

Structure Property Relationships of Biobased *n*-Alkyl Bisferulate Epoxy Resins

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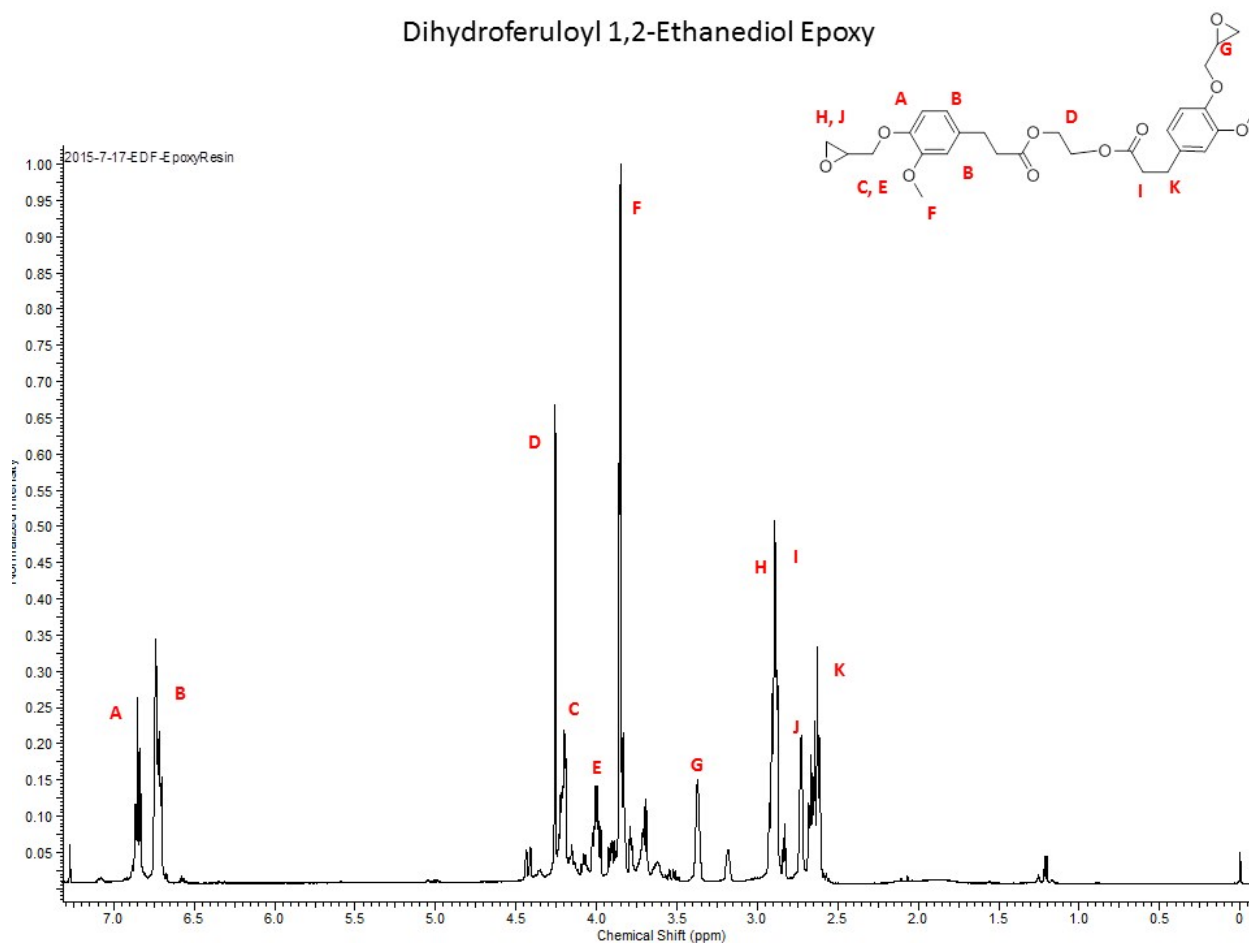
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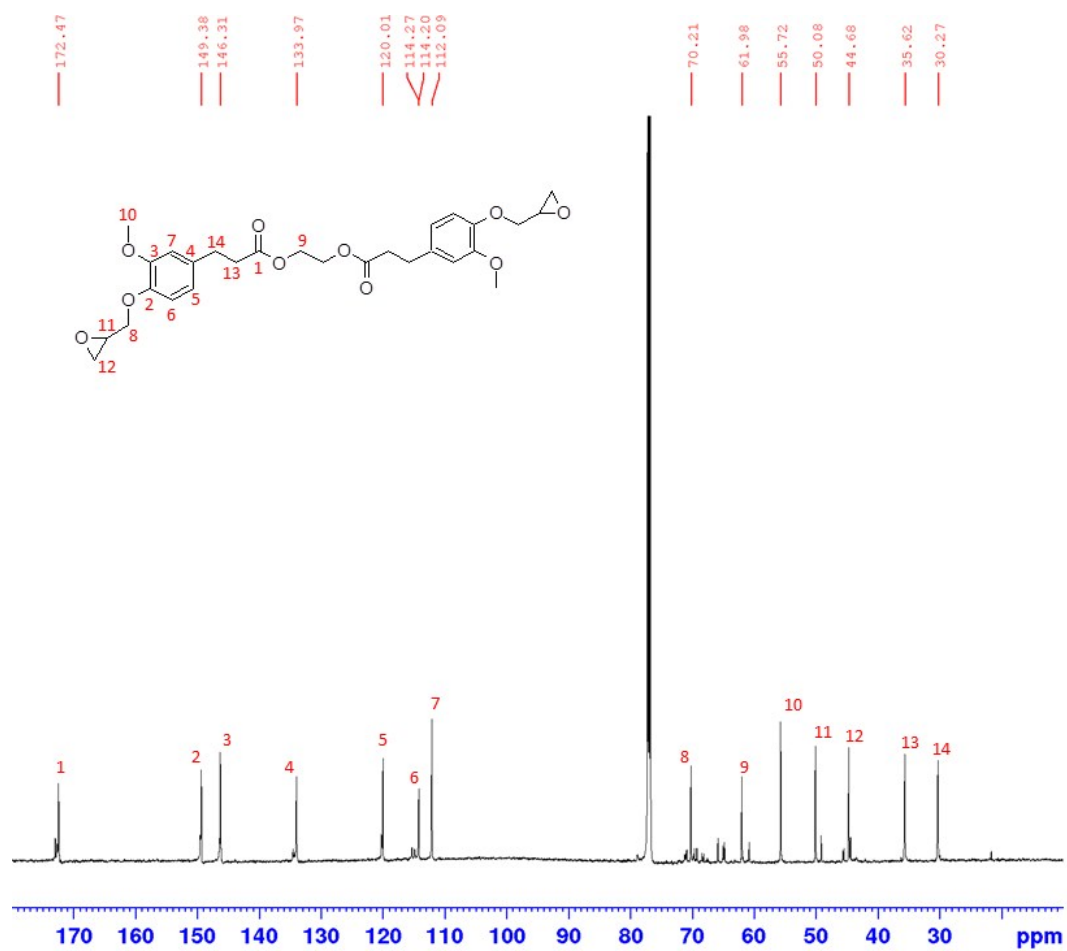
Supporting Information

SI 1 Monomer Characterization

Dihydroferuloyl 1,2-Ethanediol Epoxy

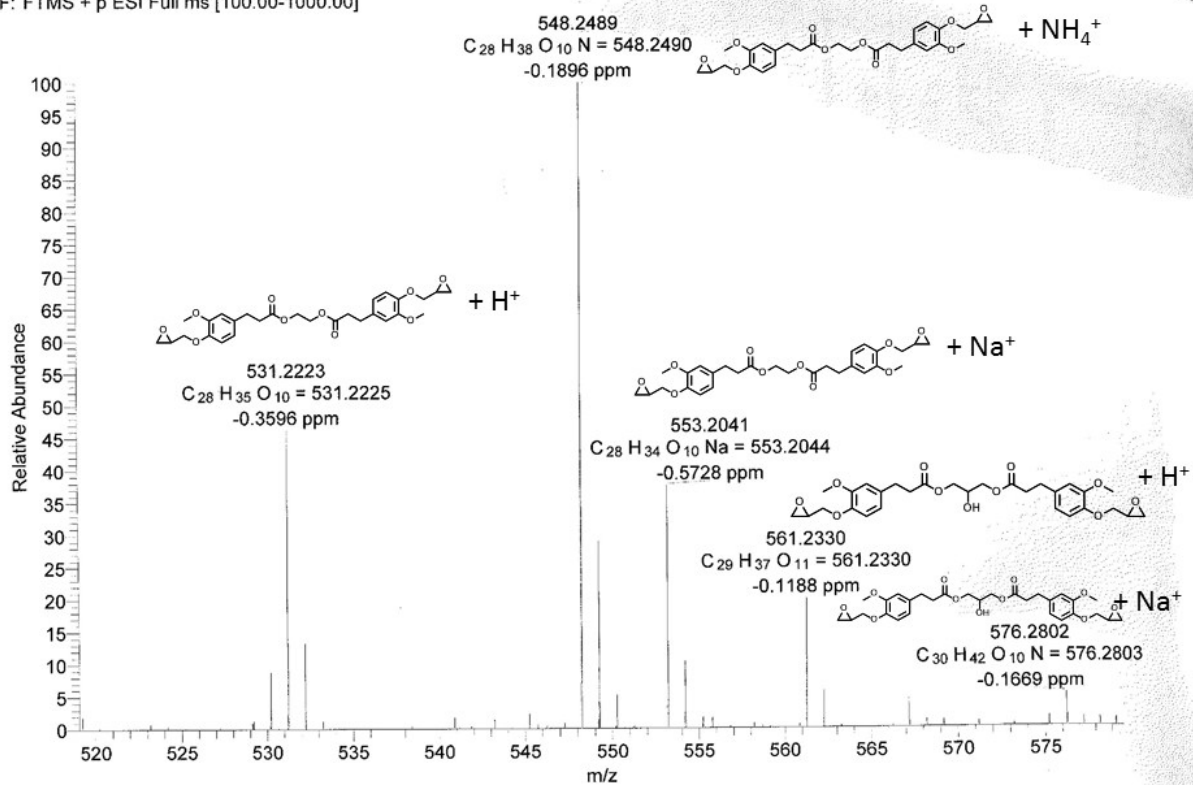


SI 1-1. ^1H NMR EDF-Epoxy

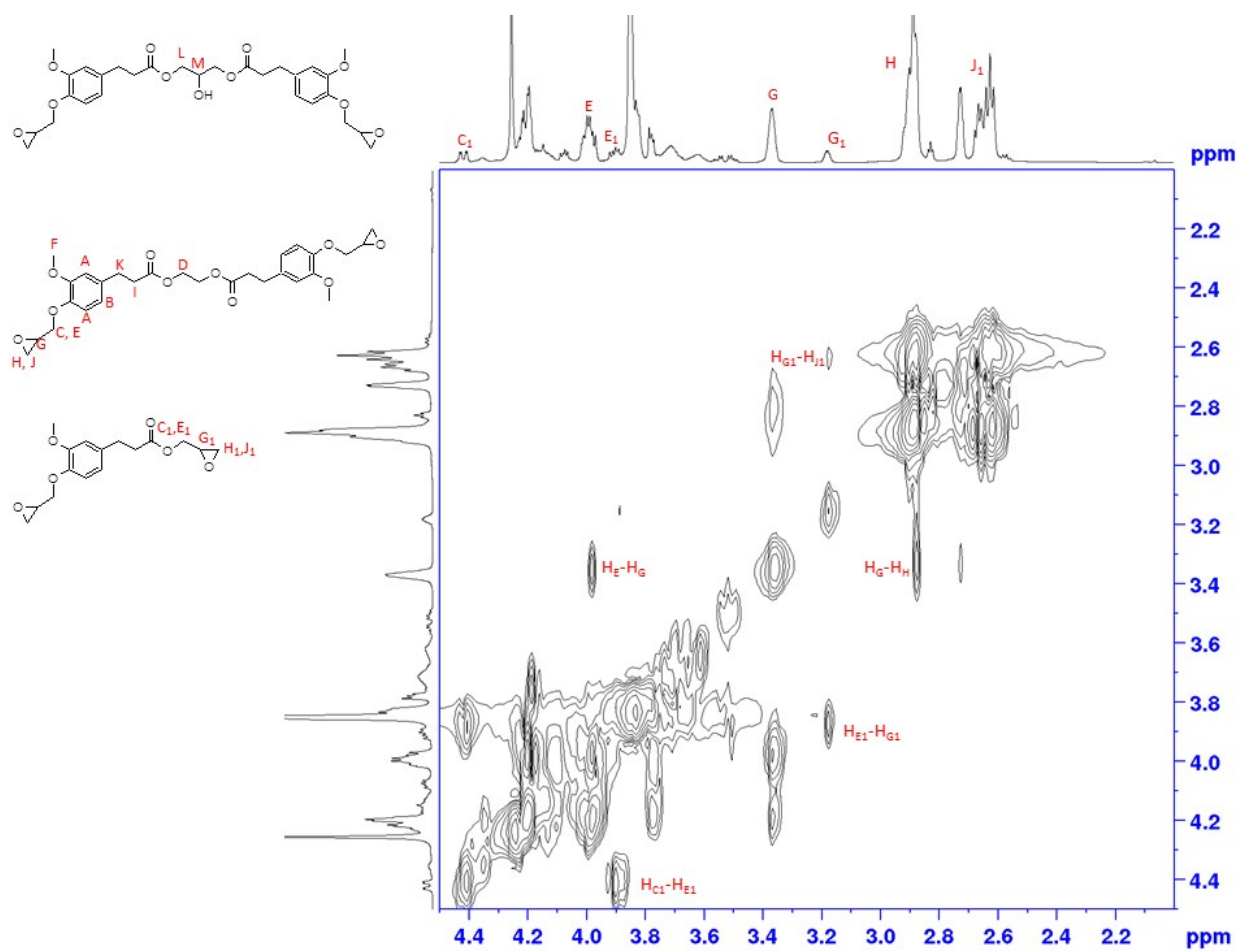


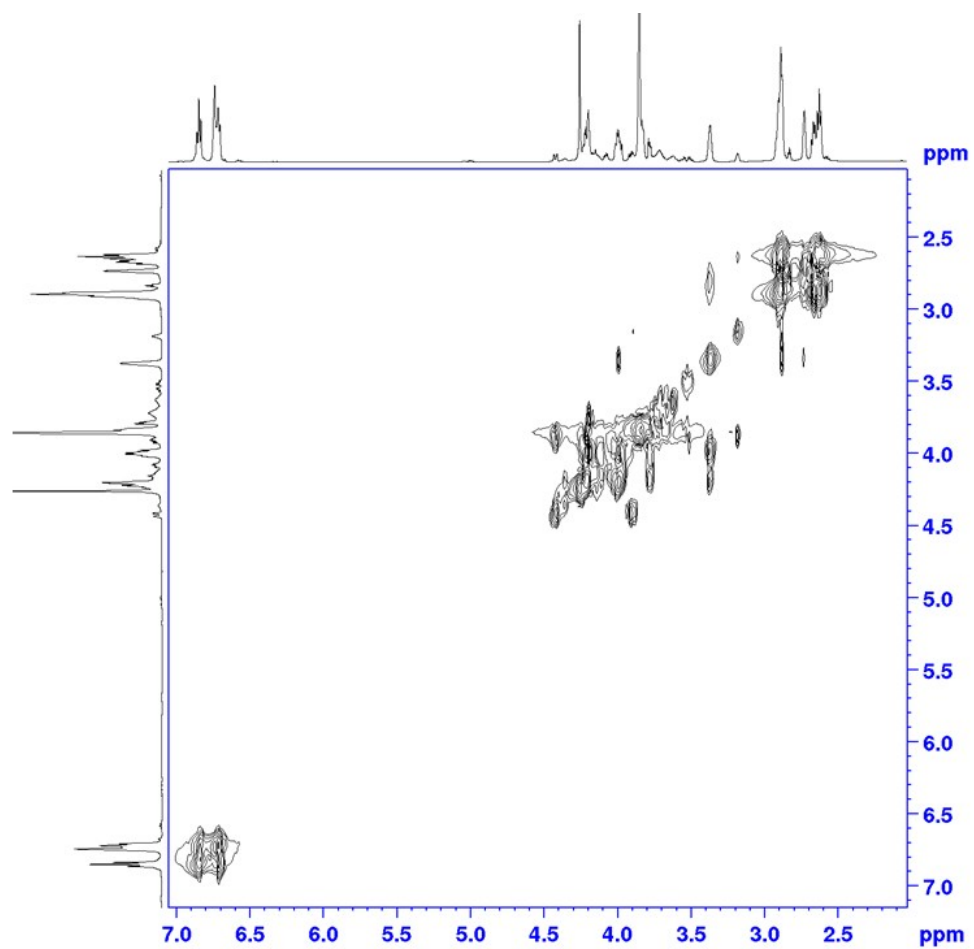
SI 1-2. ¹³C NMR EDF-Epoxy

F: FTMS + p ESI Full ms [100.00-1000.00]



SI 1-3. High Resolution Mass Spectrometry EDF-Epoxy

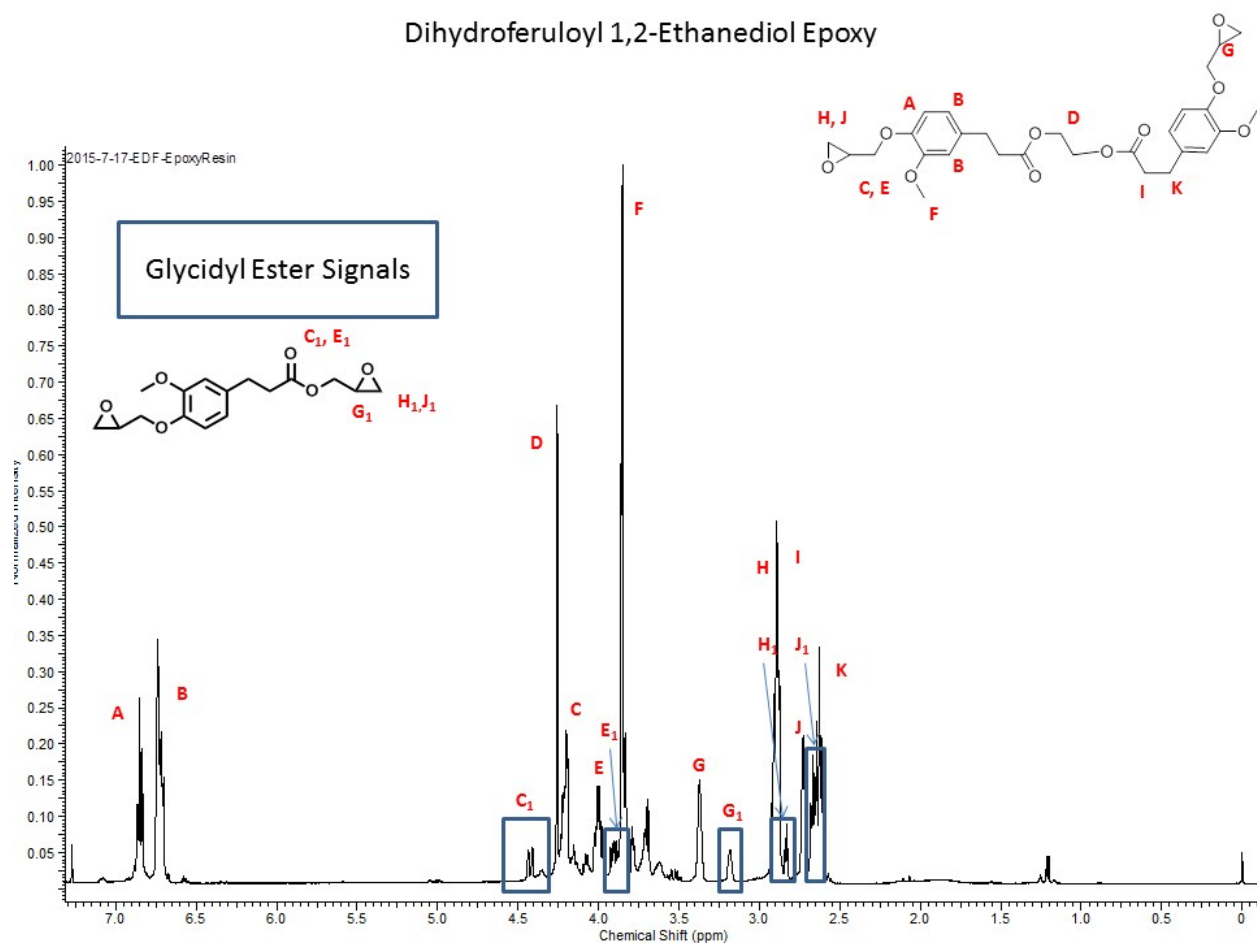




SI 1-4. 2D COSY Inset and Full

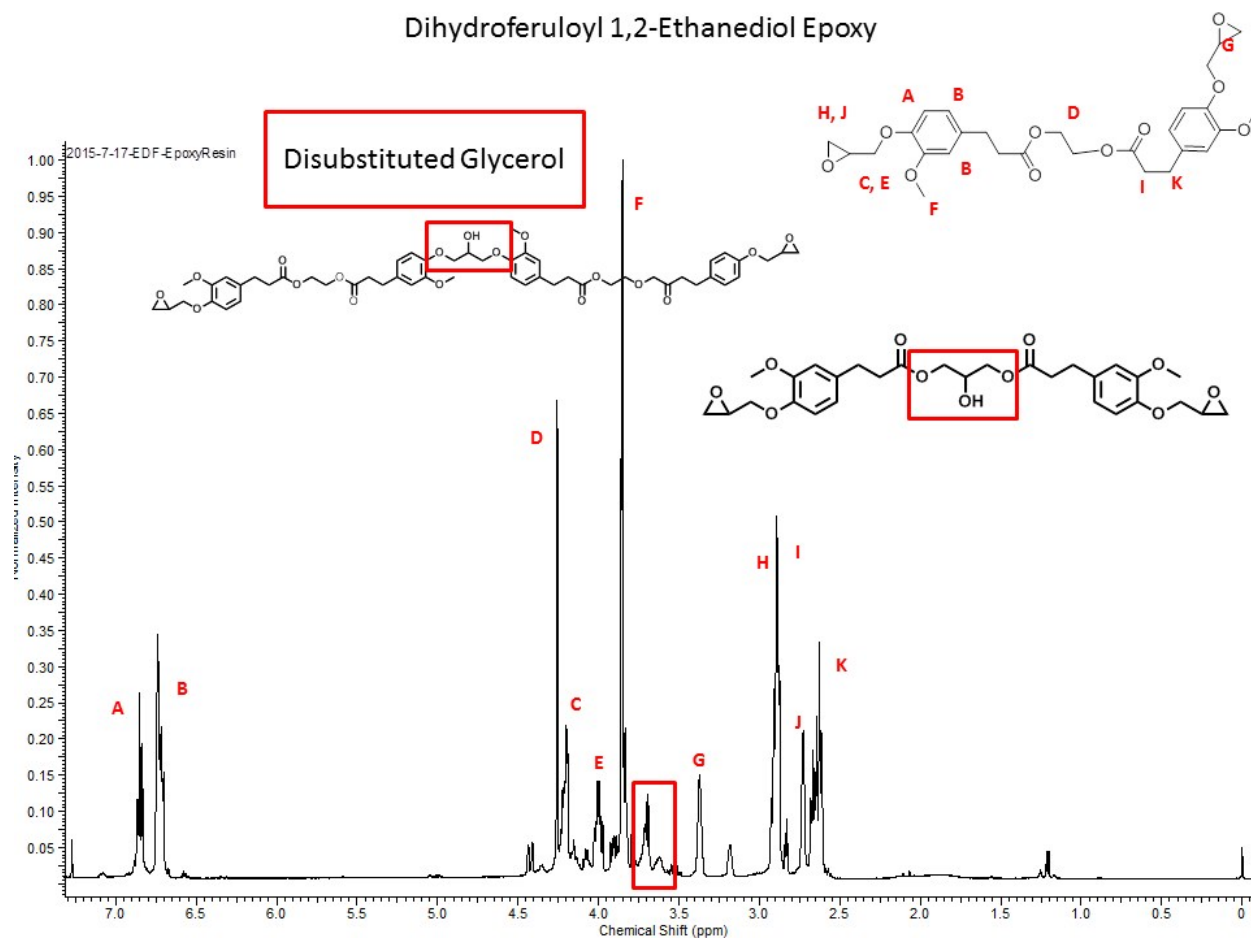


Dihydroferuloyl 1,2-Ethanediol Epoxy



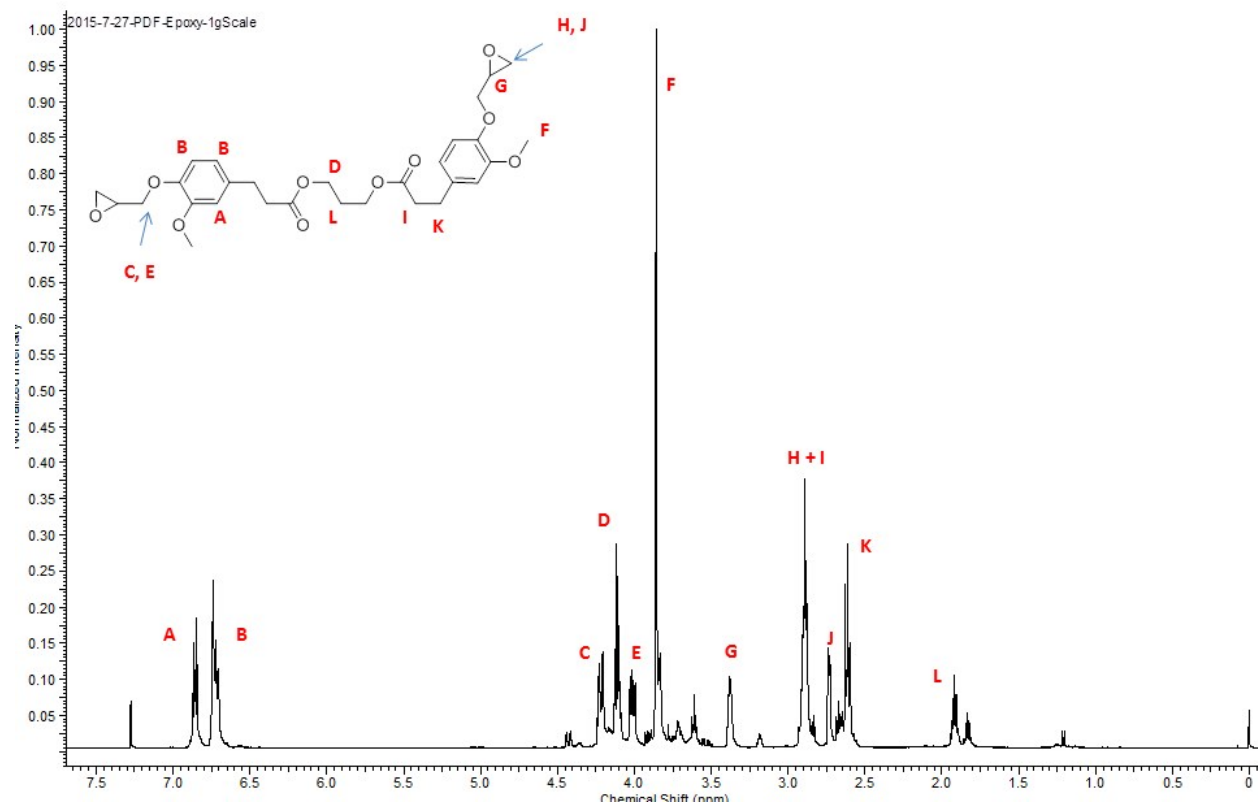
SI 1-6. ¹H NMR Glycidyl Ester Co-Product

Dihydroferuloyl 1,2-Ethanediol Epoxy

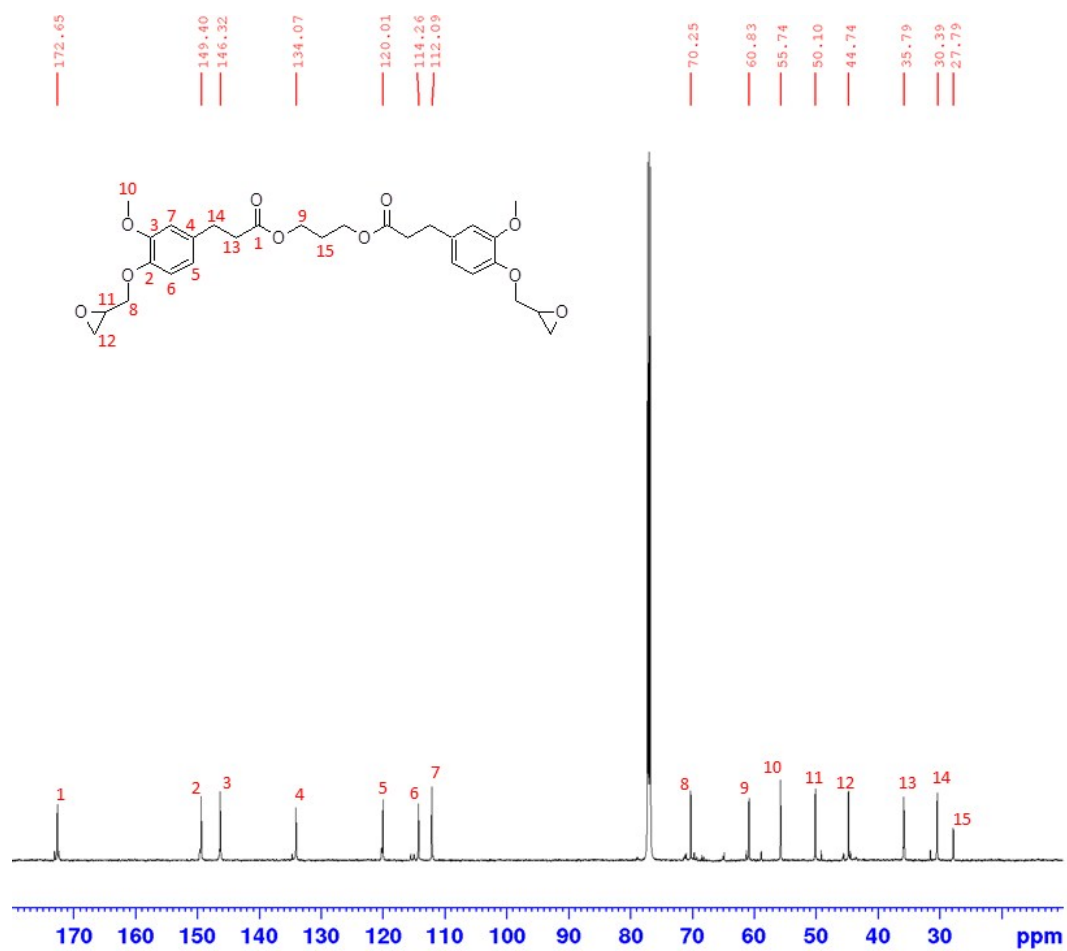


SI 1-7. ¹H NMR Disubstituted Glycerol Co-Product

Dihydroferuloyl 1,3-Propanediol Epoxy



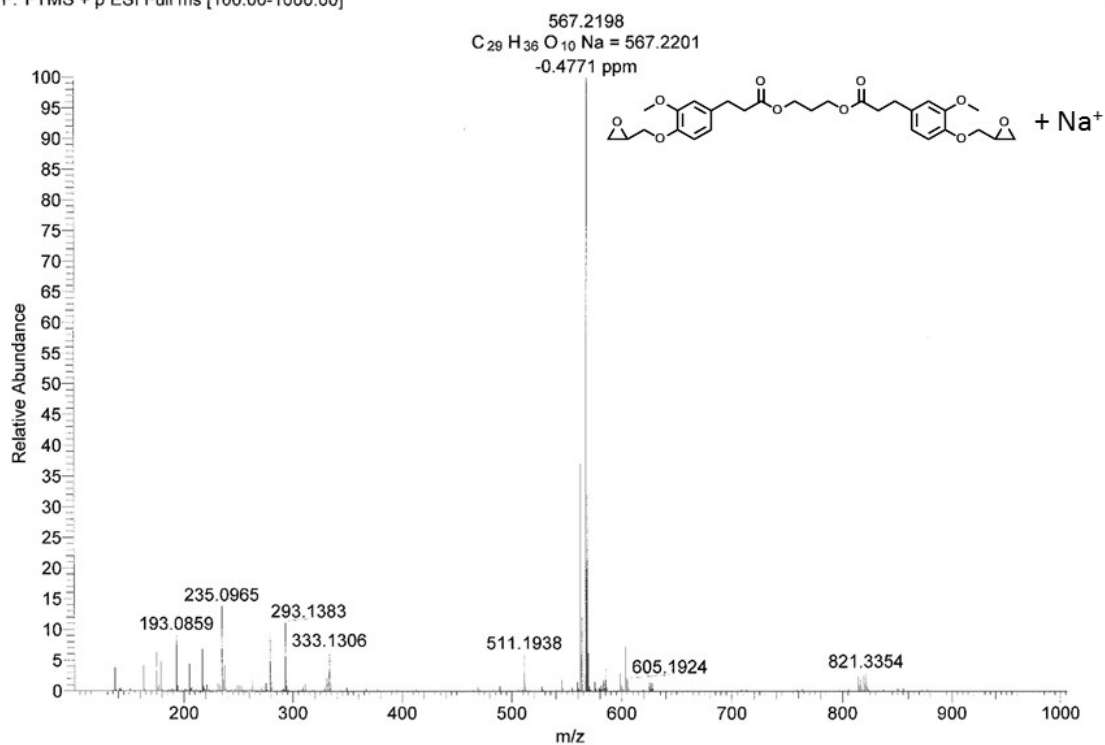
SI 1-8. ^1H NMR PDF-Epoxy



SI 1-9. ¹³C NMR PDF-Epoxy

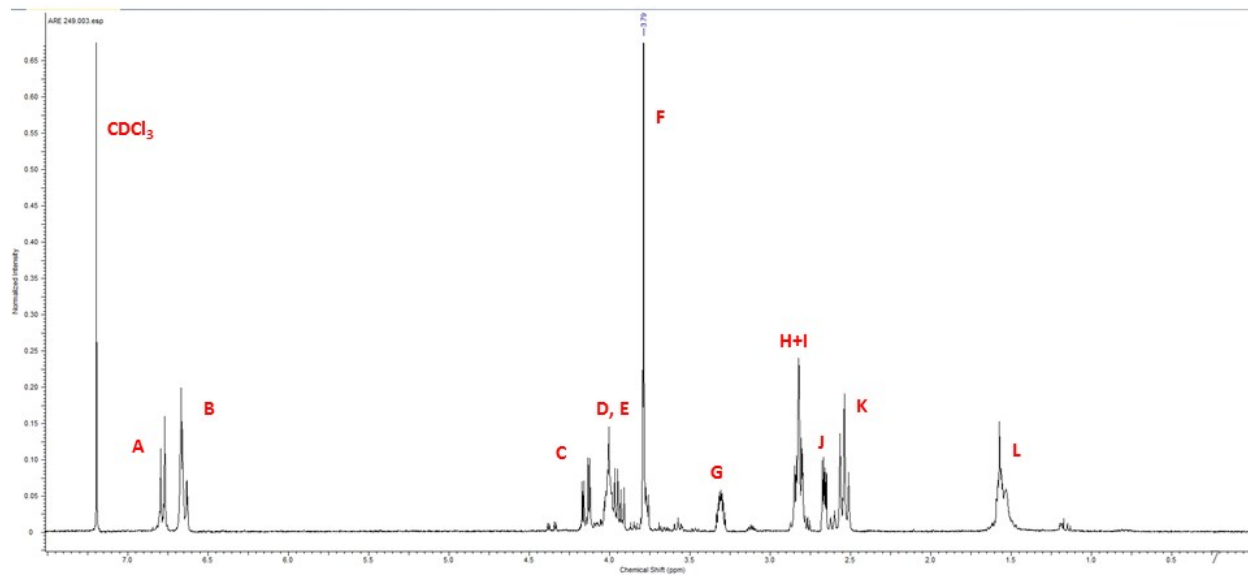
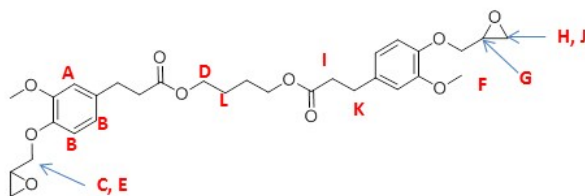
150821_mAlORANA_4 #88-274 RT: 0.51-1.54 AV: 93 NL: 3.21E8

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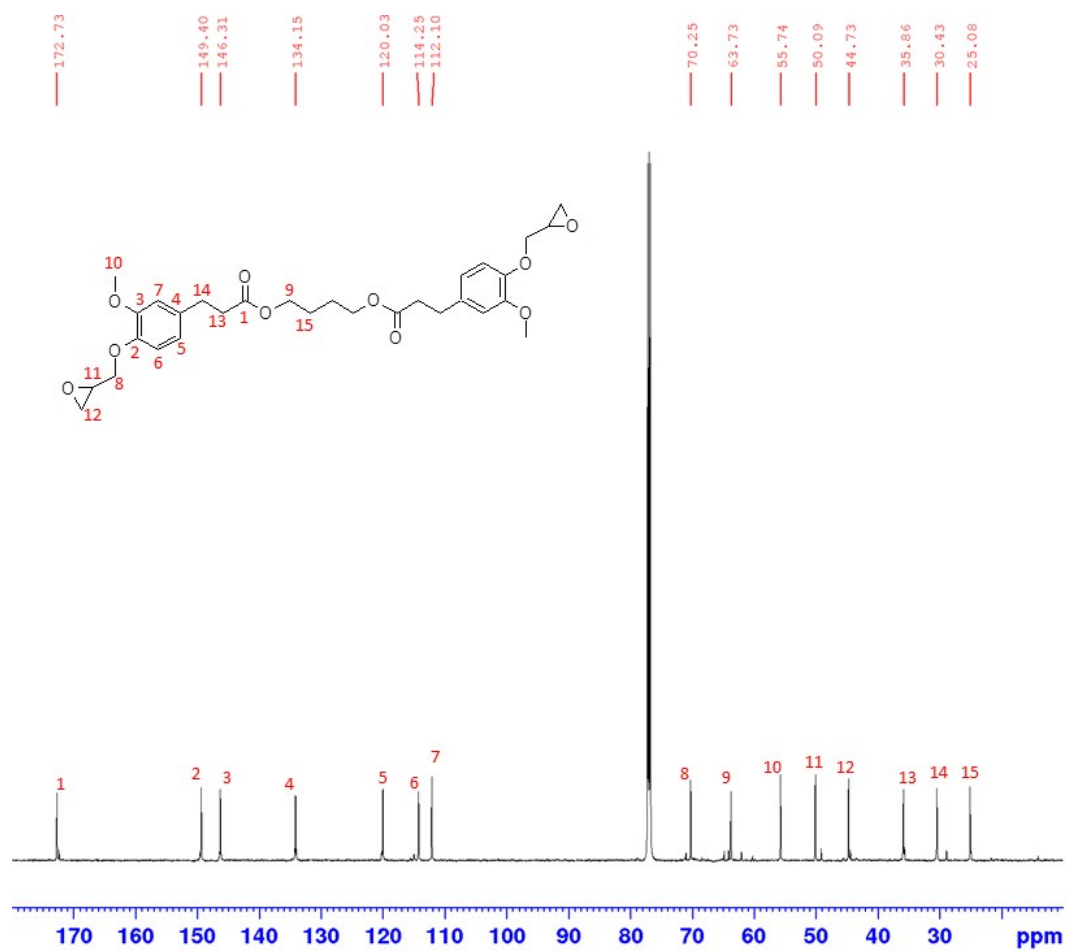


SI 1-10. High Resolution Mass Spectrometry PDF-Epoxy

Dihydroferuloyl 1,4-Butanediol Epoxy (HDF-Epoxy)



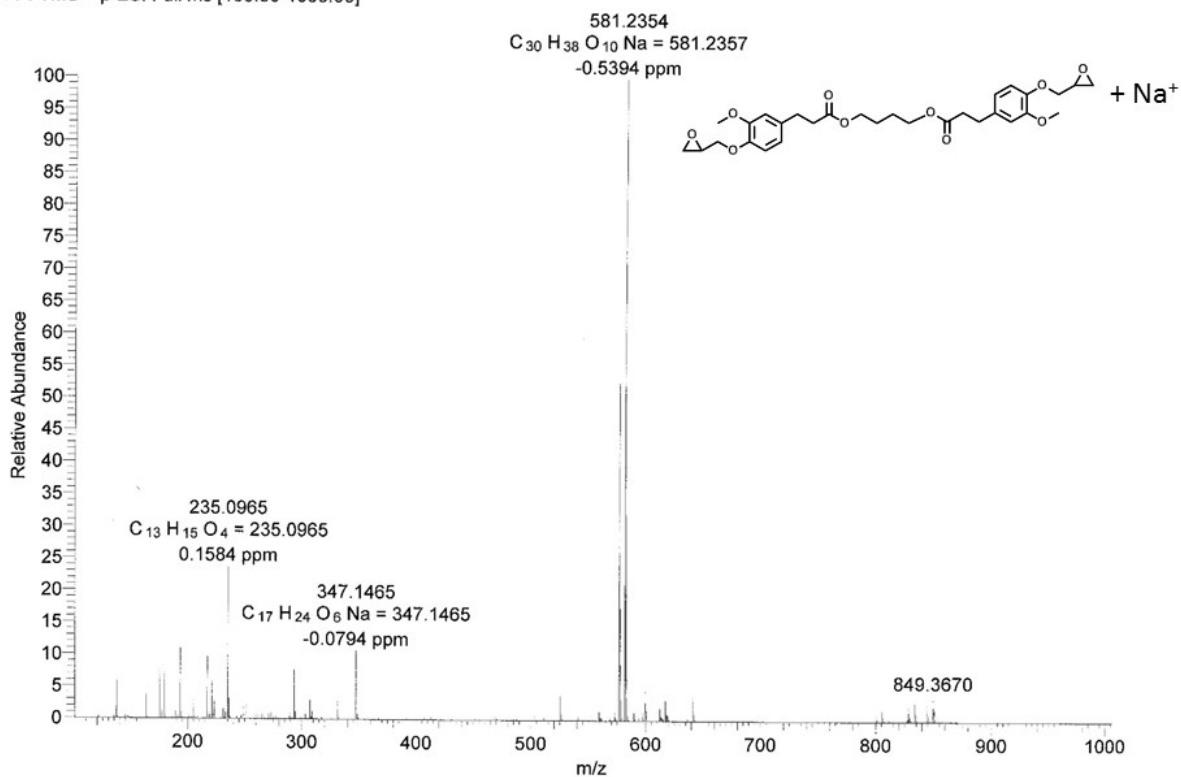
SI 1-11. ¹H NMR BDF-Epoxy



SI 1-12. ^{13}C NMR BDF-Epoxy

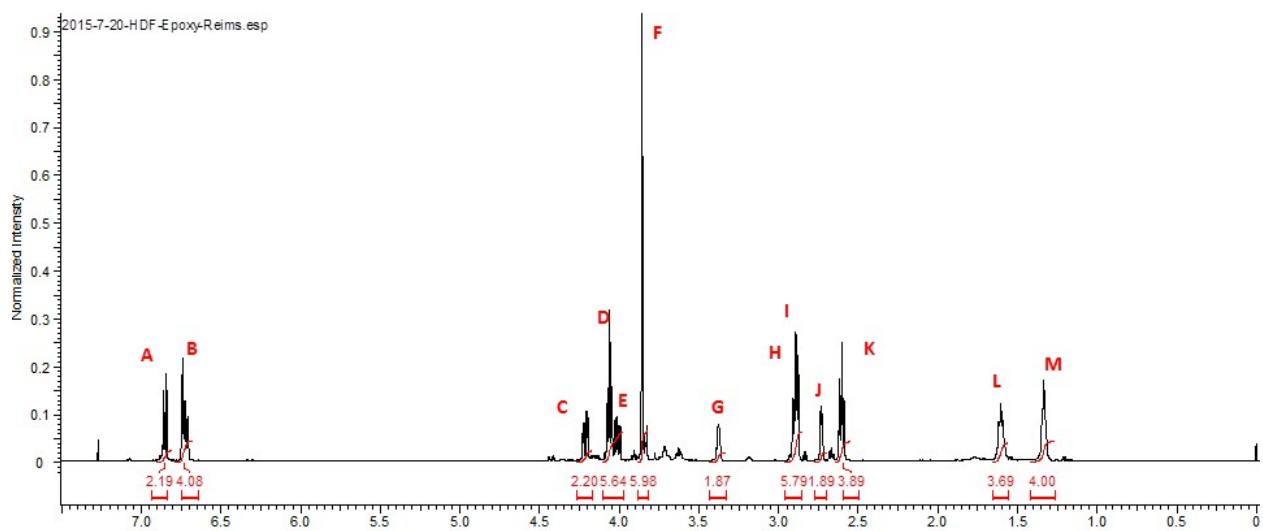
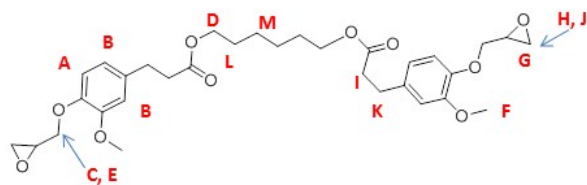
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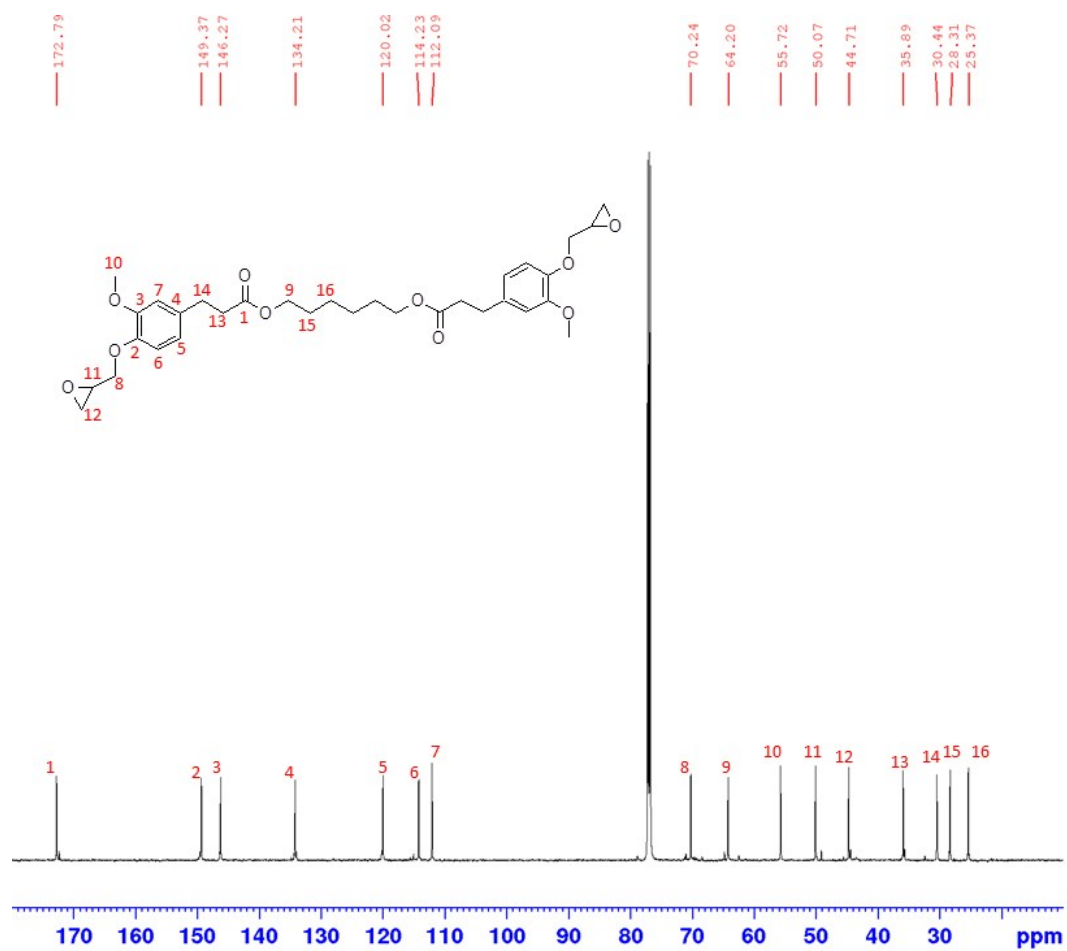


SI 1-13. High Resolution Mass Spectrometry BDF-Epoxy

Dihydroferuloyl 1,6-Hexanediol Epoxy (HDF-Epoxy)

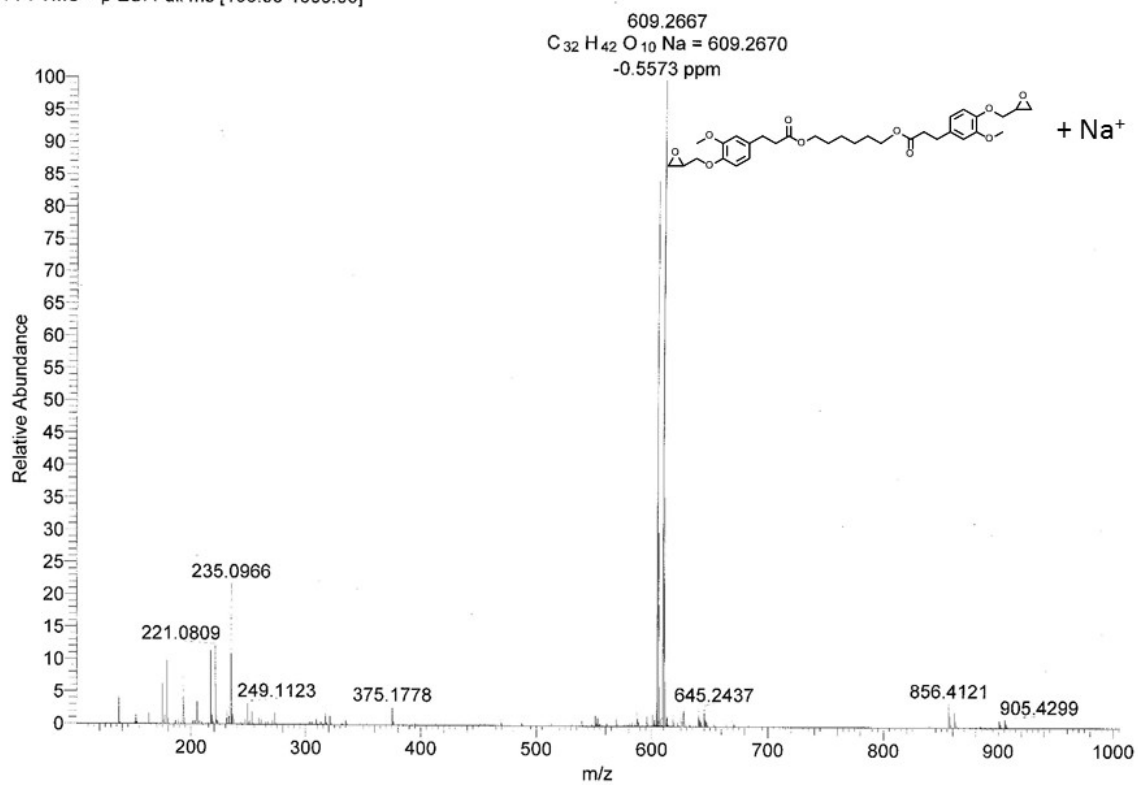


SI 1-14. ¹H NMR HDF-Epoxy



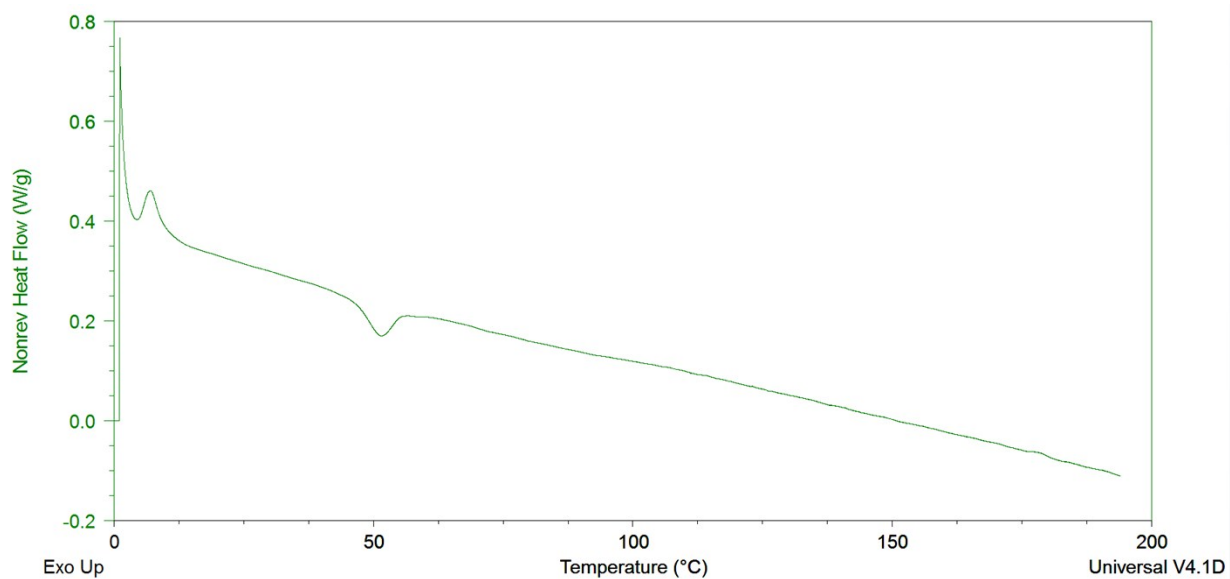
SI 1-15. ^{13}C NMR HDF-Epoxy

150821 mAIORANA_3 #55-201 RT: 0.31-1.15 AV: 74 NL: 2.36E8
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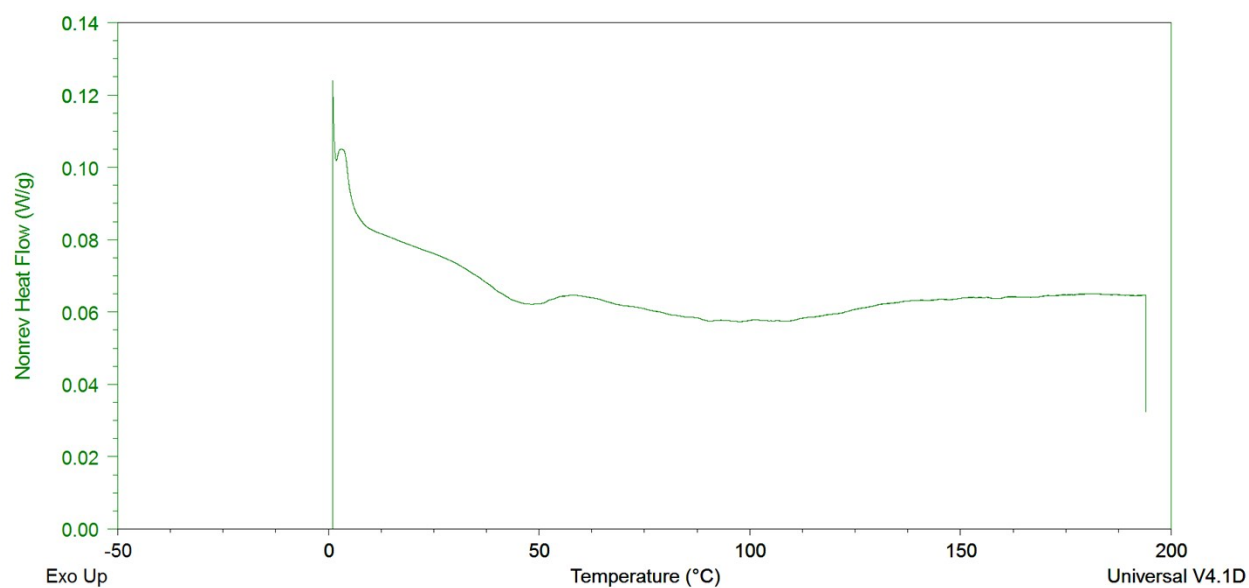


SI 1-16. High Resolution Mass Spectrometry HDF-Epoxy

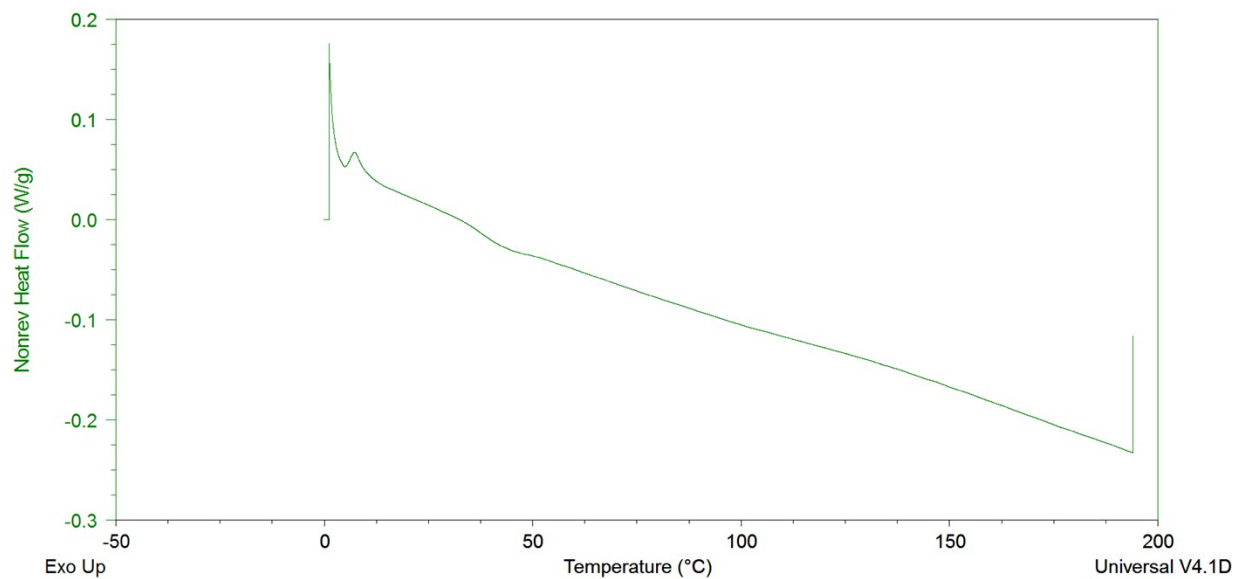
SI 2 Differential Scanning Calorimetry



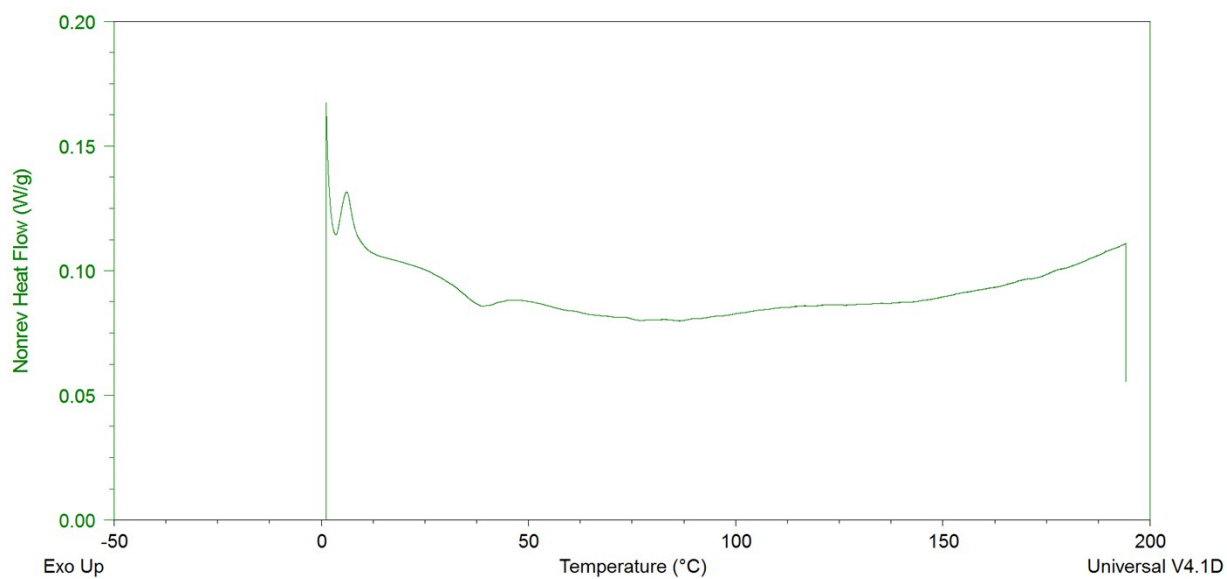
SI 2-1. EDF-Epoxy Modulated DSC- Nonreversible heat flow as a function of temperature



SI 2-2. PDF-Epoxy Modulated DSC – Nonreversible heat flow as a function of temperature



SI 2-3. BDF-Epoxy Modulated DSC – Nonreversible heat flow as a function of temperature



SI 2-4. HDF-Epoxy Modulated DSC – Nonreversible heat flow as a function of temperature

Supporting Information 3 – Thermogravimetric Analysis

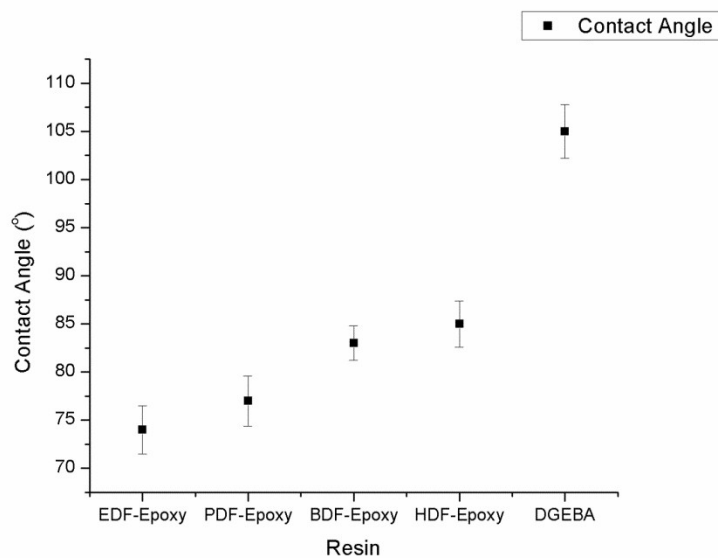
SI Table 3-1. Weight loss temperatures of cured resins

Resin	T _{d3%}	T _{d5%}	T _{d10%}
DGEBA	368	373	378
EDF-Epoxy	275	300	319
PDF-Epoxy	284	306	324
BDF-Epoxy	313	327	339
HDF-Epoxy	317	332	343

SI Table 3-2. Weight loss temperatures of sodium hydroxide treated EDF-Epoxy resin

Resin	T _{d3%}	T _{d5%}	T _{d10%}
EDF-Epoxy	275	300	320
EDF-Epoxy 1h	228	283	313
EDF-Epoxy 2h	246	288	313
EDF-Epoxy 3h	245	288	316
EDF-Epoxy 4h	207	277	312

Supporting Information 4 – Contact Angle



SI 4-1. Contact angle measurements of the cured resins benchmarked against DGEBA