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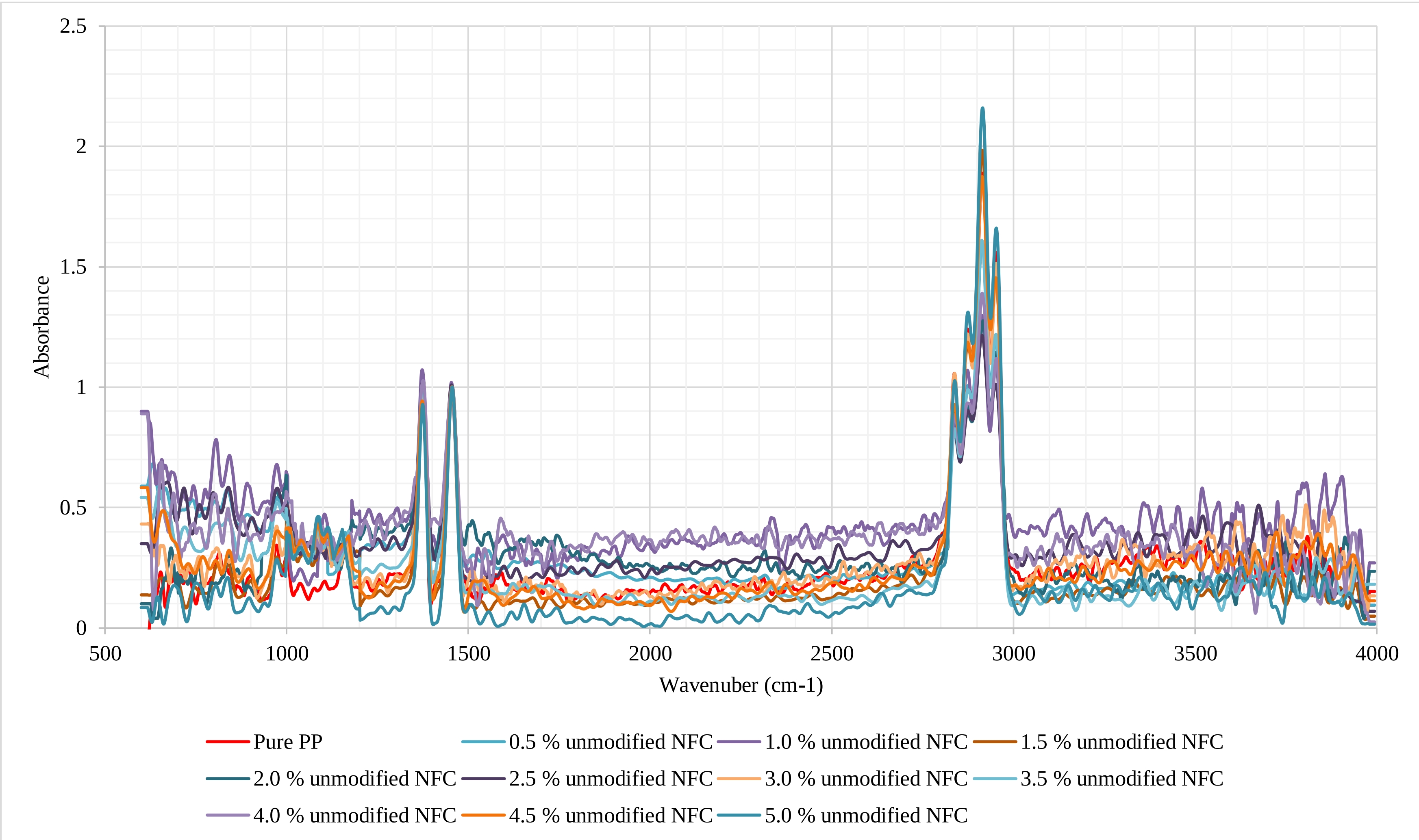
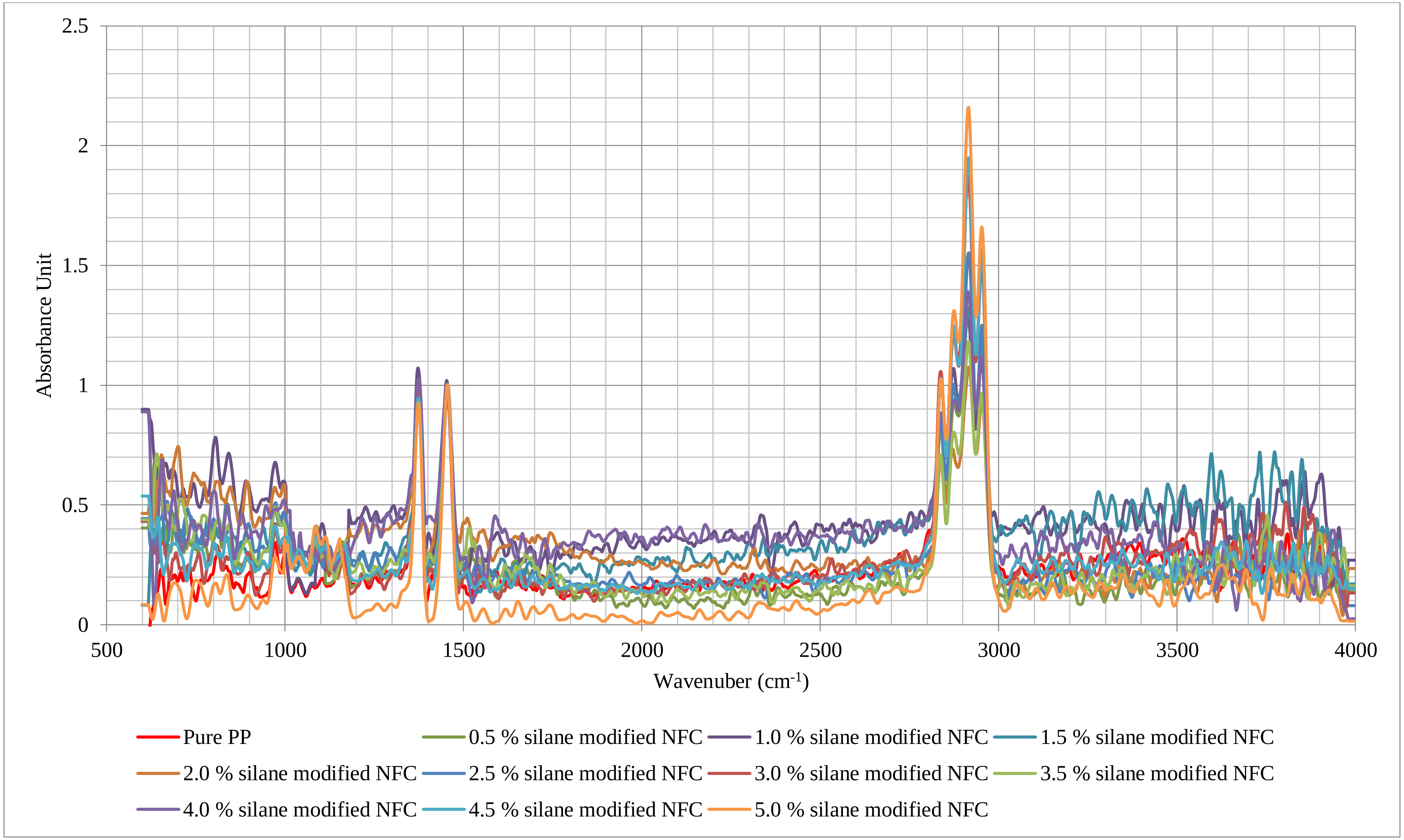
Appendix A



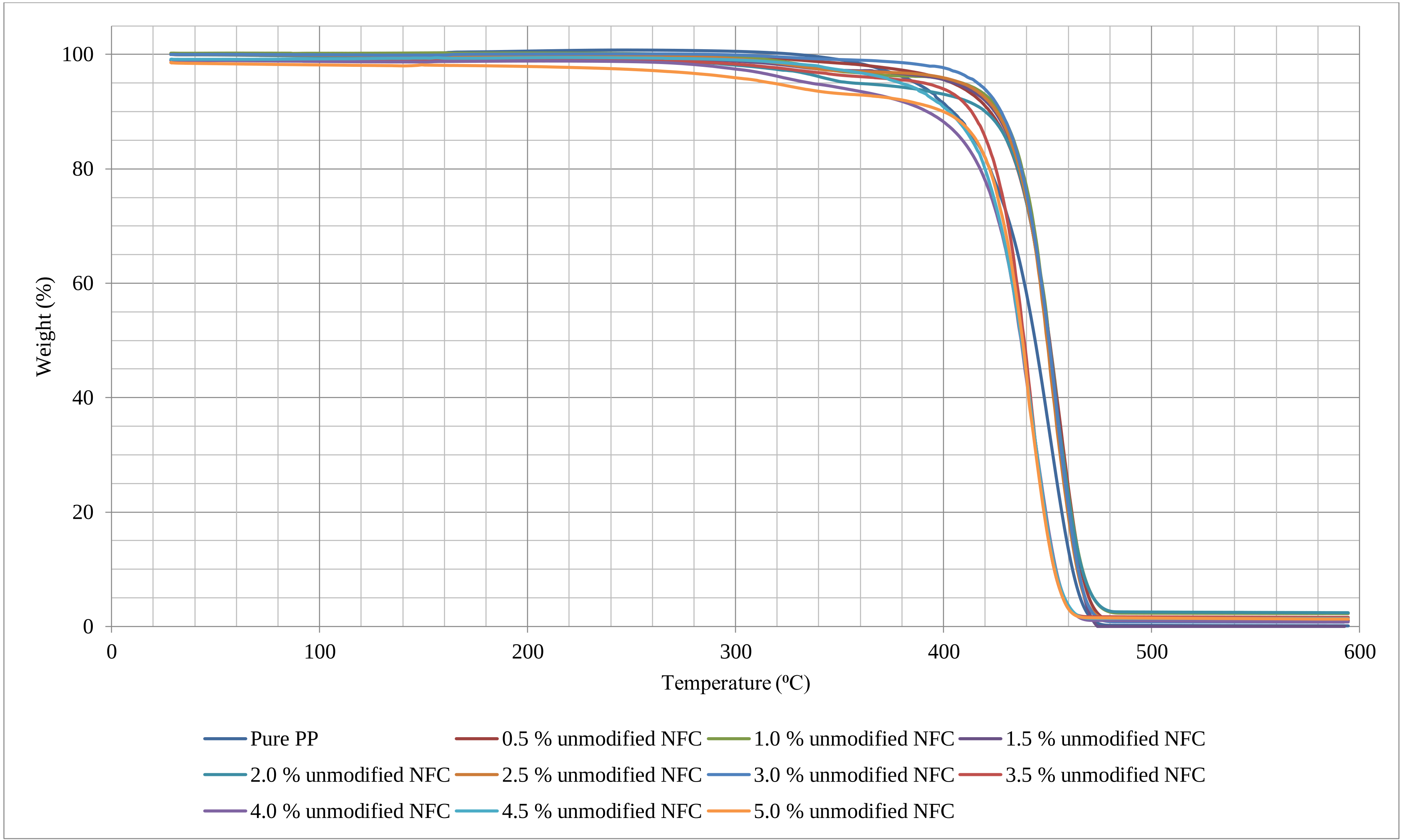
Absorbance
2.5
2
1.5
1
0.5
0
500
1000
1500
2000
2500
3000
3500
4000
Wavenuber (cm-1)
Pure PP
0.5 % unmodified NFC
1.0 % unmodified NFC
1.5 % unmodified NFC
2.0 % unmodified NFC
2.5 % unmodified NFC
3.0 % unmodified NFC
3.5 % unmodified NFC
4.0 % unmodified NFC
4.5 % unmodified NFC
5.0 % unmodified NFC

Appendix B



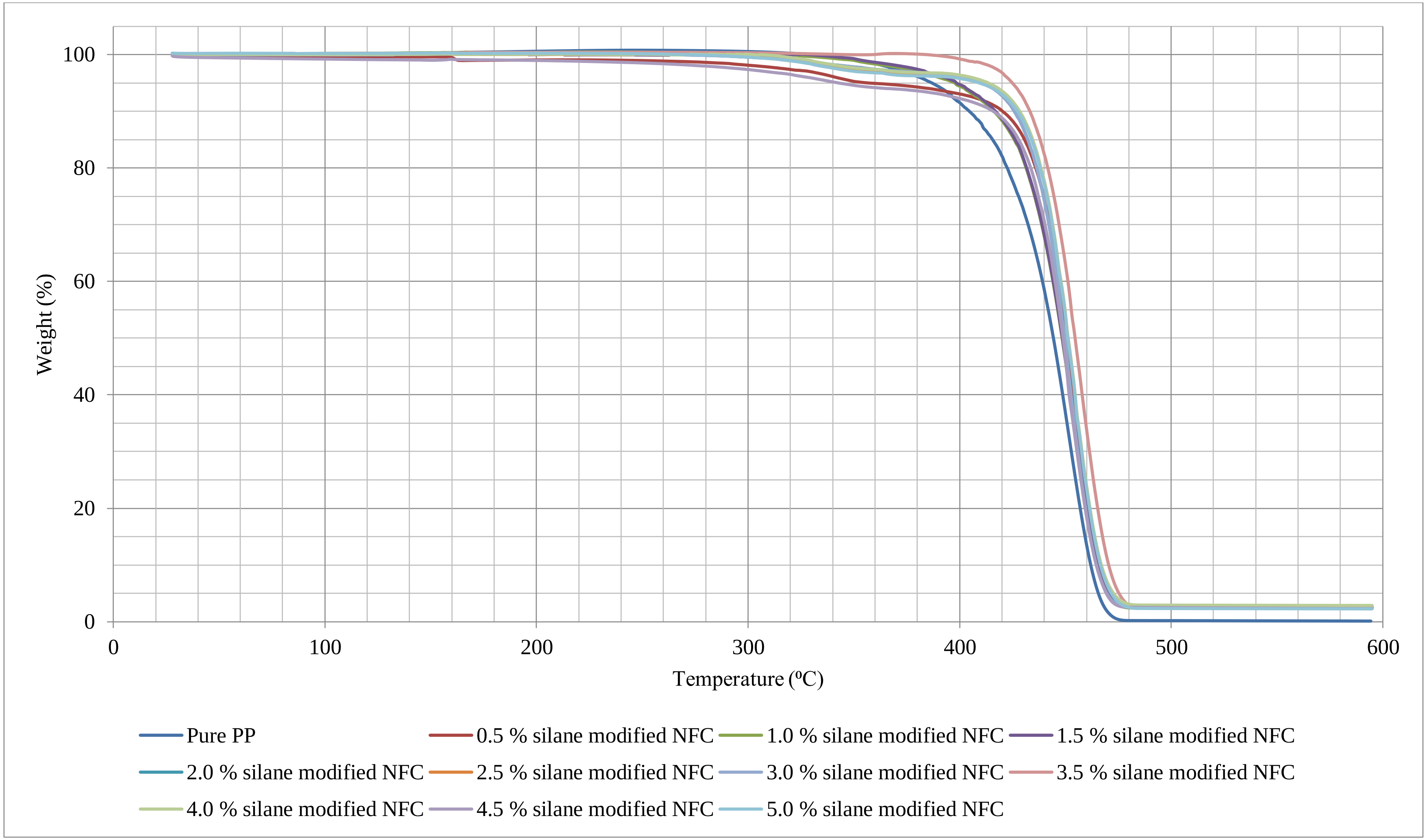
2.5
2
1.5
1
0.5
0
Absorbance Unit
500
1000
1500
2000
2500
3000
3500
4000
Wavenuber (cm-1)
Pure PP
0.5 % silane modified NFC
1.0 % silane modified NFC
1.5 % silane modified NFC
2.0 % silane modified NFC
2.5 % silane modified NFC
3.0 % silane modified NFC
3.5 % silane modified NFC
4.0 % silane modified NFC
4.5 % silane modified NFC
5.0 % silane modified NFC

Appendix C



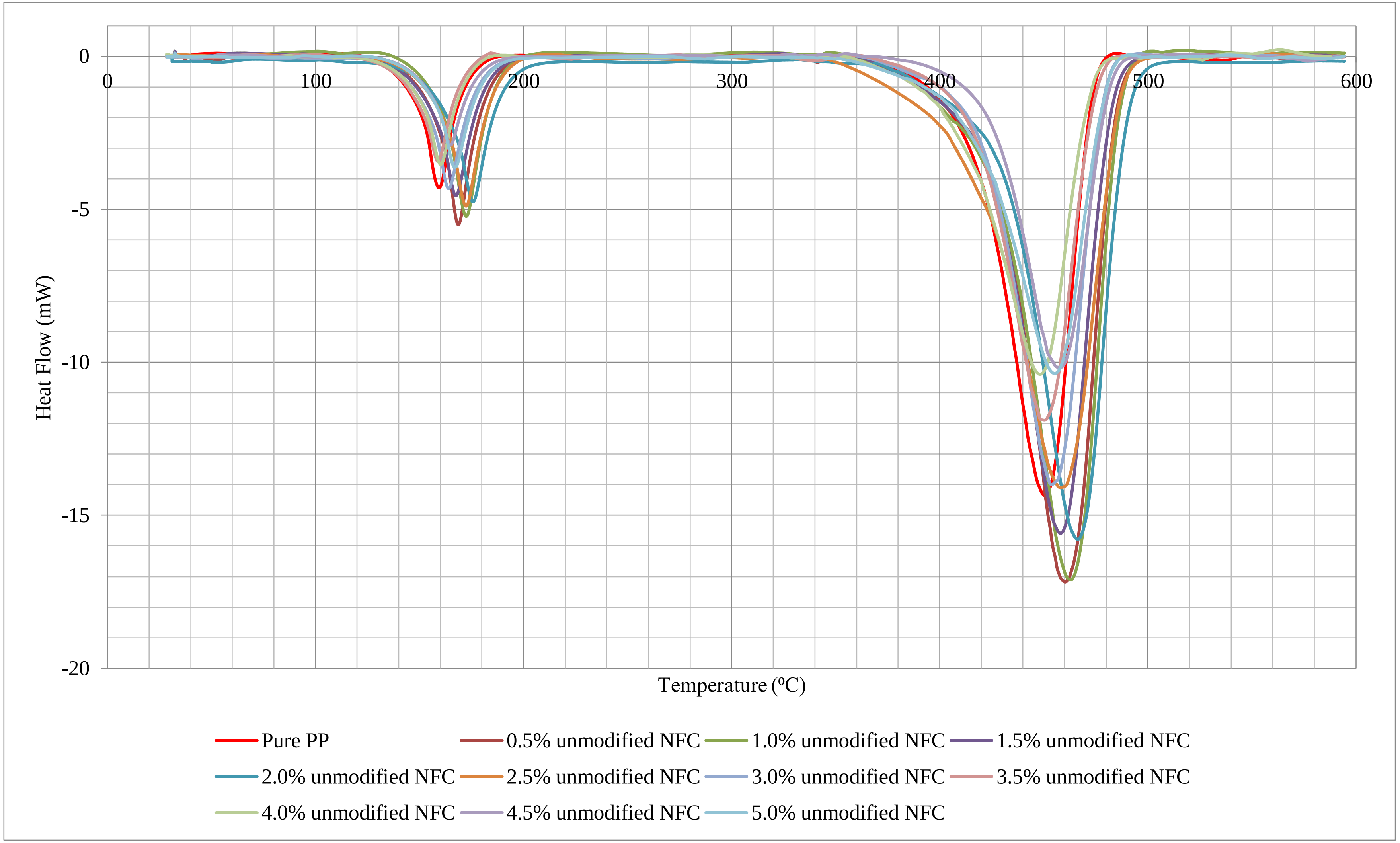
100
80
60
40
20
0
Weight (%)
0
100
200
300
400
500
600
Temperature (ºC)
Pure PP
0.5 % unmodified NFC
1.0 % unmodified NFC
1.5 % unmodified NFC
2.0 % unmodified NFC
2.5 % unmodified NFC
3.0 % unmodified NFC
3.5 % unmodified NFC
4.0 % unmodified NFC
4.5 % unmodified NFC
5.0 % unmodified NFC

Appendix D



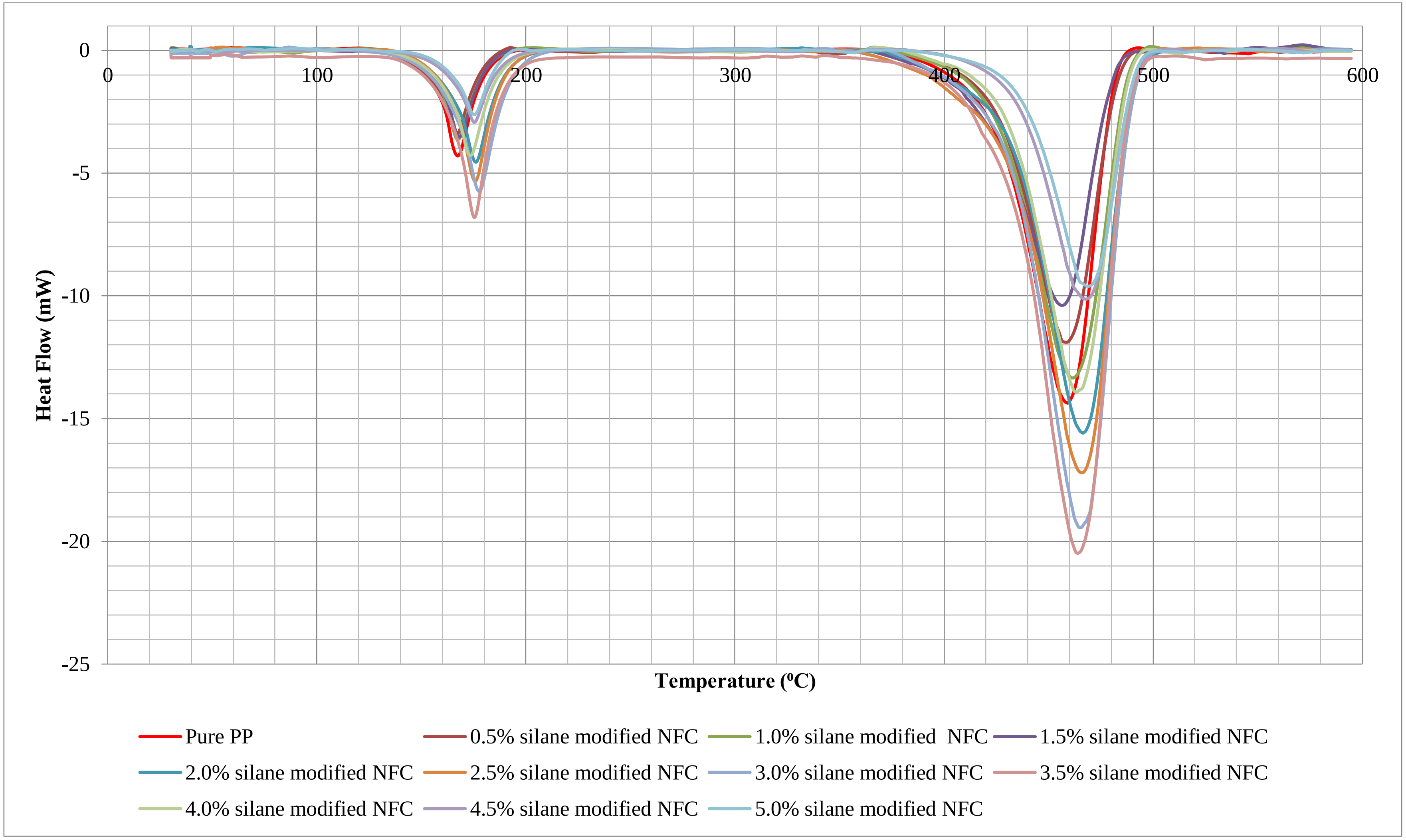
Weight (%)
100
80
60
40
20
0
0
100
200
300
400
500
600
Temperature (ºC)
Pure PP
0.5 % silane modified NFC
1.0 % silane modified NFC
1.5 % silane modified NFC
2.0 % silane modified NFC
2.5 % silane modified NFC
3.0 % silane modified NFC
3.5 % silane modified NFC
4.0 % silane modified NFC
4.5 % silane modified NFC
5.0 % silane modified NFC

Appendix E



Heat Flow (mW)
0
-5
-10
-15
-20
0
100
200
300
400
500
600
Temperature (ºC)
Pure PP
0.5% unmodified NFC
1.0% unmodified NFC
1.5% unmodified NFC
2.0% unmodified NFC
2.5% unmodified NFC
3.0% unmodified NFC
3.5% unmodified NFC
4.0% unmodified NFC
4.5% unmodified NFC
5.0% unmodified NFC

Appendix F



Heat Flow (mW)
0
-5
-10
-15
-20
-25
0
100
200
300
400
500
600
Temperature (⁰C)
Pure PP
0.5% silane modified NFC
1.0% silane modified NFC
1.5% silane modified NFC
2.0% silane modified NFC
2.5% silane modified NFC
3.0% silane modified NFC
3.5% silane modified NFC
4.0% silane modified NFC
4.5% silane modified NFC
5.0% silane modified NFC