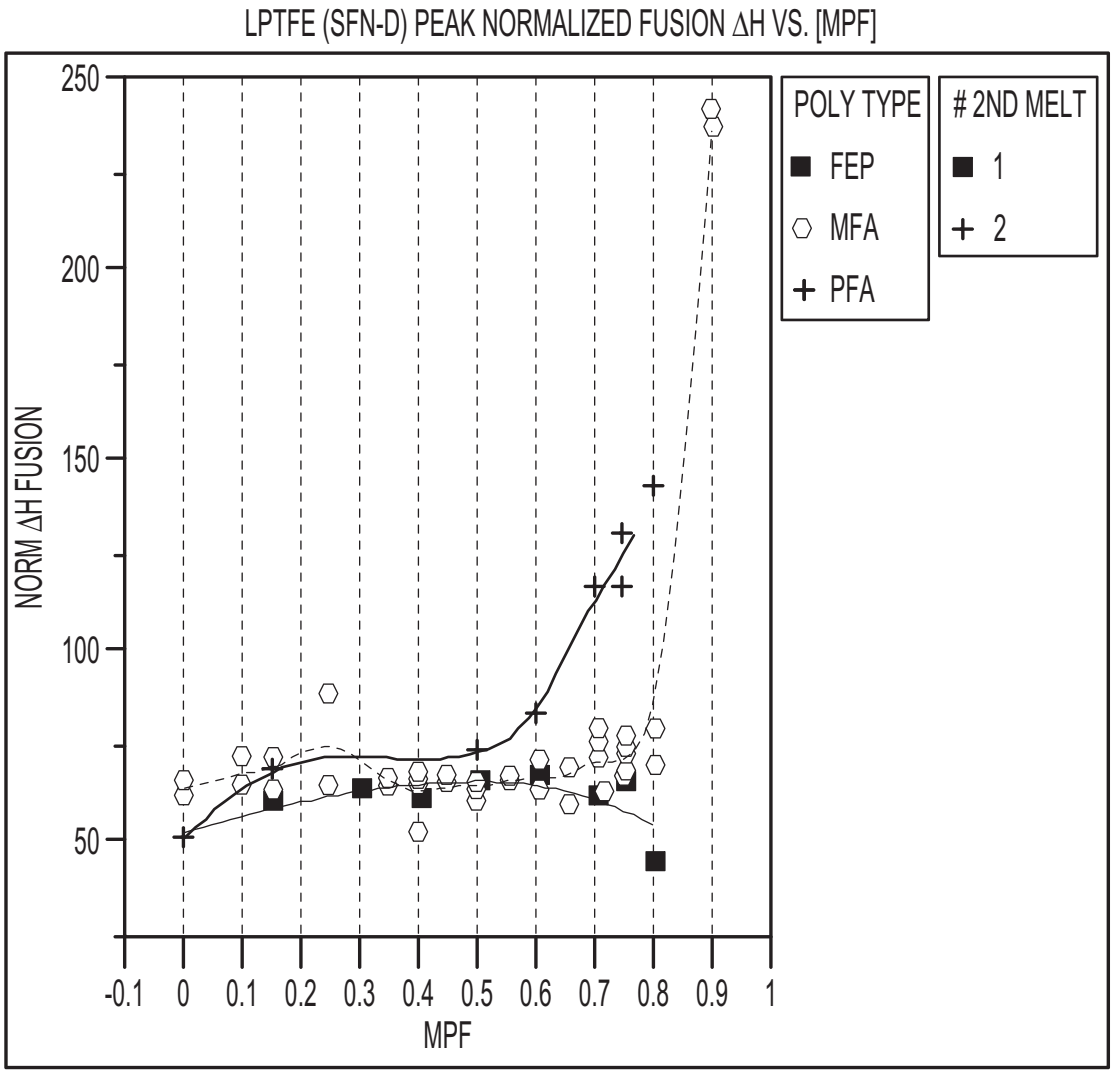

LPTFE (SFN-D) PEAK NORMALIZED FUSION ΔH VS. [MPF]
NORM ΔH FUSION
250
200
150
100
50
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 30

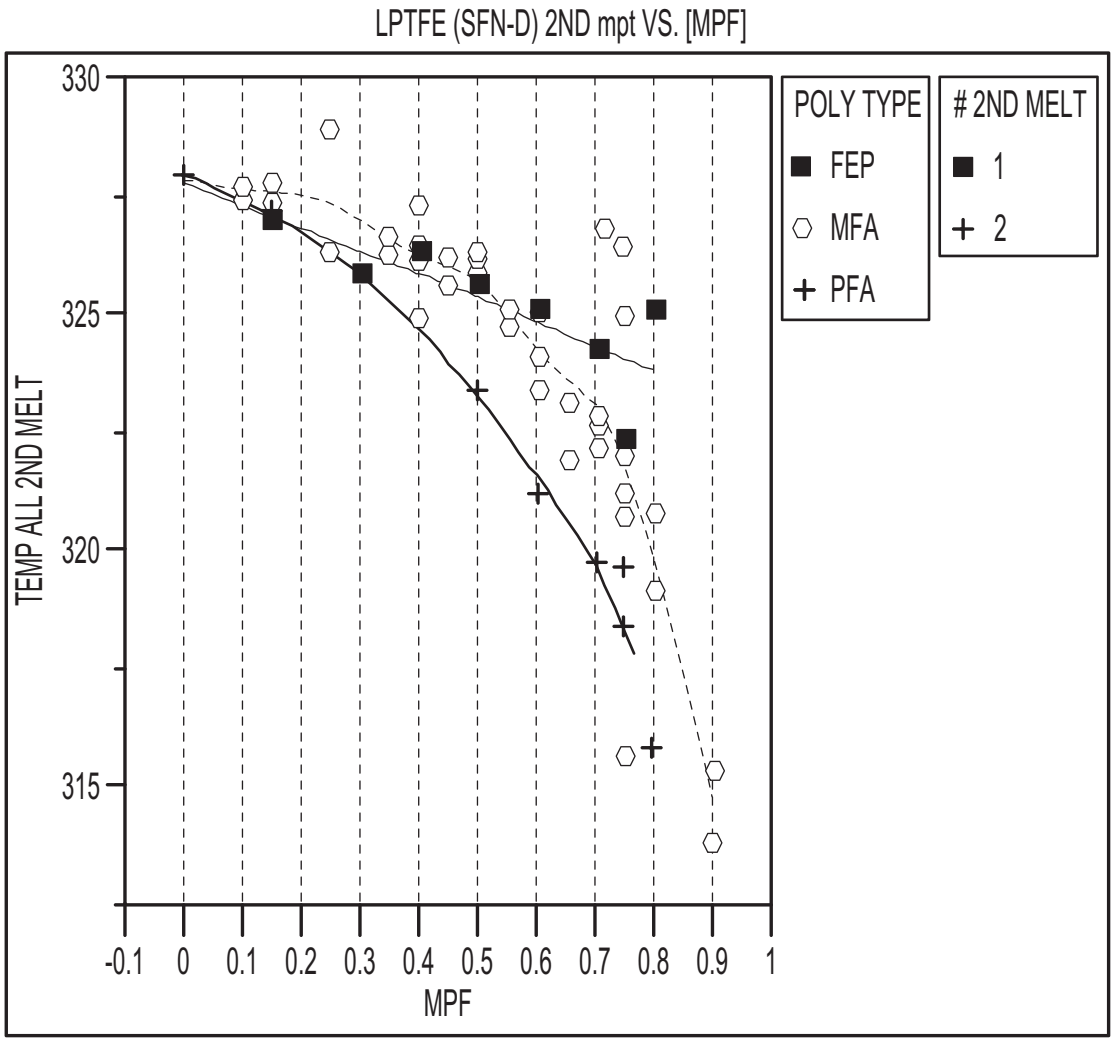

LPTFE (SFN-D) 2ND mpt VS. [MPF]
TEMP ALL 2ND MELT
330
325
320
315
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 31

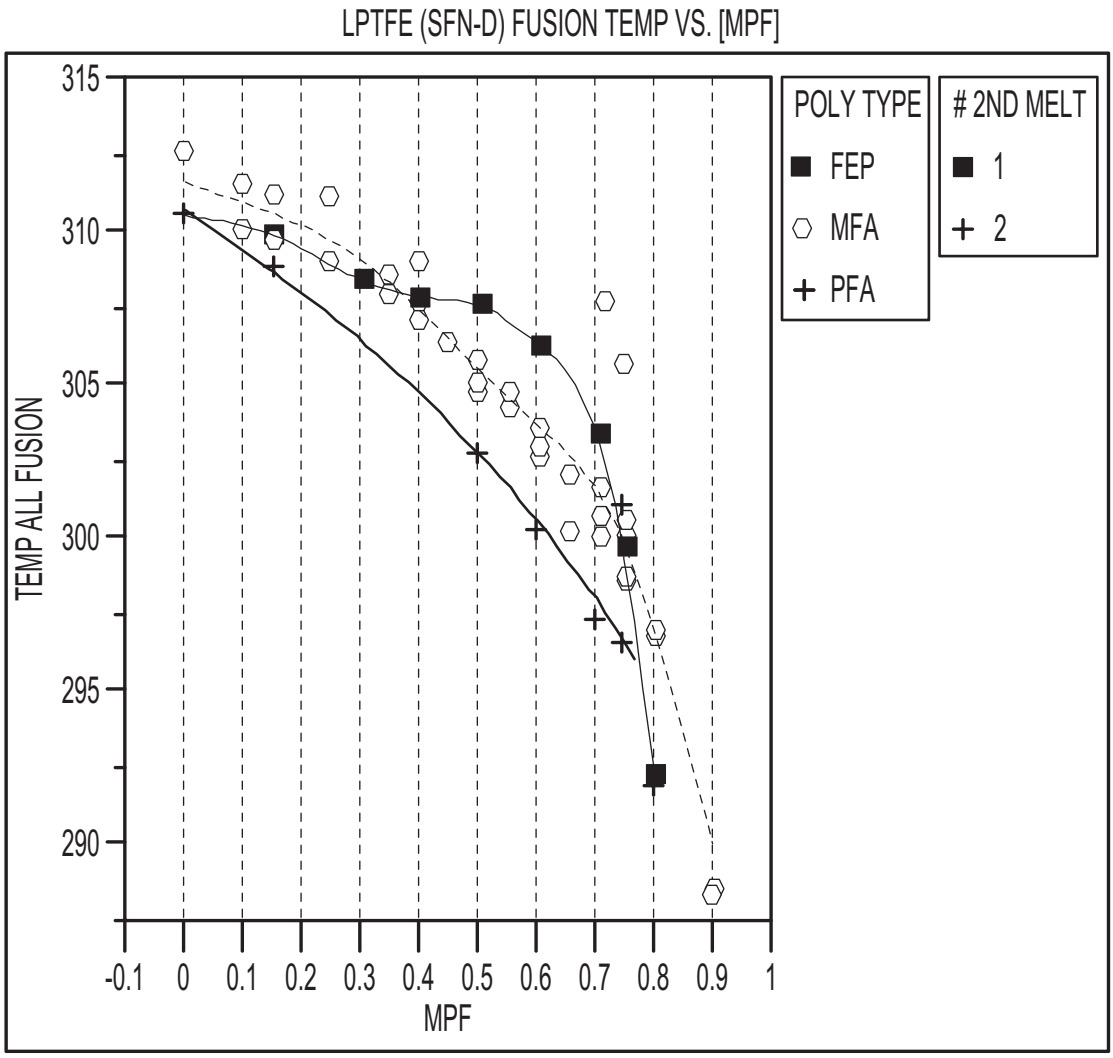

LPTFE (SFN-D) FUSION TEMP VS. [MPF]
TEMP ALL FUSION
315
310
305
300
295
290
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 32

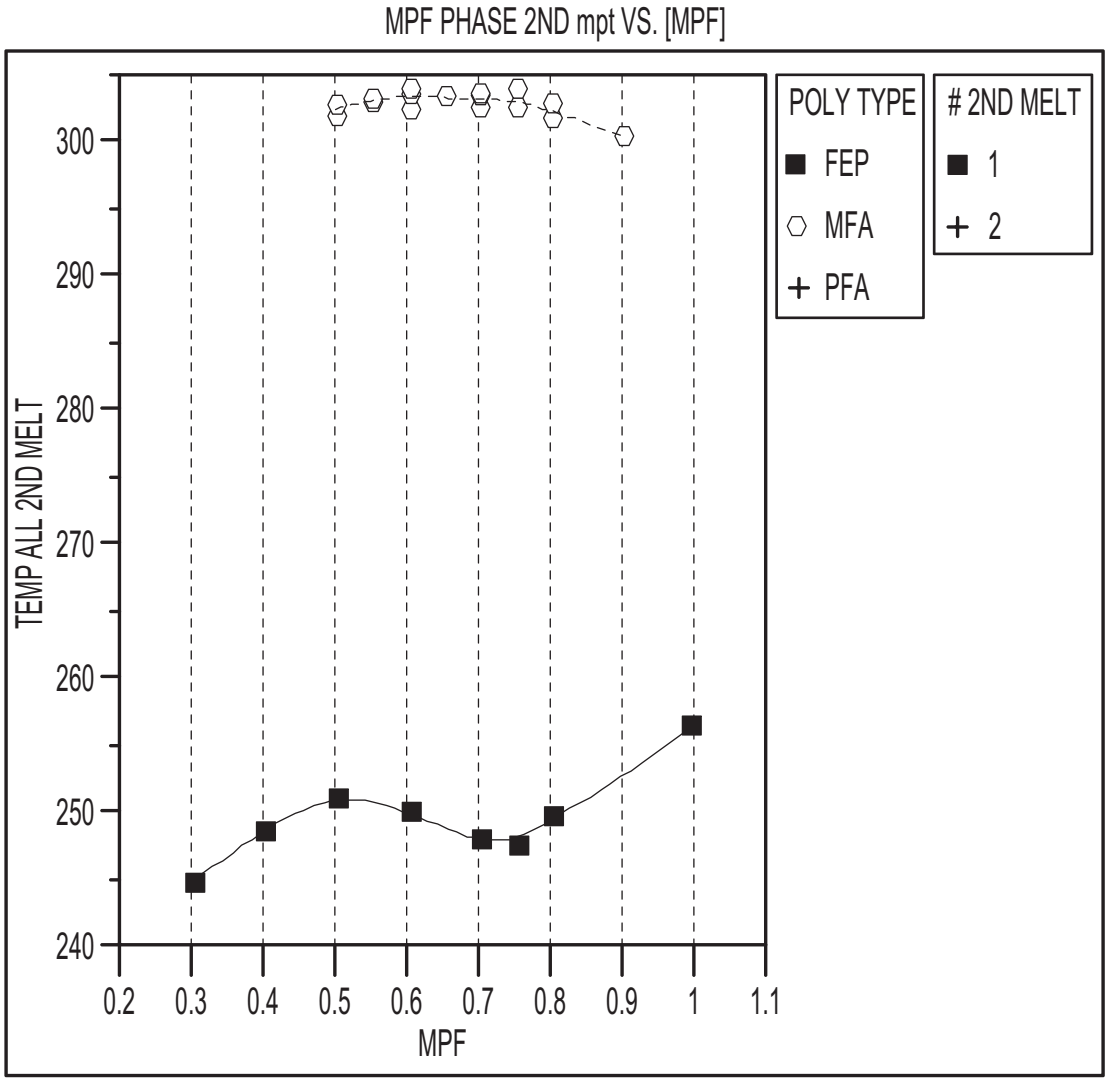

MPF PHASE 2ND mpt VS. [MPF]
TEMP ALL 2ND MELT
300
290
280
270
260
250
240
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 33

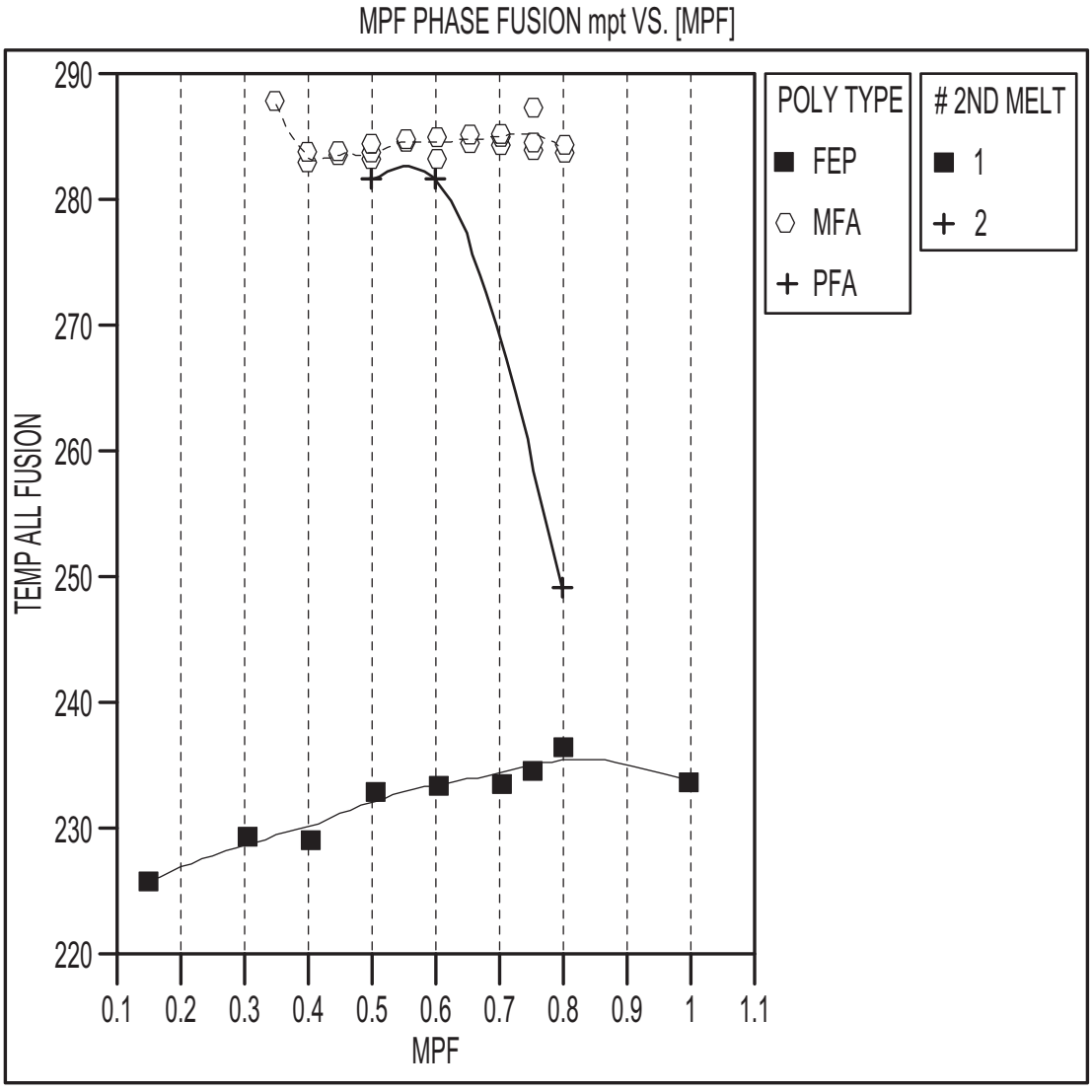

MPF PHASE FUSION mpt VS. [MPF]
TEMP ALL FUSION
290
280
270
260
250
240
230
220
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF
POLY TYPE
FEP
MFA
PFA
2ND MELT
1
2

FIG. 34

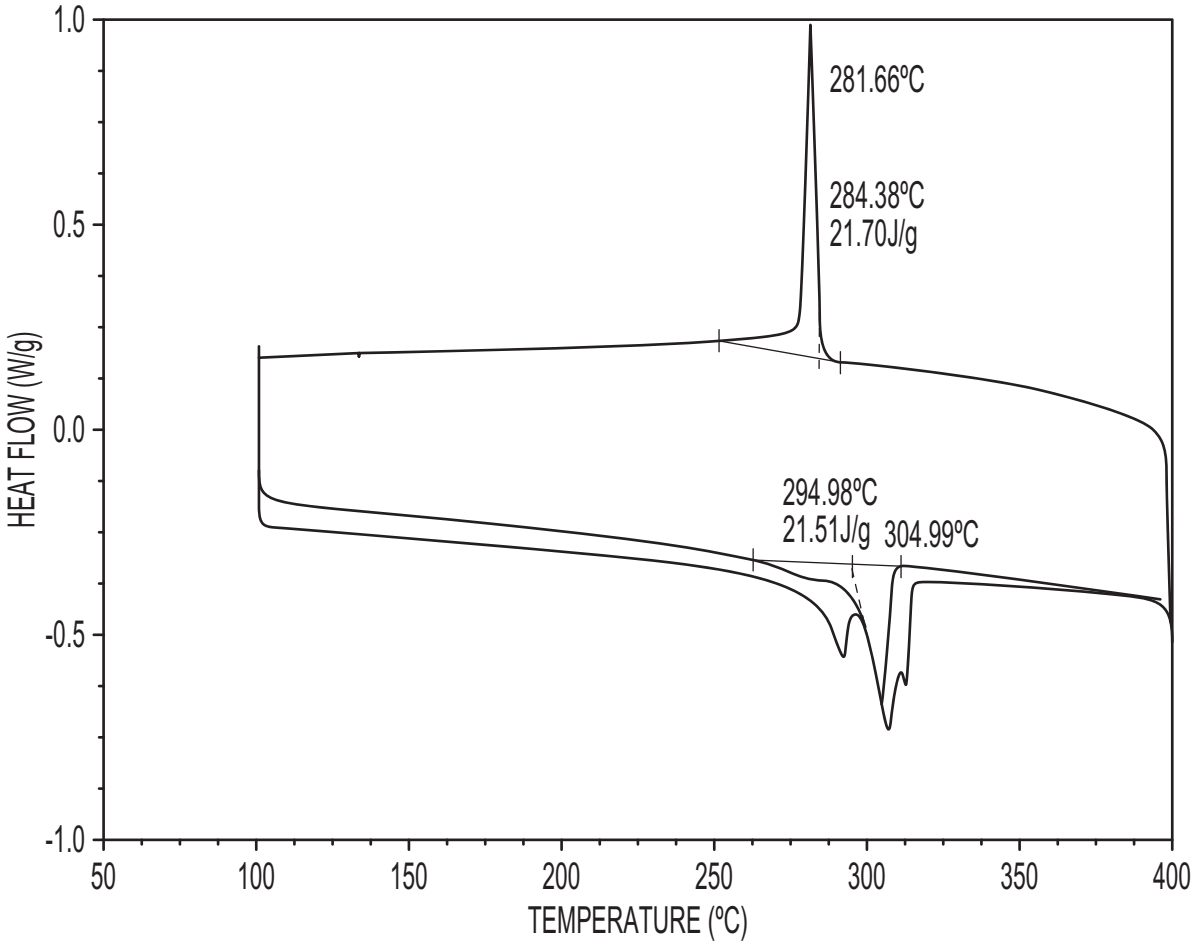

1.0
0.5
0.0
-0.5
-1.0
HEAT FLOW (W/g)
281.66ºC
284.38ºC
21.70J/g
294.98ºC
21.51J/g
304.99ºC
50
100
150
200
250
300
350
400
TEMPERATURE (ºC)

FIG. 35

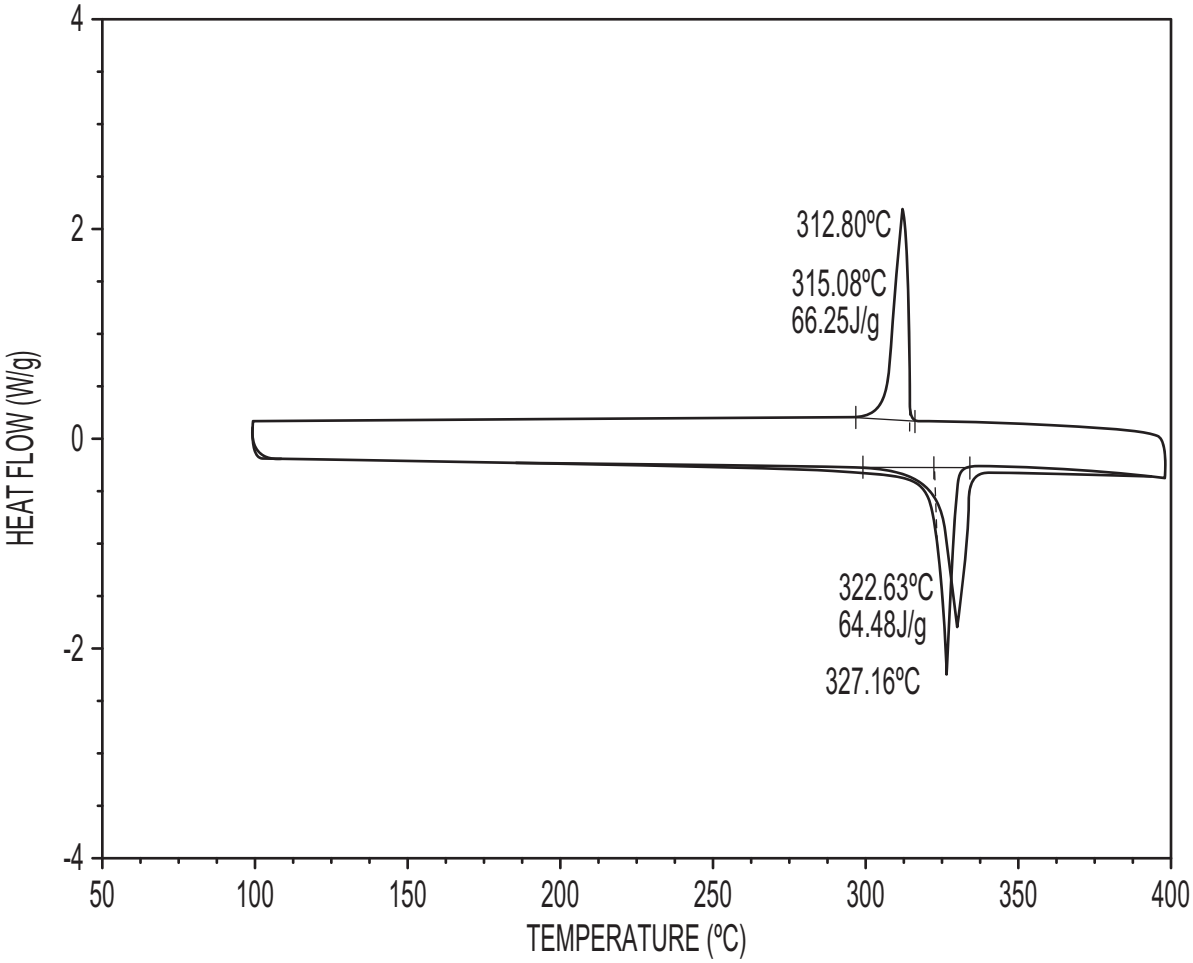

4
2
0
-2
-4
HEAT FLOW (W/g)
50
100
150
200
250
300
350
400
TEMPERATURE (°C)
312.80°C
315.08°C
66.25J/g
322.63°C
64.48J/g
327.16°C

FIG. 36

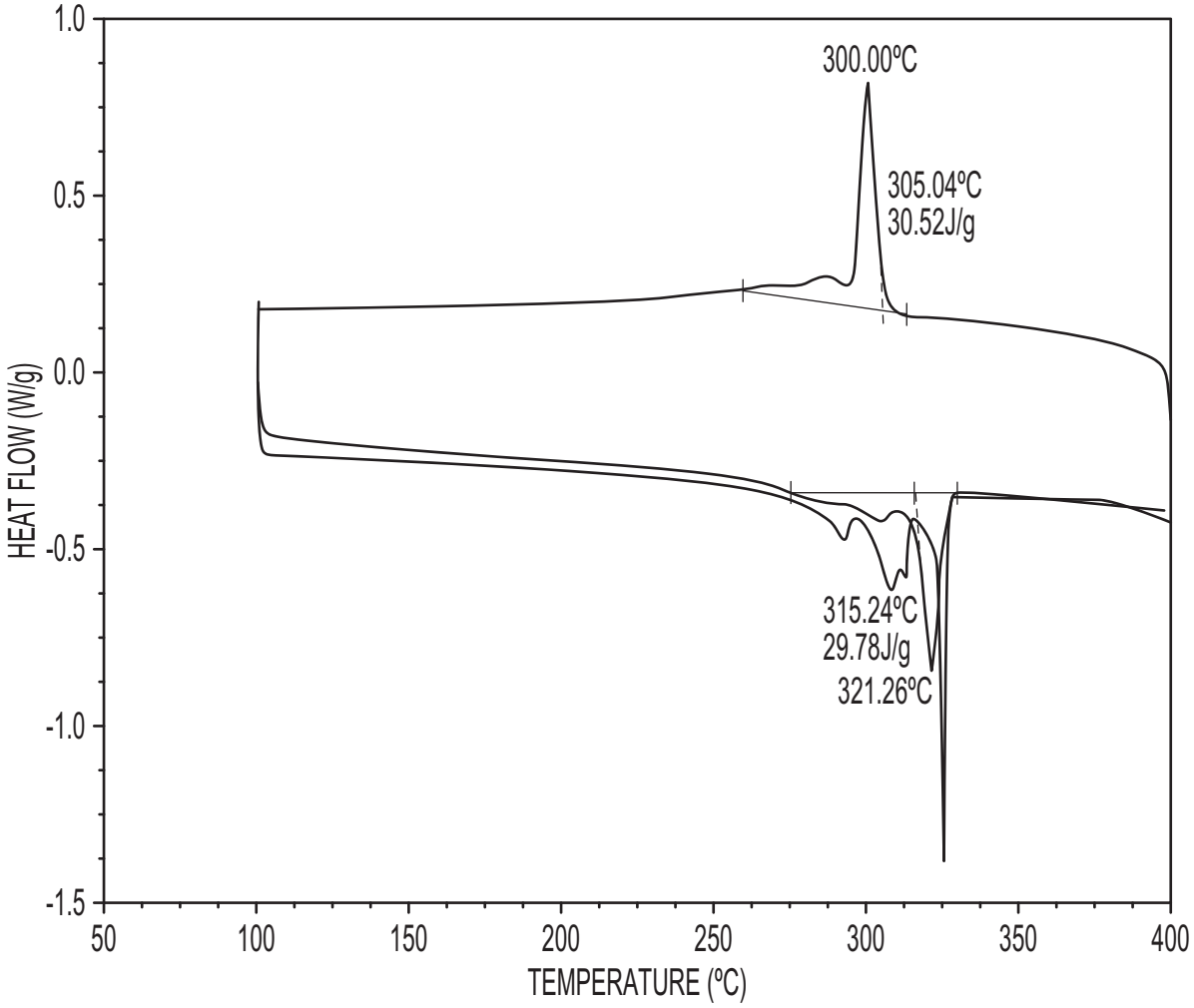

1.0
0.5
0.0
-0.5
-1.0
-1.5
HEAT FLOW (W/g)
50
100
150
200
250
300
350
400
TEMPERATURE (ºC)
300.00ºC
305.04ºC
30.52J/g
315.24ºC
29.78J/g
321.26ºC

FIG. 37

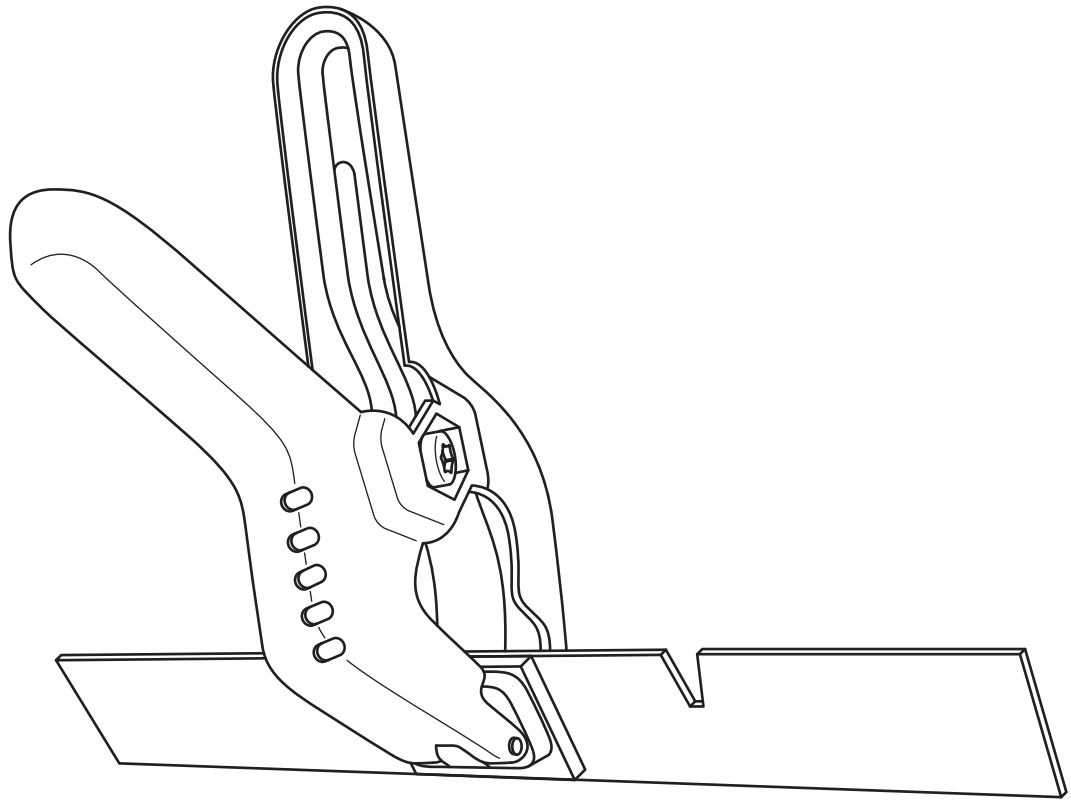


FIG. 38

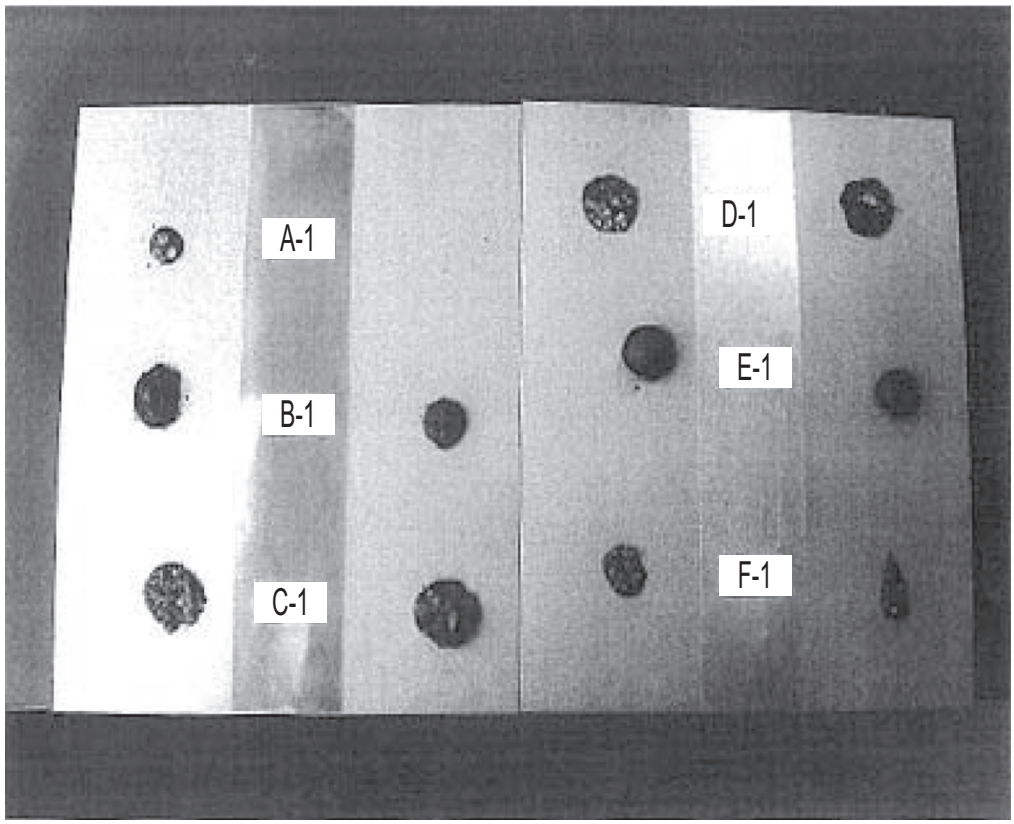


FIG. 39

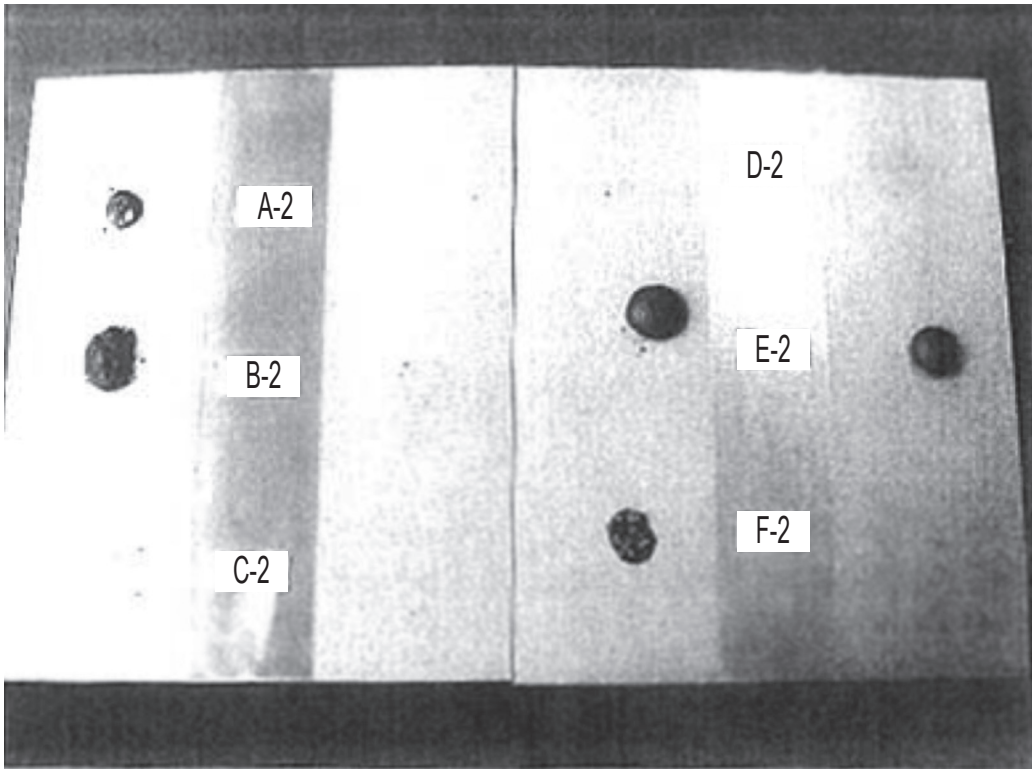


FIG. 40

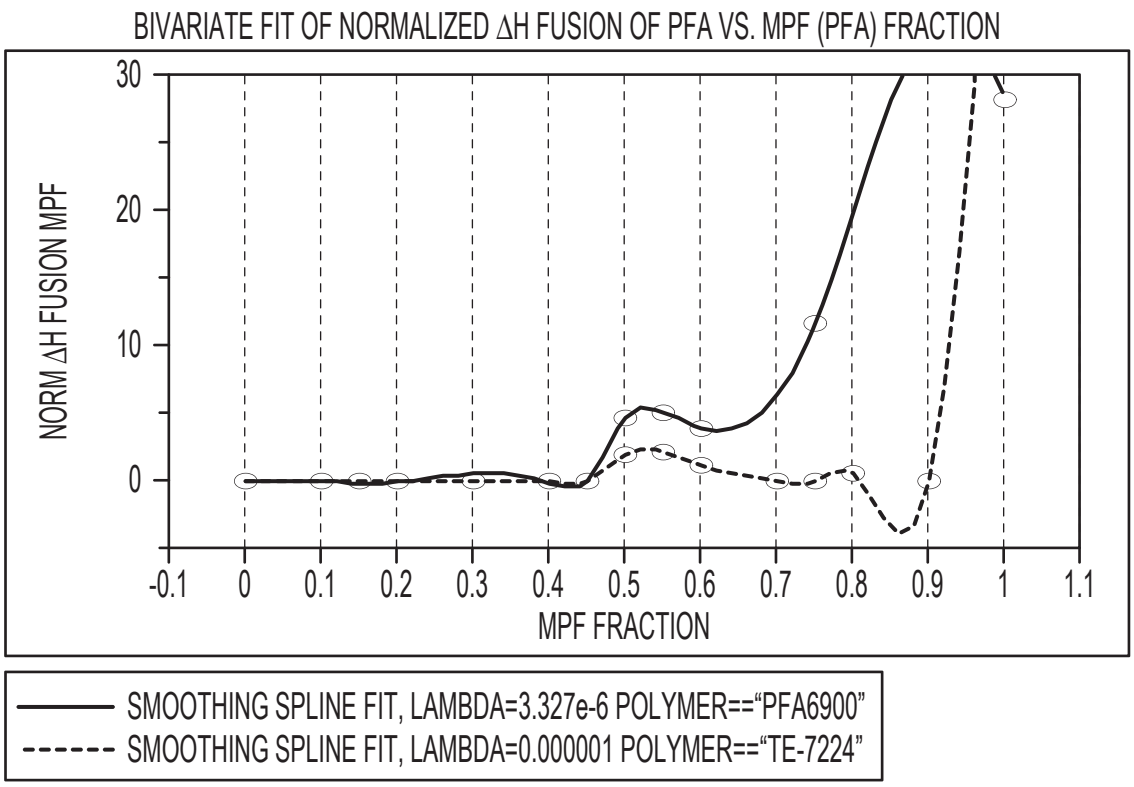

BIVARIATE FIT OF NORMALIZED ΔH FUSION OF PFA VS. MPF (PFA) FRACTION
NORM ΔH FUSION MPF
30
20
10
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=3.327e-6 POLYMER==“PFA6900”
SMOOTHING SPLINE FIT, LAMBDA=0.000001 POLYMER==“TE-7224”

FIG. 41

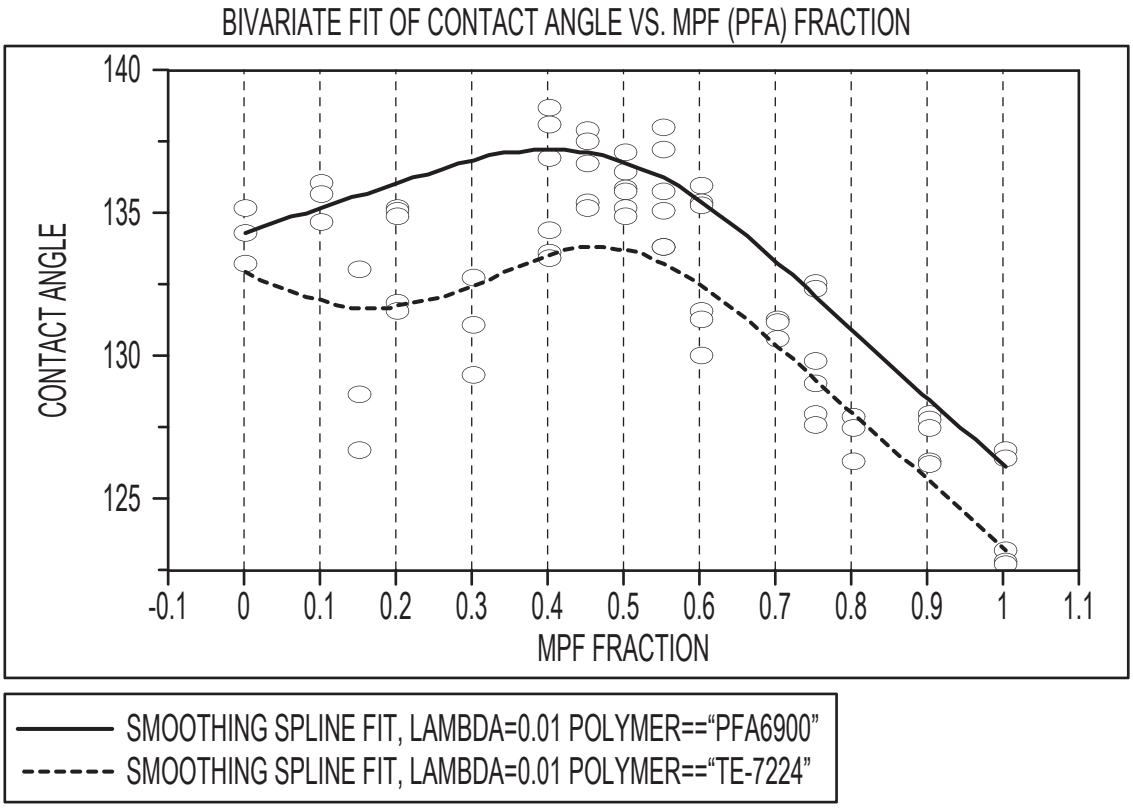

BIVARIATE FIT OF CONTACT ANGLE VS. MPF (PFA) FRACTION
CONTACT ANGLE
140
135
130
125
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.01 POLYMER=="PFA6900"
SMOOTHING SPLINE FIT, LAMBDA=0.01 POLYMER=="TE-7224"

FIG. 42

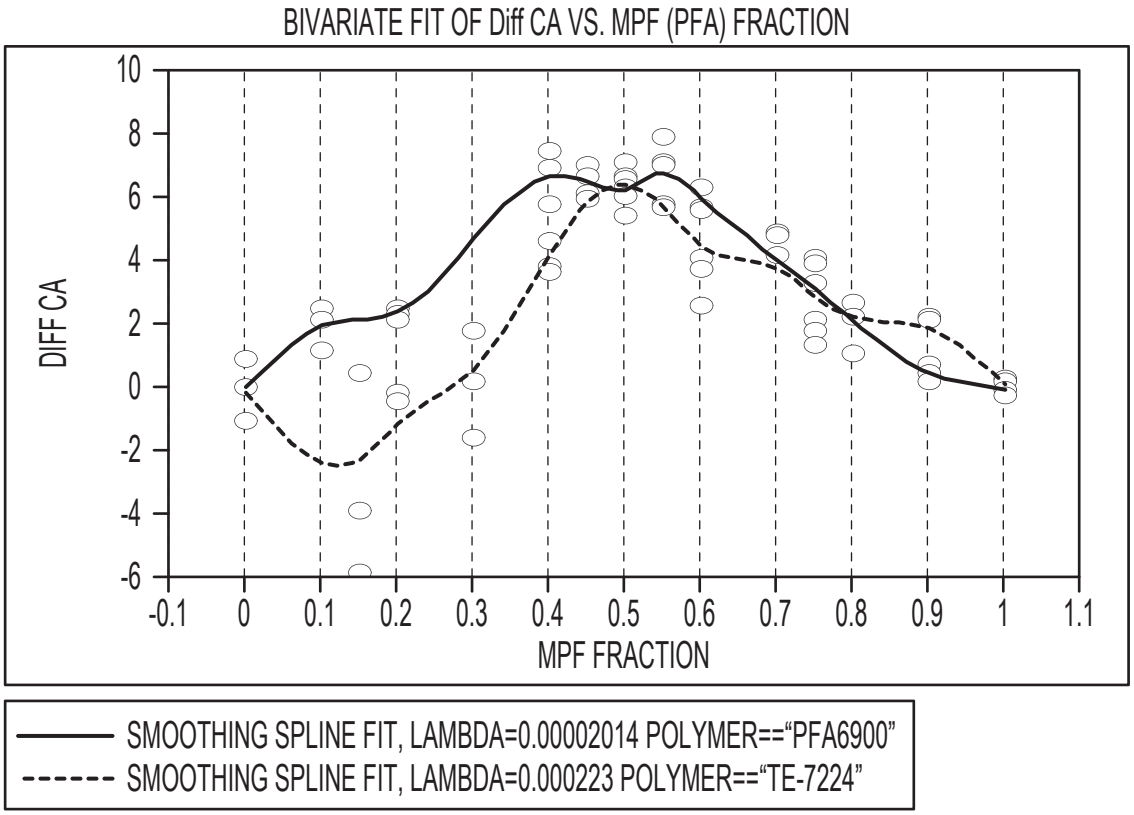

BIVARIATE FIT OF Diff CA VS. MPF (PFA) FRACTION
DIFF CA
10
8
6
4
2
0
-2
-4
-6
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.00002014 POLYMER=="PFA6900"
SMOOTHING SPLINE FIT, LAMBDA=0.000223 POLYMER=="TE-7224"

FIG. 43

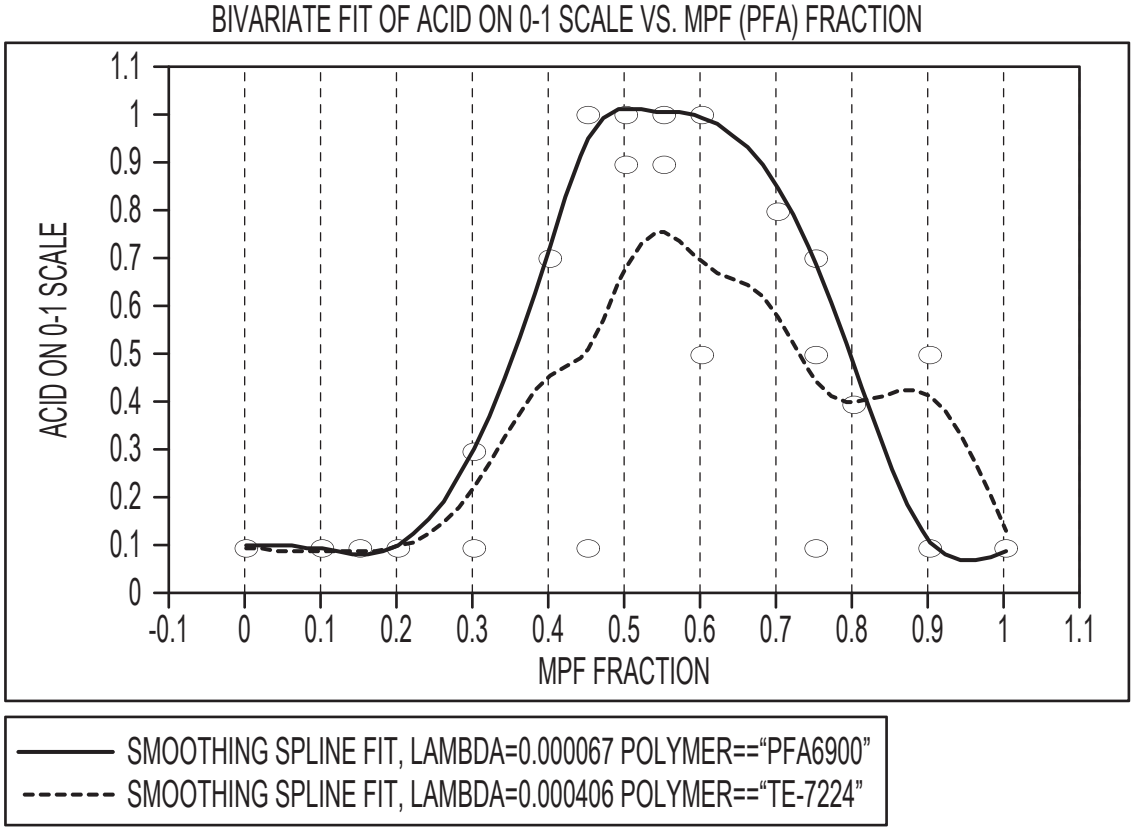

BIVARIATE FIT OF ACID ON 0-1 SCALE VS. MPF (PFA) FRACTION
ACID ON 0-1 SCALE
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000067 POLYMER=="PFA6900"
SMOOTHING SPLINE FIT, LAMBDA=0.000406 POLYMER=="TE-7224"

FIG. 44

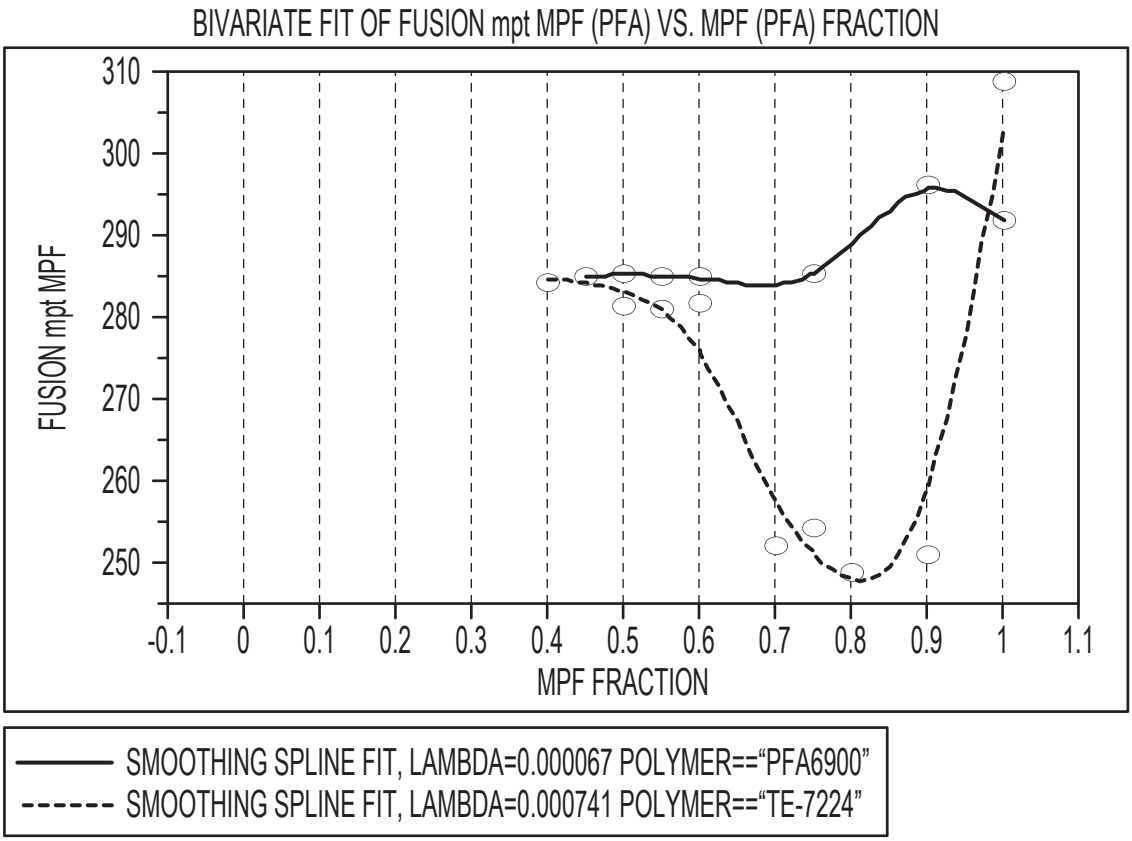

BIVARIATE FIT OF FUSION mpt MPF (PFA) VS. MPF (PFA) FRACTION
FUSION mpt MPF
310
300
290
280
270
260
250
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000067 POLYMER==“PFA6900”
SMOOTHING SPLINE FIT, LAMBDA=0.000741 POLYMER==“TE-7224”

FIG. 45

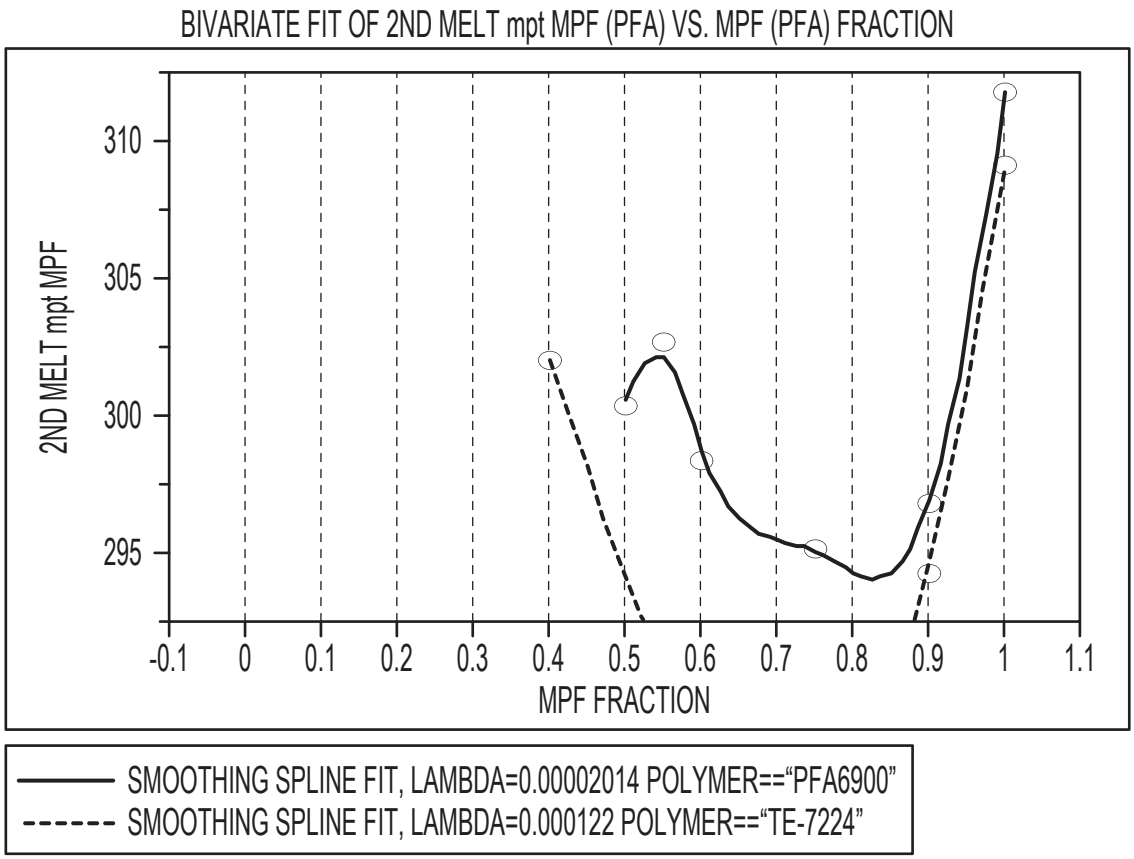

BIVARIATE FIT OF 2ND MELT mpt MPF (PFA) VS. MPF (PFA) FRACTION
2ND MELT mpt MPF
310
305
300
295
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.00002014 POLYMER==“PFA6900”
SMOOTHING SPLINE FIT, LAMBDA=0.000122 POLYMER==“TE-7224”

FIG. 46

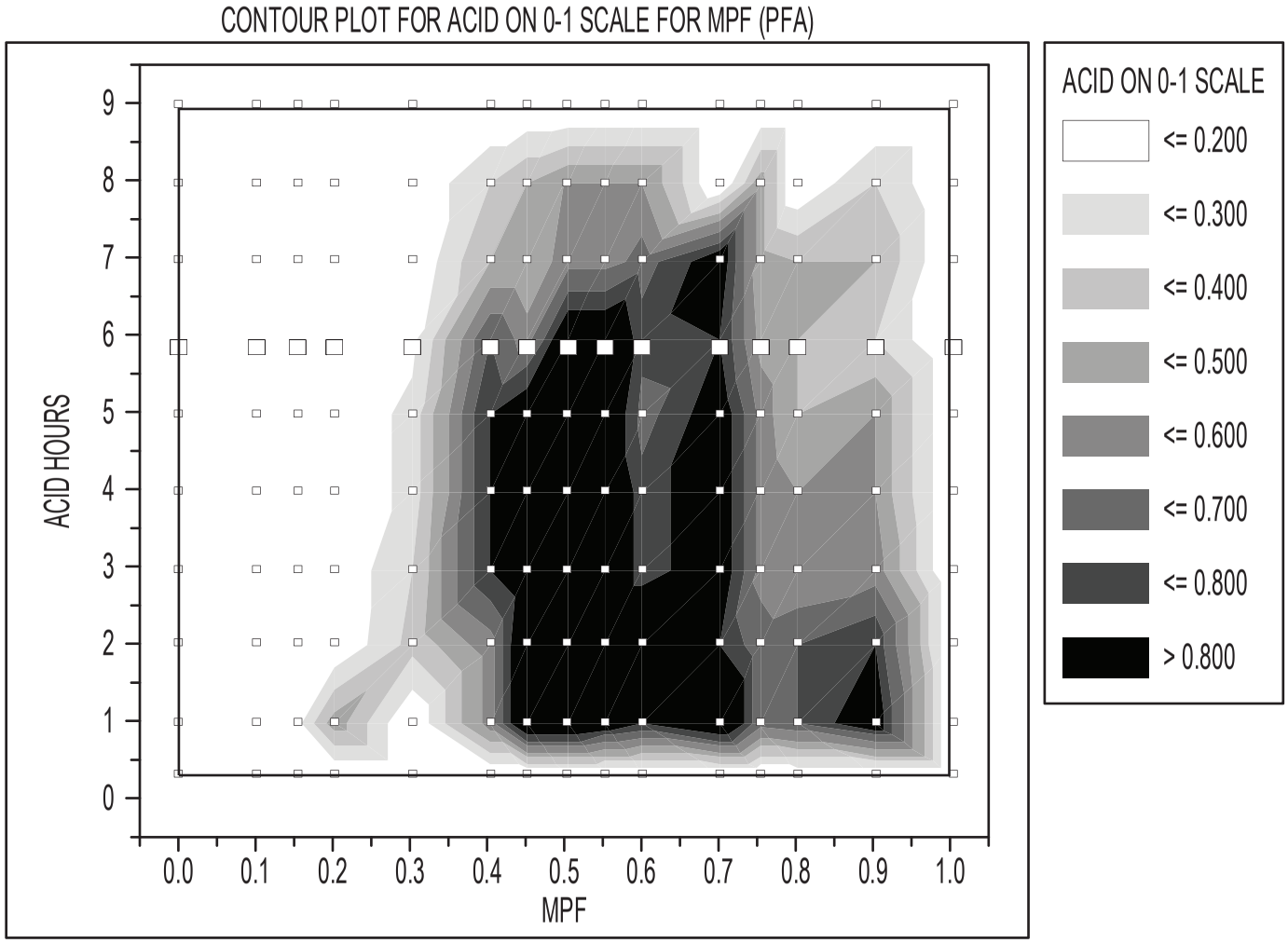

CONTOUR PLOT FOR ACID ON 0-1 SCALE FOR MPF (PFA)
ACID HOURS
MPF
0
1
2
3
4
5
6
7
8
9
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
ACID ON 0-1 SCALE
<= 0.200
<= 0.300
<= 0.400
<= 0.500
<= 0.600
<= 0.700
<= 0.800
> 0.800

FIG.47

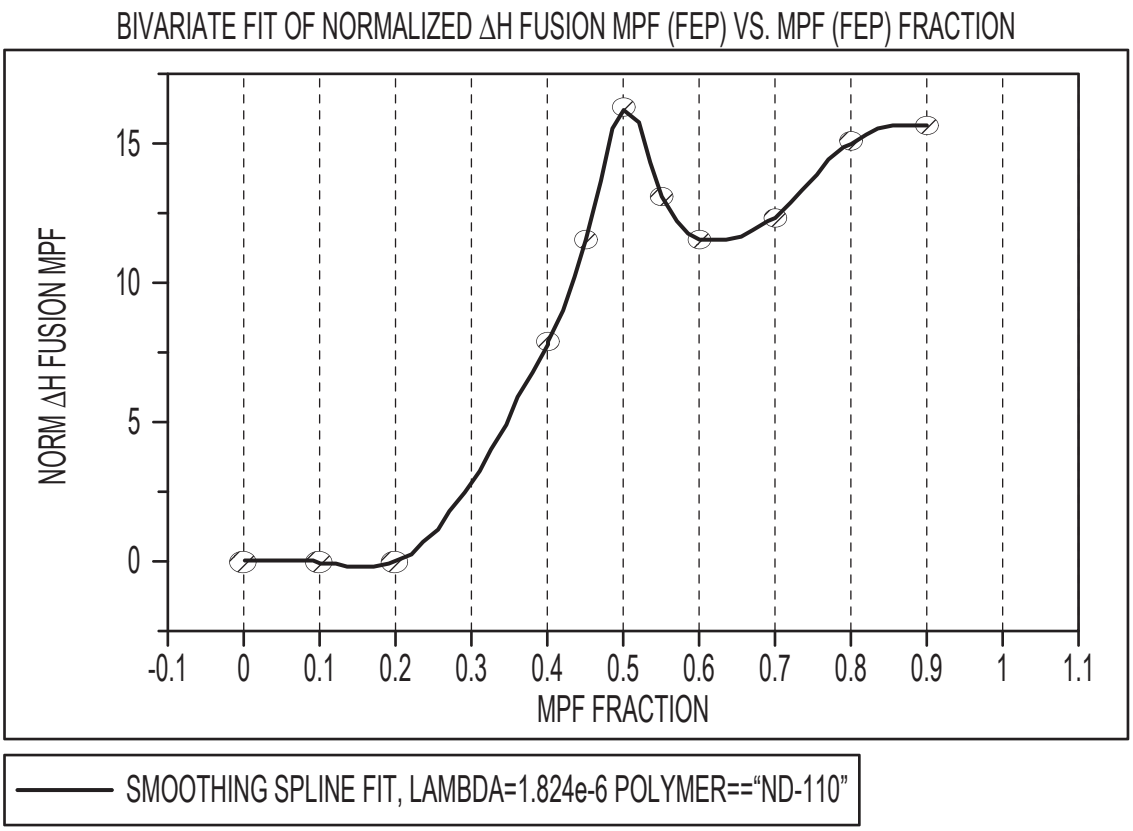

BIVARIATE FIT OF NORMALIZED ΔH FUSION MPF (FEP) VS. MPF (FEP) FRACTION
NORM ΔH FUSION MPF
15
10
5
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=1.824e-6 POLYMER==“ND-110”

FIG. 48

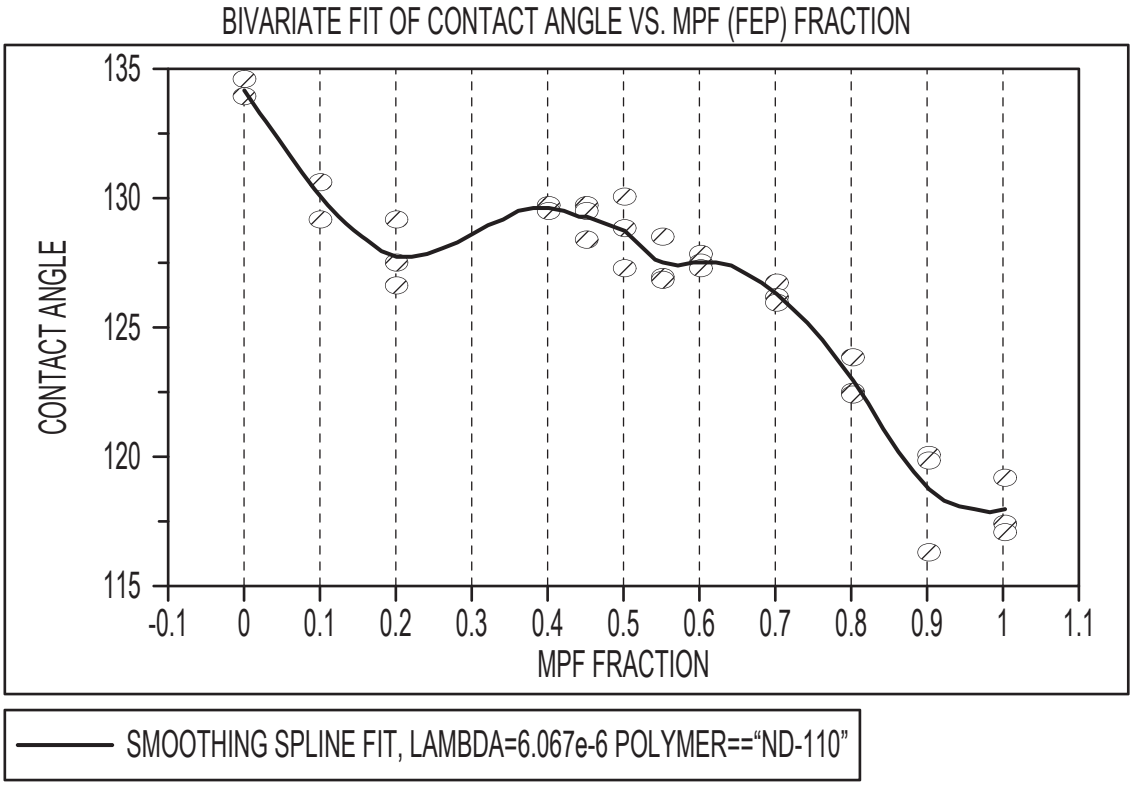

BIVARIATE FIT OF CONTACT ANGLE VS. MPF (FEP) FRACTION
CONTACT ANGLE
135
130
125
120
115
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=6.067e-6 POLYMER==“ND-110”

FIG. 49

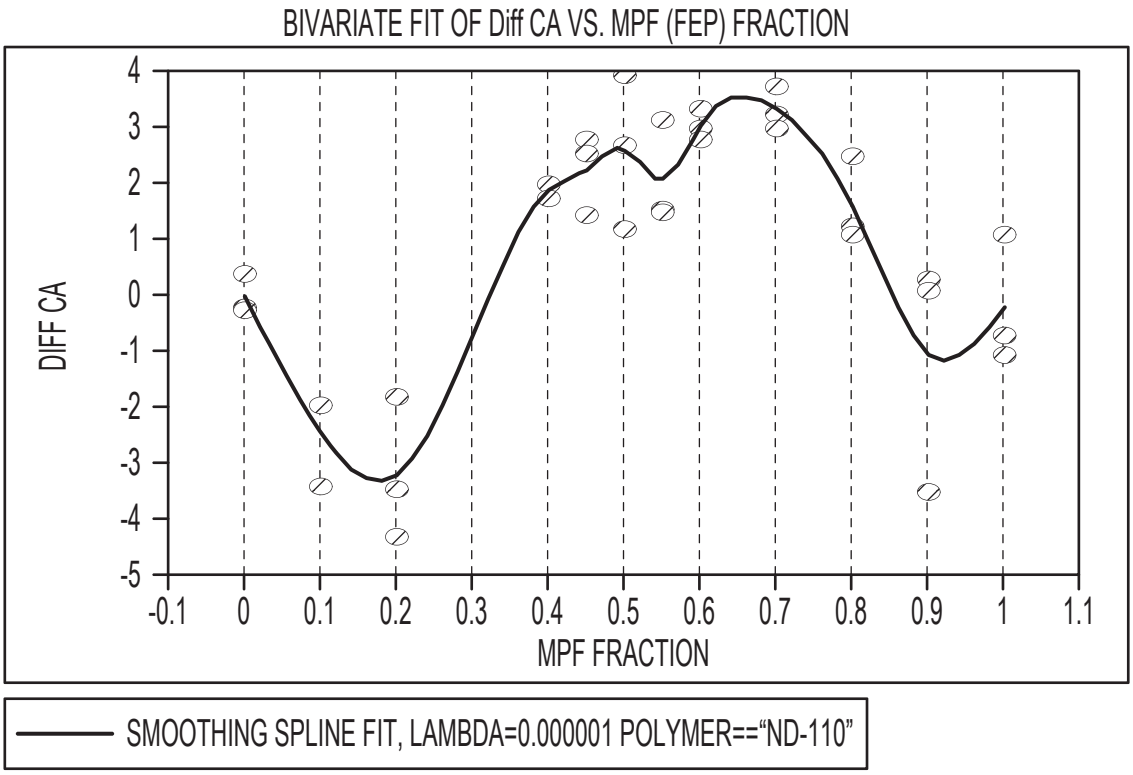

BIVARIATE FIT OF Diff CA VS. MPF (FEP) FRACTION
DIFF CA
4
3
2
1
0
-1
-2
-3
-4
-5
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000001 POLYMER==“ND-110”

FIG. 50

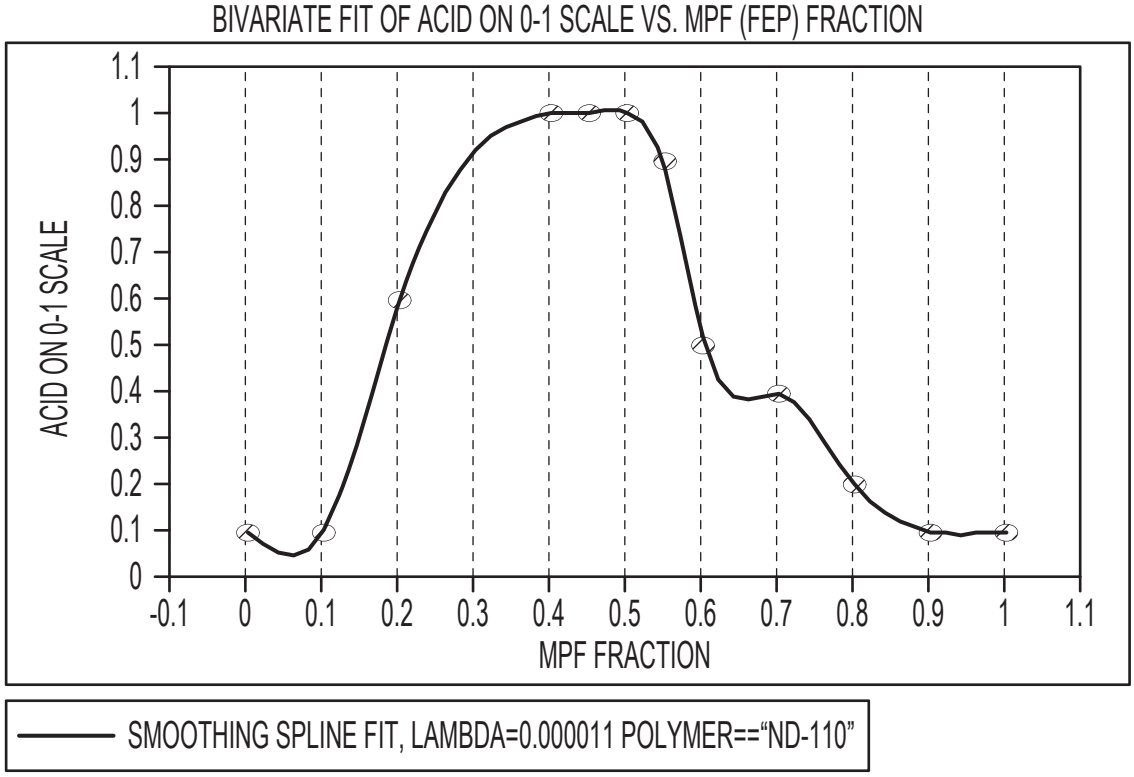

BIVARIATE FIT OF ACID ON 0-1 SCALE VS. MPF (FEP) FRACTION
ACID ON 0-1 SCALE
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000011 POLYMER=="ND-110"

FIG. 51

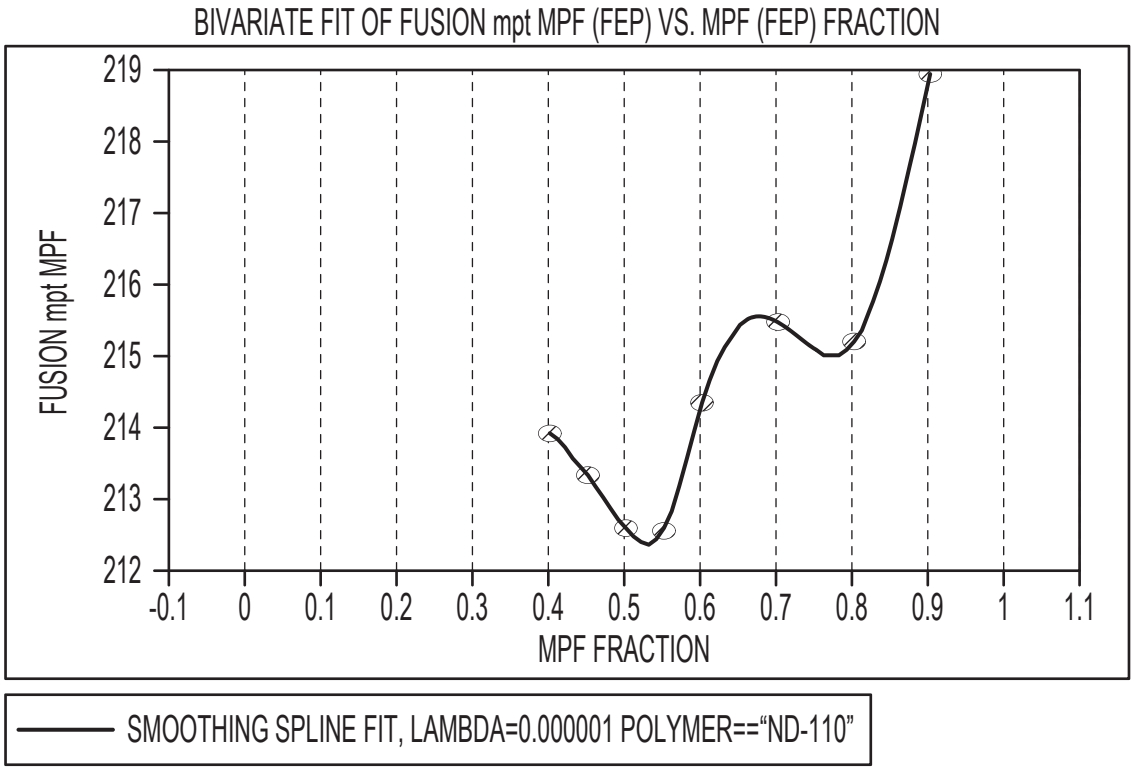

BIVARIATE FIT OF FUSION mpt MPF (FEP) VS. MPF (FEP) FRACTION
FUSION mpt MPF
219
218
217
216
215
214
213
212
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000001 POLYMER==“ND-110”

FIG. 52

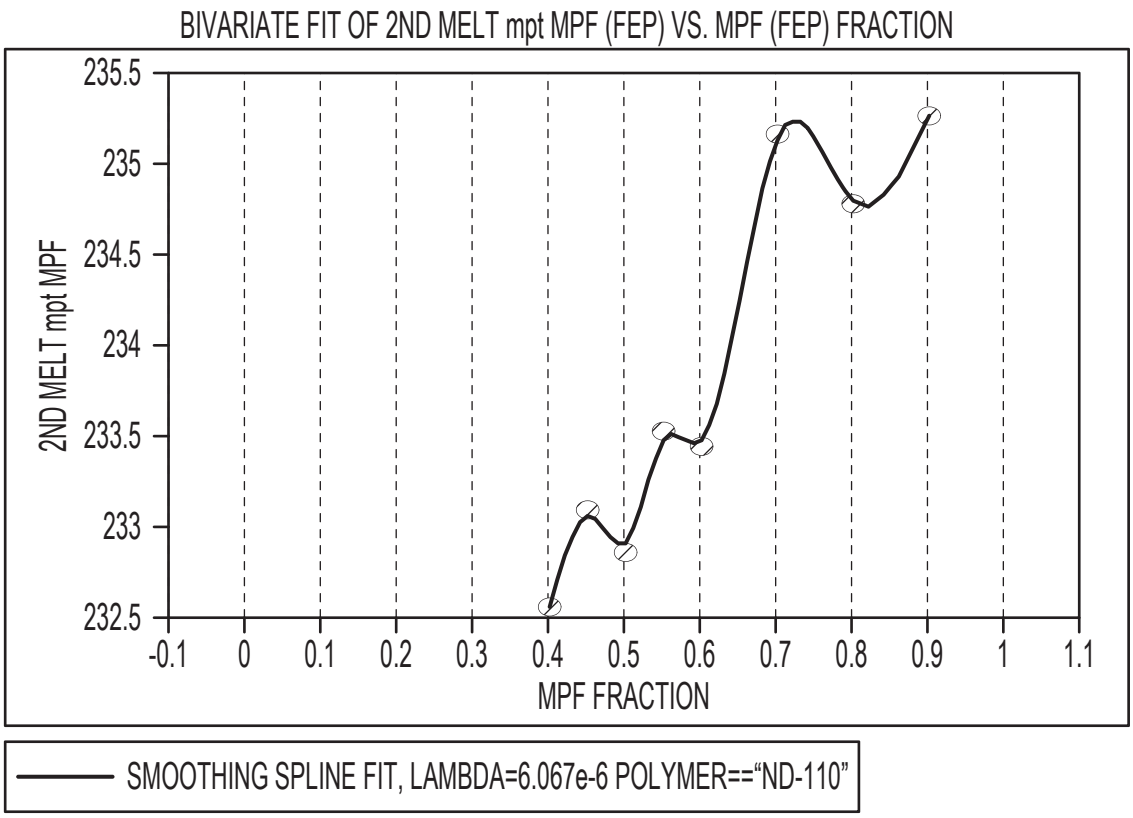

BIVARIATE FIT OF 2ND MELT mpt MPF (FEP) VS. MPF (FEP) FRACTION
2ND MELT mpt MPF
235.5
235
234.5
234
233.5
233
232.5
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=6.067e-6 POLYMER==“ND-110”

FIG. 53

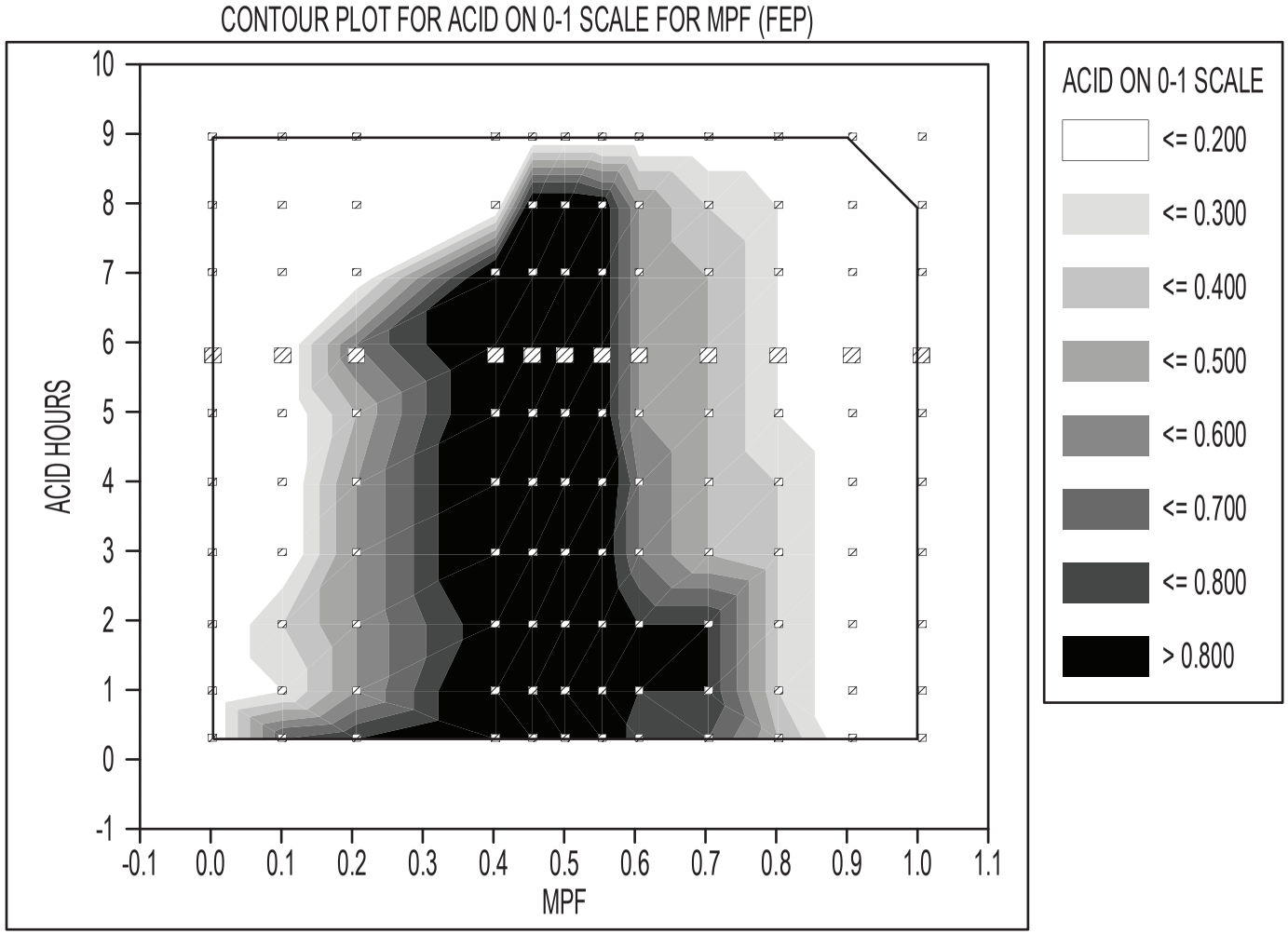

CONTOUR PLOT FOR ACID ON 0-1 SCALE FOR MPF (FEP)
ACID HOURS
MPF
10
9
8
7
6
5
4
3
2
1
0
-1
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
ACID ON 0-1 SCALE
<= 0.200
<= 0.300
<= 0.400
<= 0.500
<= 0.600
<= 0.700
<= 0.800
> 0.800

FIG. 54

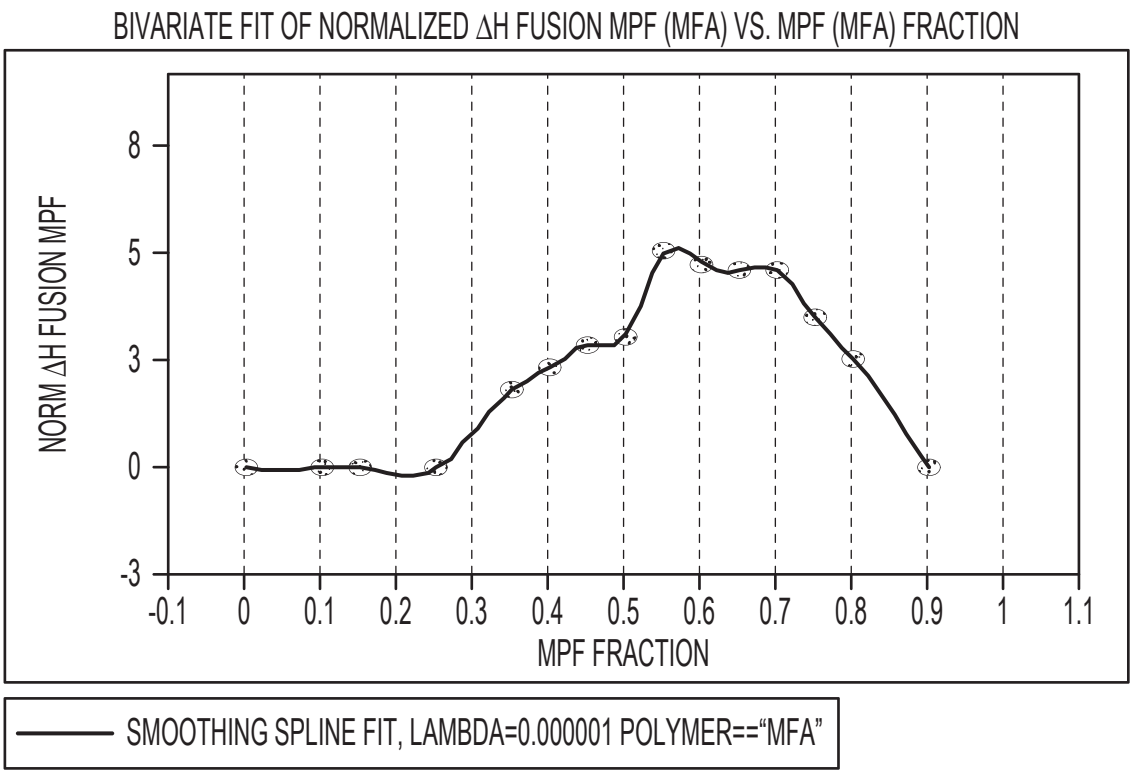

BIVARIATE FIT OF NORMALIZED ΔH FUSION MPF (MFA) VS. MPF (MFA) FRACTION
NORM ΔH FUSION MPF
8
5
3
0
-3
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000001 POLYMER=="MFA"

FIG. 55

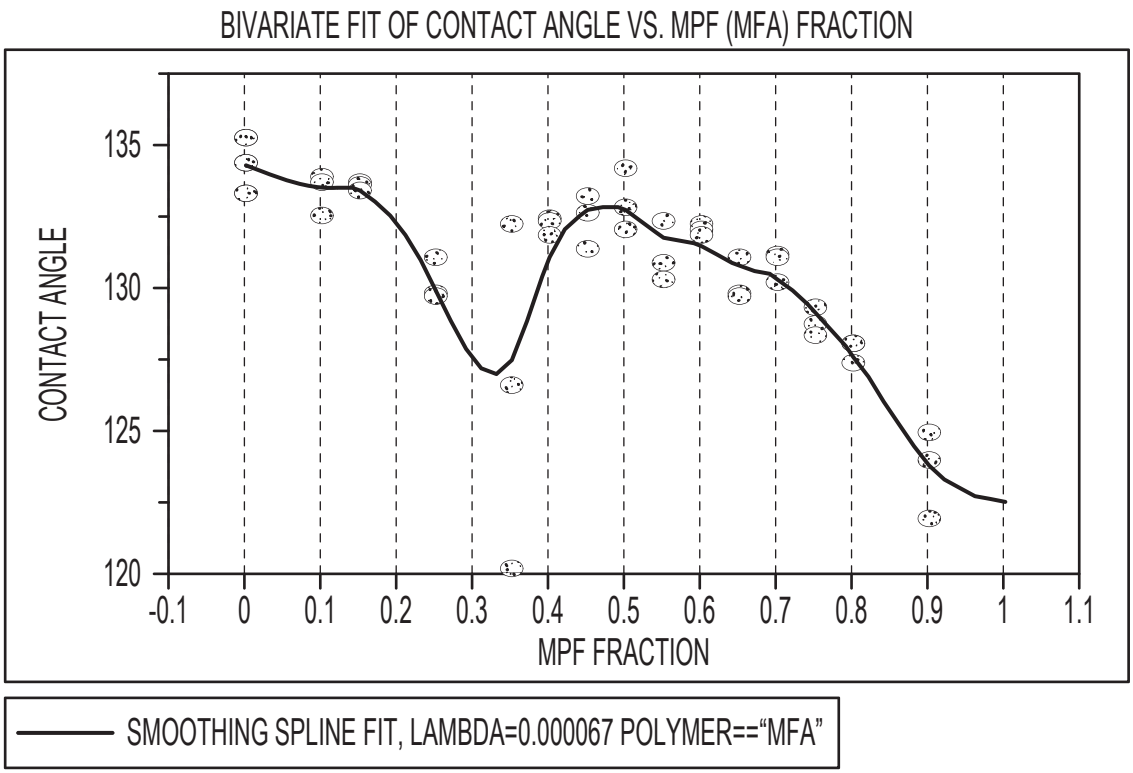

BIVARIATE FIT OF CONTACT ANGLE VS. MPF (MFA) FRACTION
CONTACT ANGLE
135
130
125
120
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000067 POLYMER=="MFA"

FIG. 56

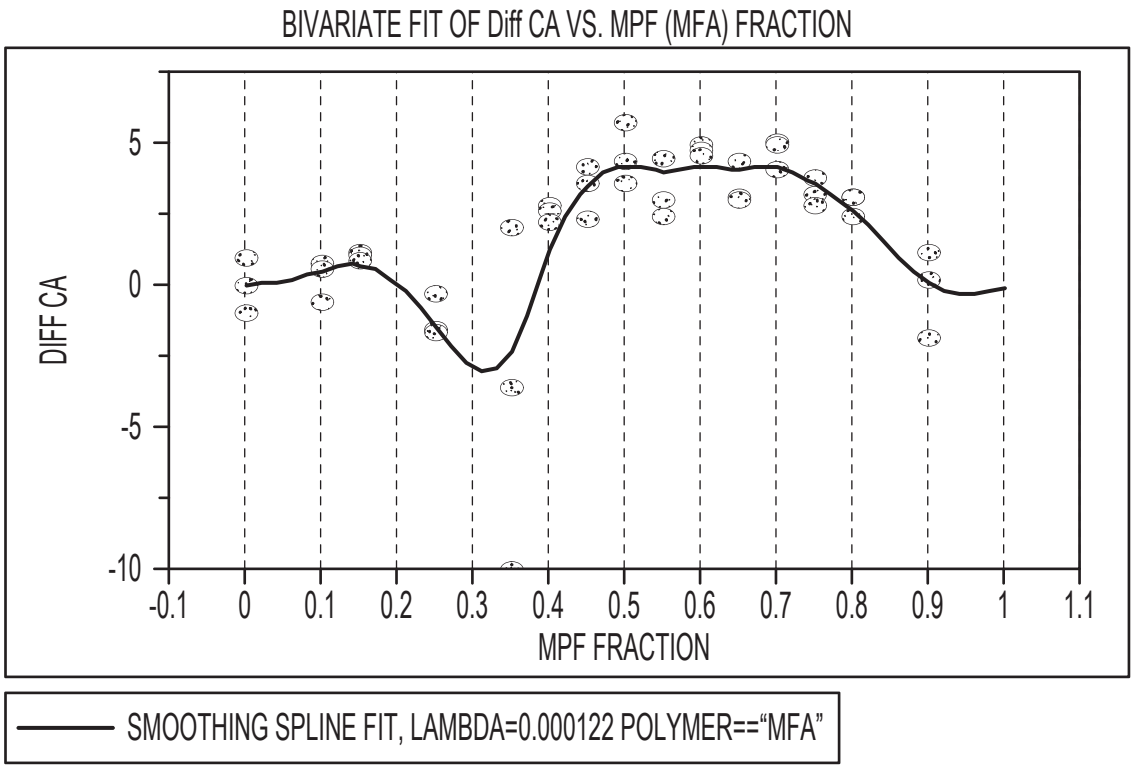

BIVARIATE FIT OF Diff CA VS. MPF (MFA) FRACTION
DIFF CA
5
0
-5
-10
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000122 POLYMER=="MFA"

FIG. 57

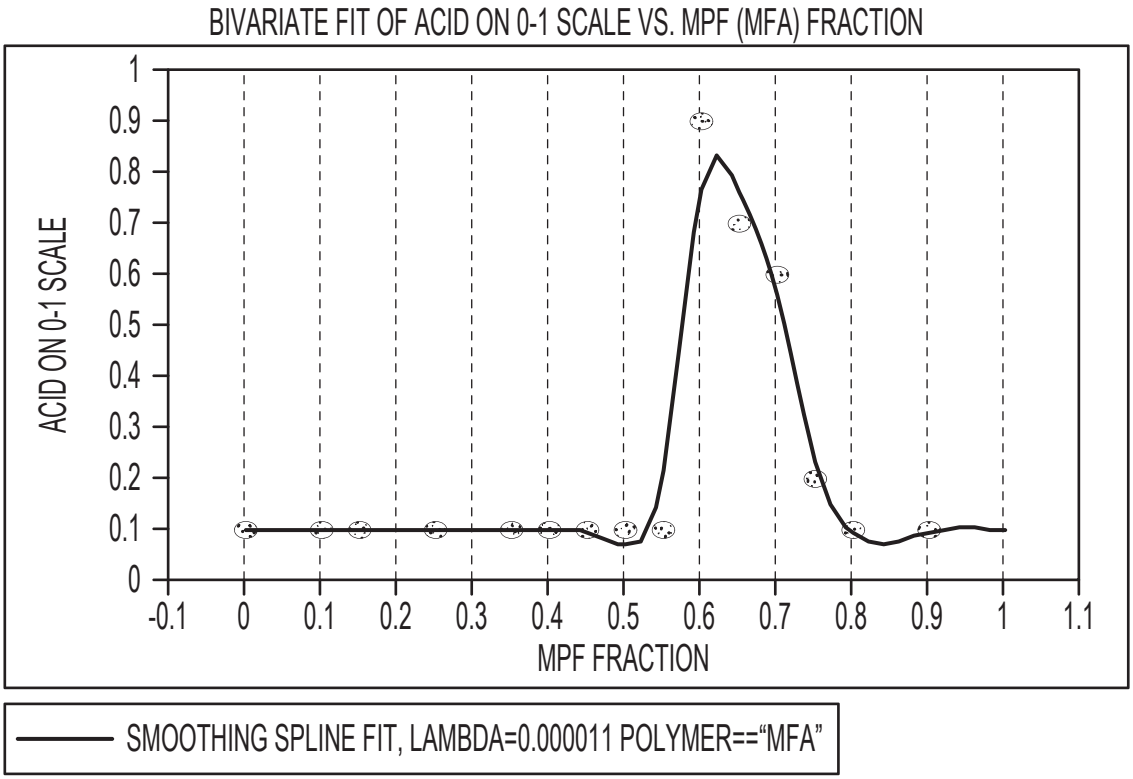

BIVARIATE FIT OF ACID ON 0-1 SCALE VS. MPF (MFA) FRACTION
ACID ON 0-1 SCALE
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000011 POLYMER=="MFA"

FIG. 58

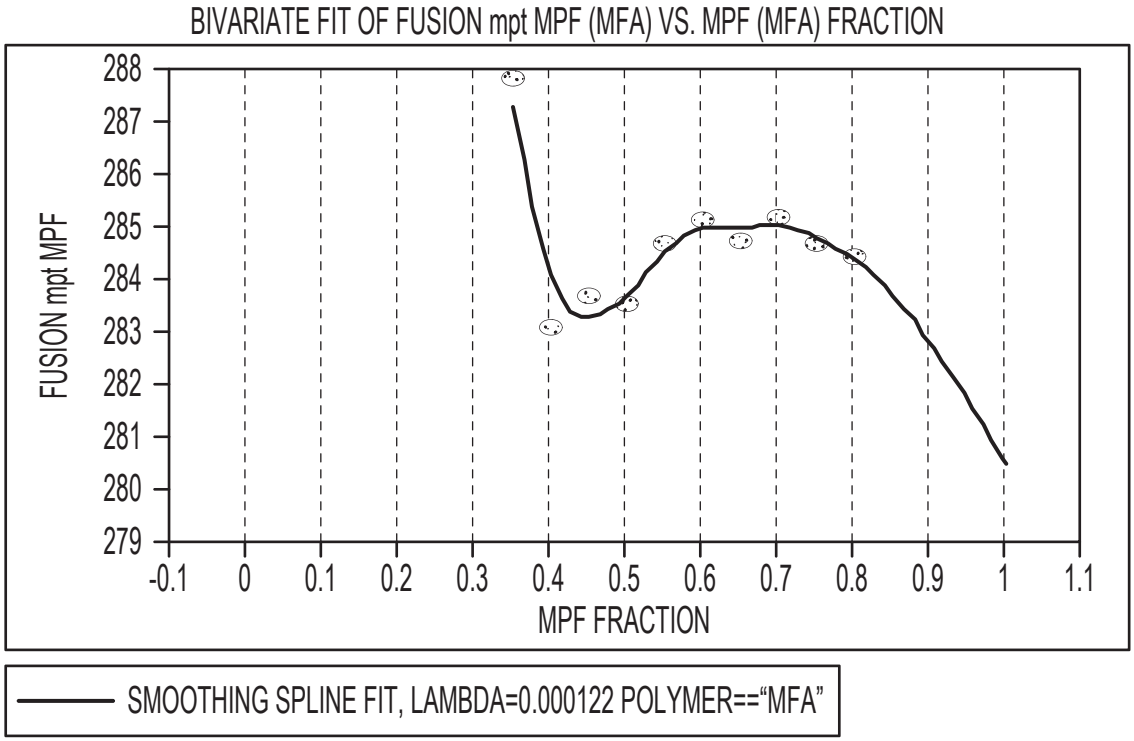

BIVARIATE FIT OF FUSION mpt MPF (MFA) VS. MPF (MFA) FRACTION
FUSION mpt MPF
288
287
286
285
284
283
282
281
280
279
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.000122 POLYMER=="MFA"

FIG. 59

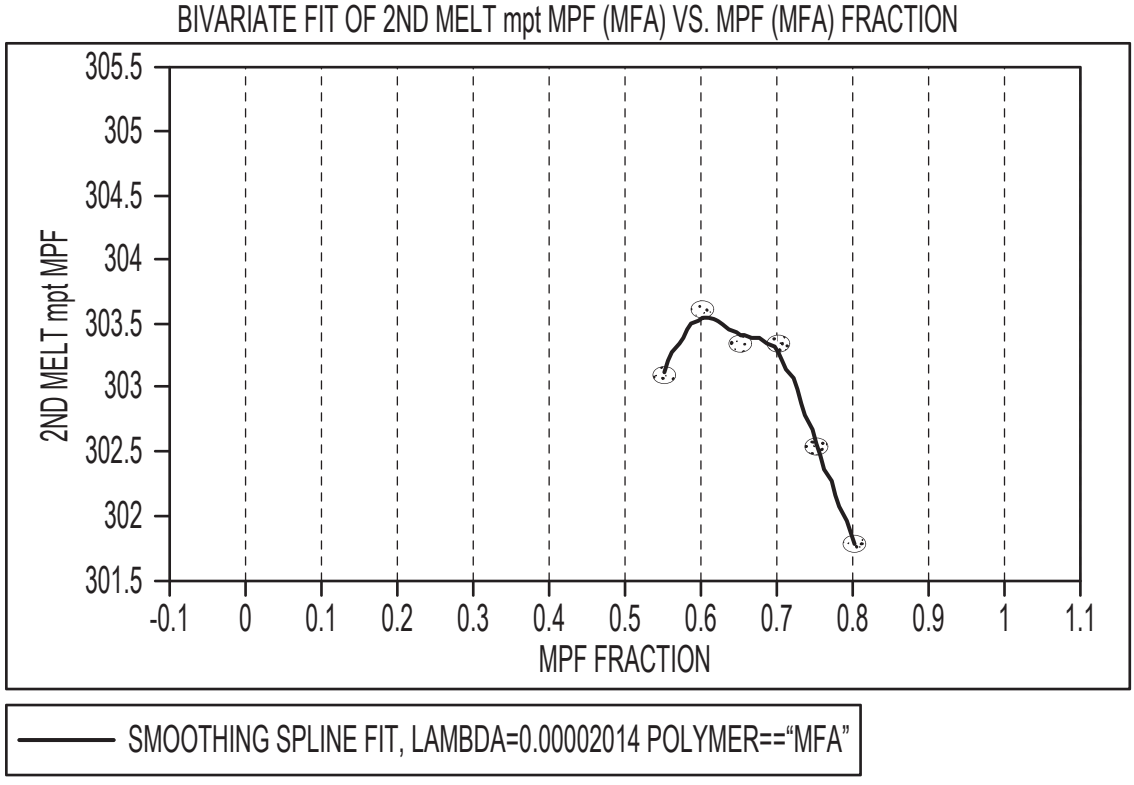

BIVARIATE FIT OF 2ND MELT mpt MPF (MFA) VS. MPF (MFA) FRACTION
2ND MELT mpt MPF
305.5
305
304.5
304
303.5
303
302.5
302
301.5
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
MPF FRACTION
SMOOTHING SPLINE FIT, LAMBDA=0.00002014 POLYMER=="MFA"

FIG. 60

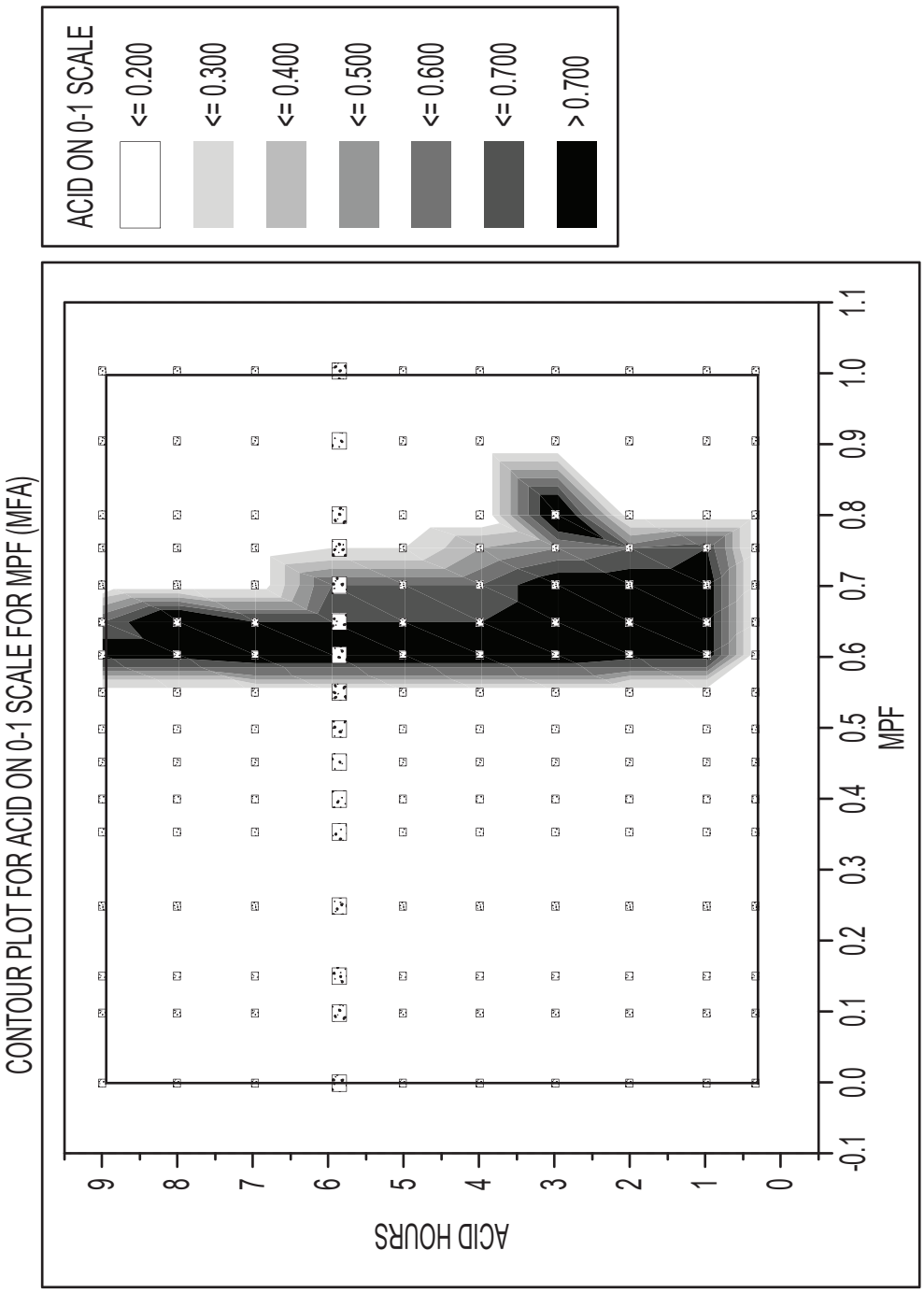

CONTOUR PLOT FOR ACID ON 0-1 SCALE FOR MPF (MFA)
ACID ON 0-1 SCALE
<= 0.200
<= 0.300
<= 0.400
<= 0.500
<= 0.600
<= 0.700
> 0.700
ACID HOURS
MPF
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
0
1
2
3
4
5
6
7
8
9

FIG. 61

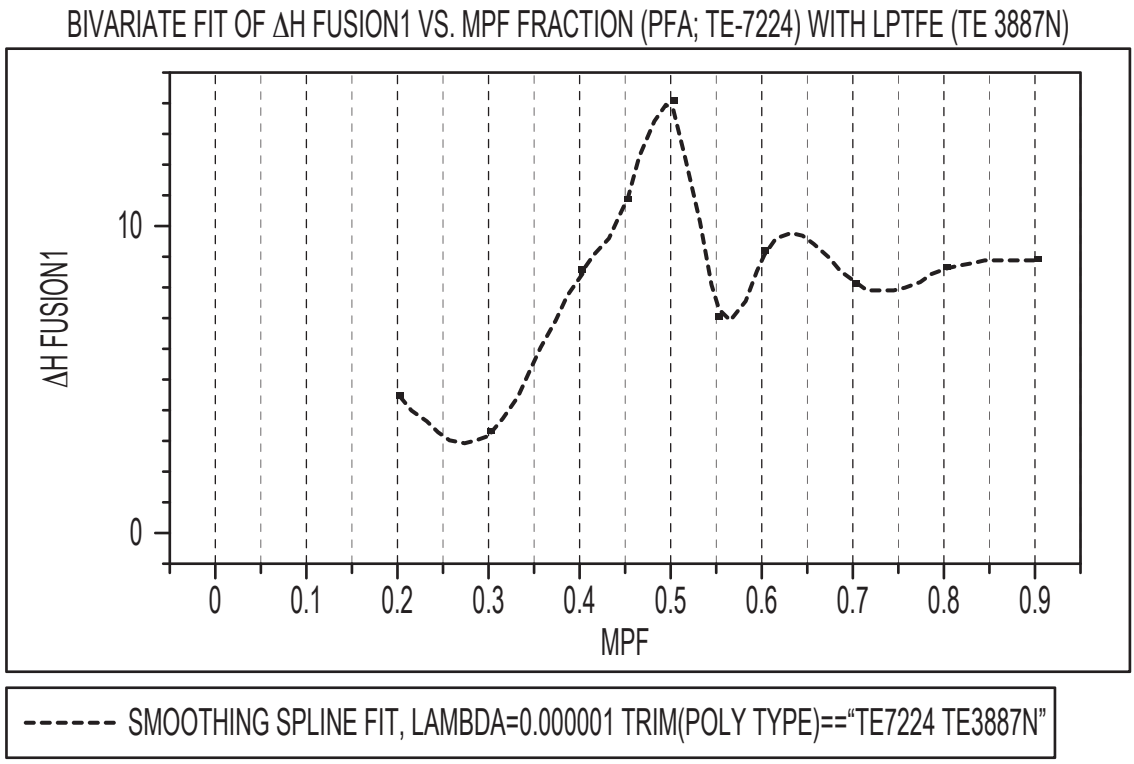

BIVARIATE FIT OF ΔH FUSION1 VS. MPF FRACTION (PFA; TE-7224) WITH LPTFE (TE 3887N)
ΔH FUSION1
10
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
MPF
SMOOTHING SPLINE FIT, LAMBDA=0.000001 TRIM(POLY TYPE)=="TE7224 TE3887N"

FIG. 62

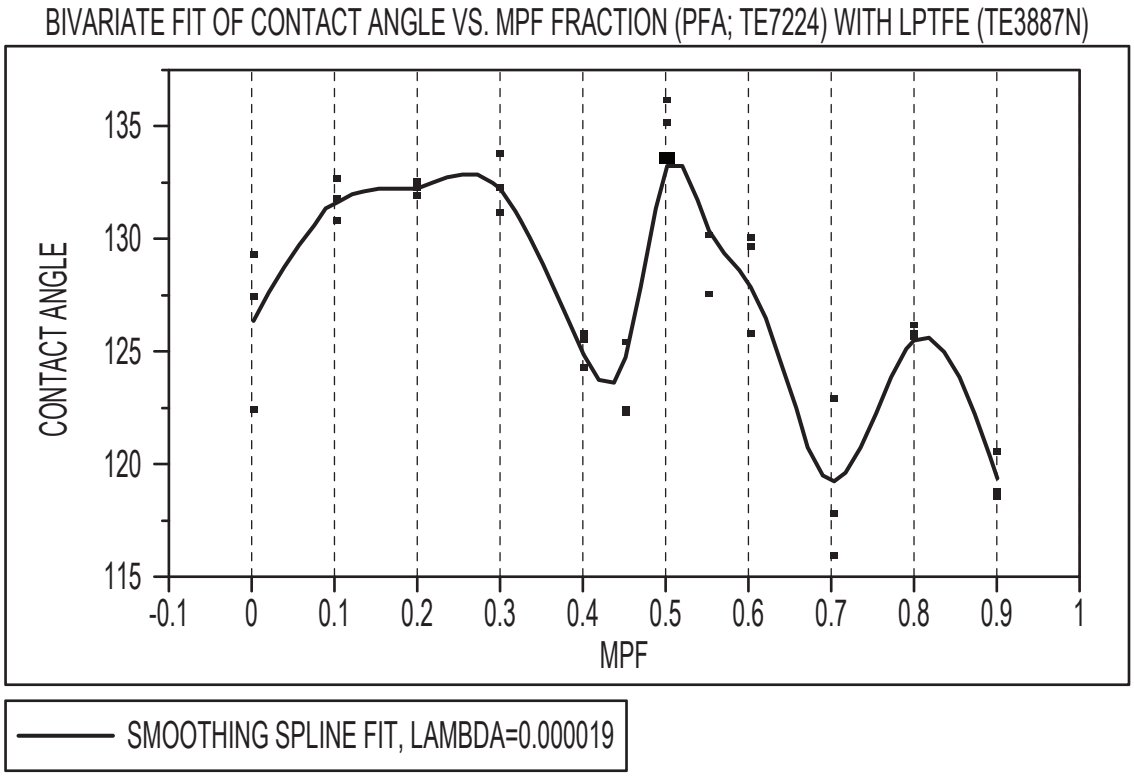

BIVARIATE FIT OF CONTACT ANGLE VS. MPF FRACTION (PFA; TE7224) WITH LPTFE (TE3887N)
CONTACT ANGLE
135
130
125
120
115
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
SMOOTHING SPLINE FIT, LAMBDA=0.000019

FIG. 63

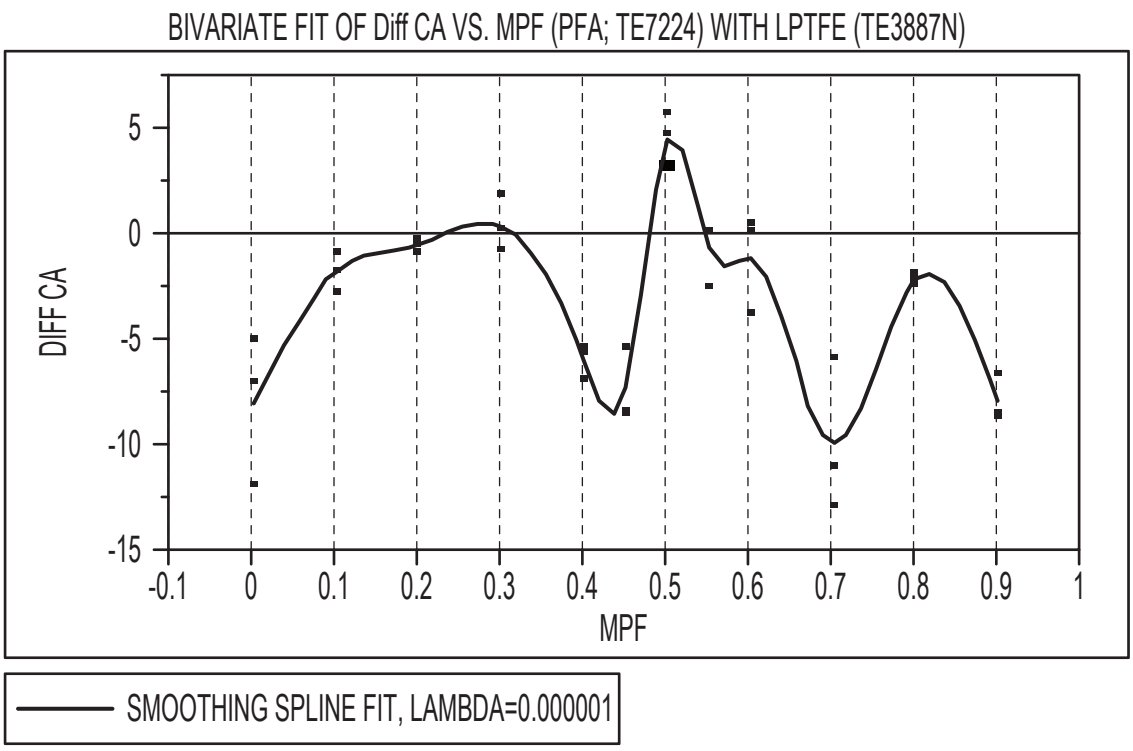

BIVARIATE FIT OF Diff CA VS. MPF (PFA; TE7224) WITH LPTFE (TE3887N)
DIFF CA
5
0
-5
-10
-15
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MPF
SMOOTHING SPLINE FIT, LAMBDA=0.000001

FIG. 64