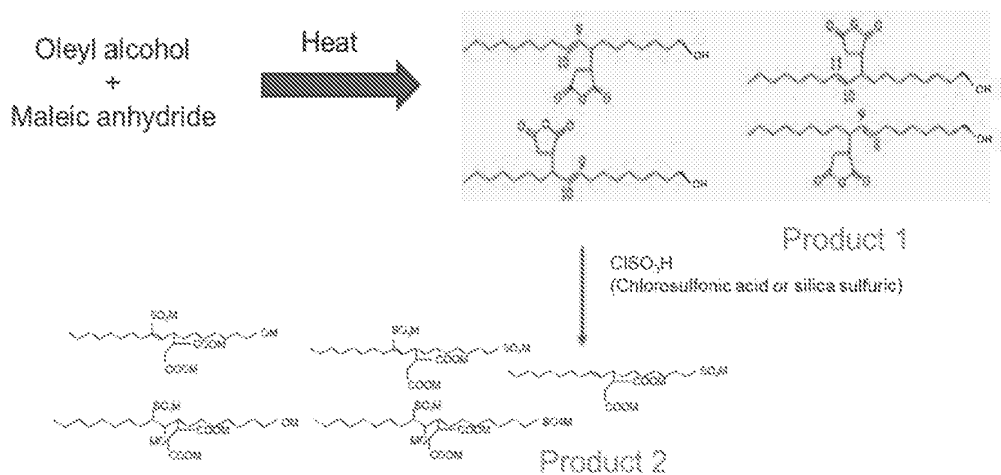
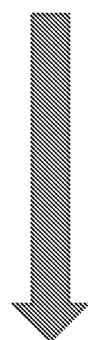


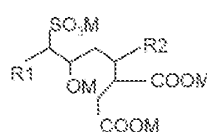
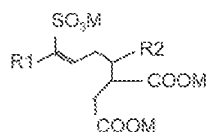
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**FIGURE 1**

Unsaturated hydrocarbon



- 1) Maleic anhydride + heat
- 2) Sulfonation (Sulfuric acid, Chlorosulfonic acid)
- 3) Workup

**FIGURE 2**

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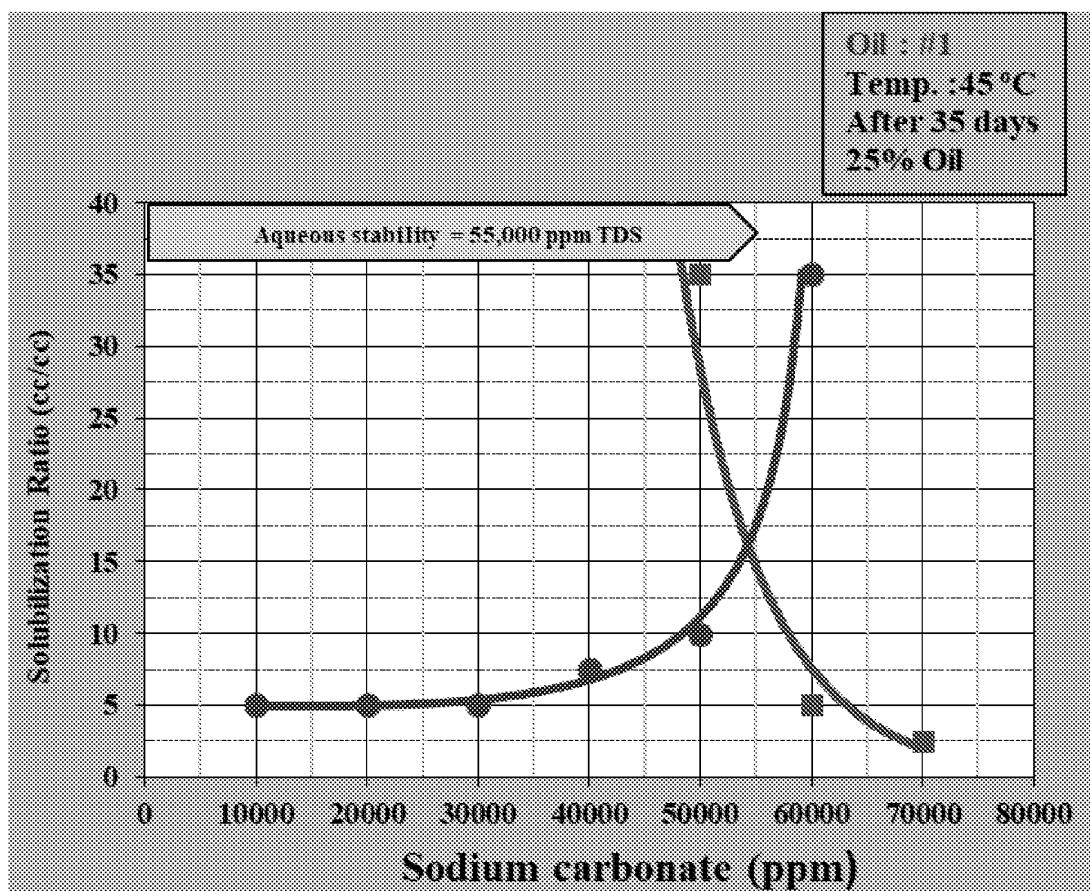
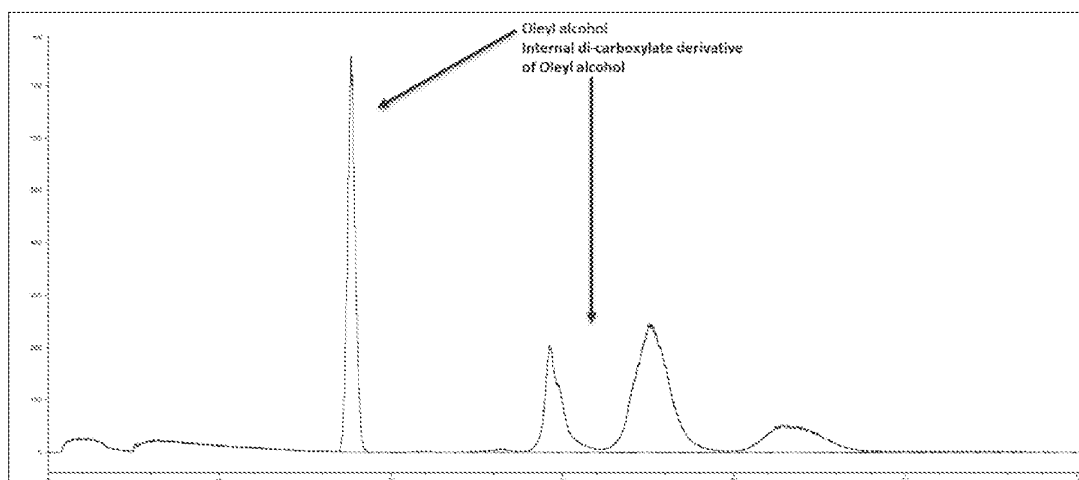
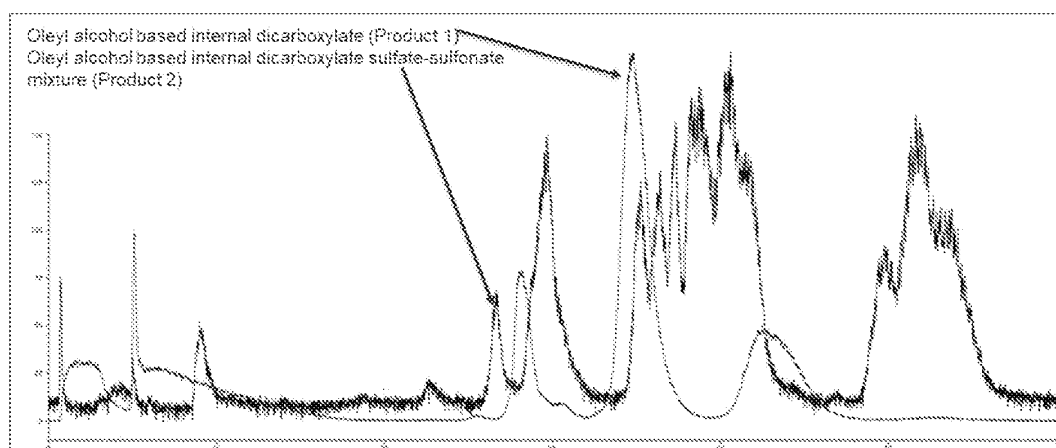


FIGURE 3

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**FIGURE 4****FIGURE 5**

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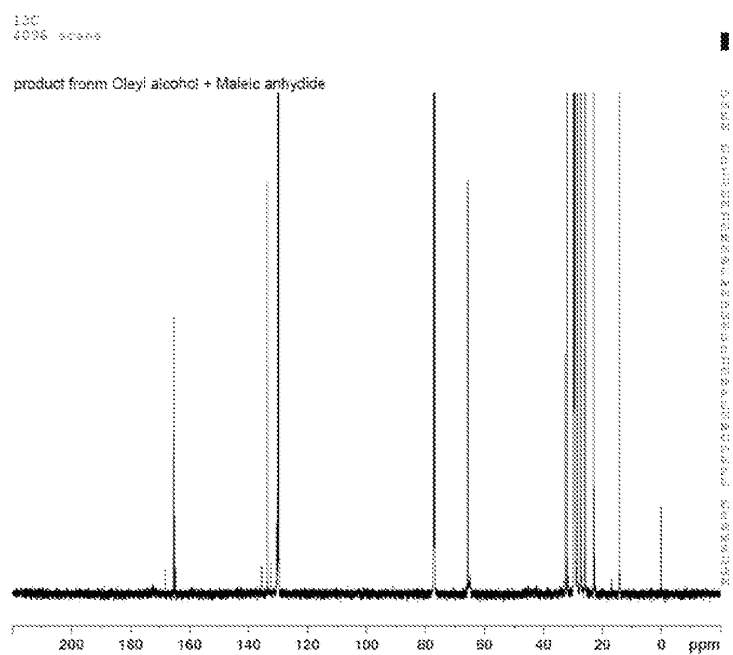


FIGURE 6A

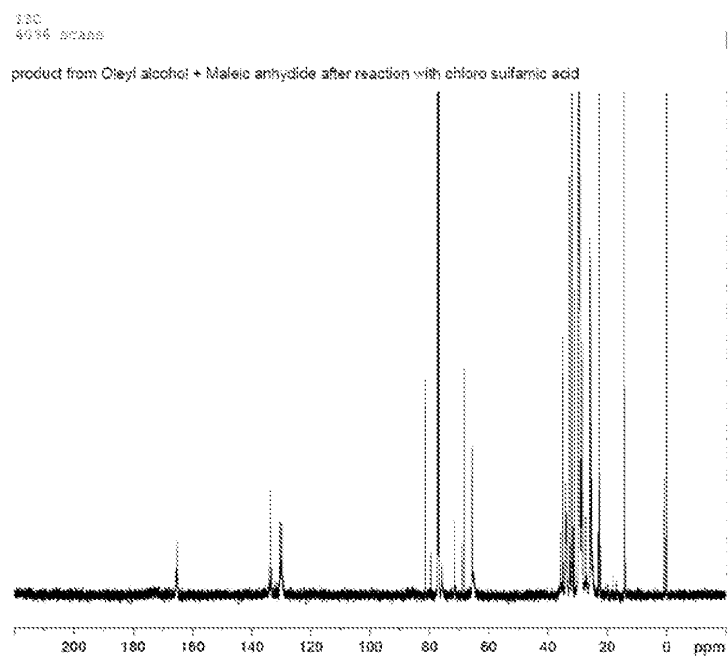


FIGURE 6B

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Fraction  
512 scans

product from Oleyl alcohol + Maleic anhydride

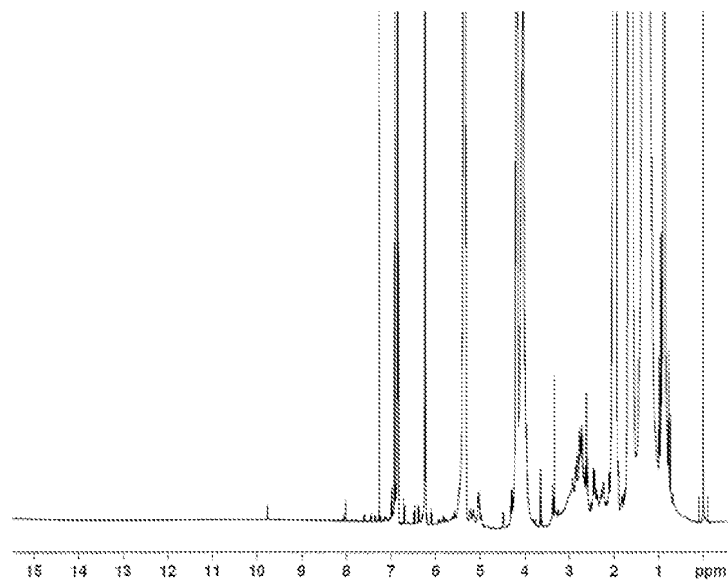


FIGURE 7A

Fraction  
512 scans

product from Oleyl alcohol + Maleic anhydride after reaction with chloro sulfamic acid

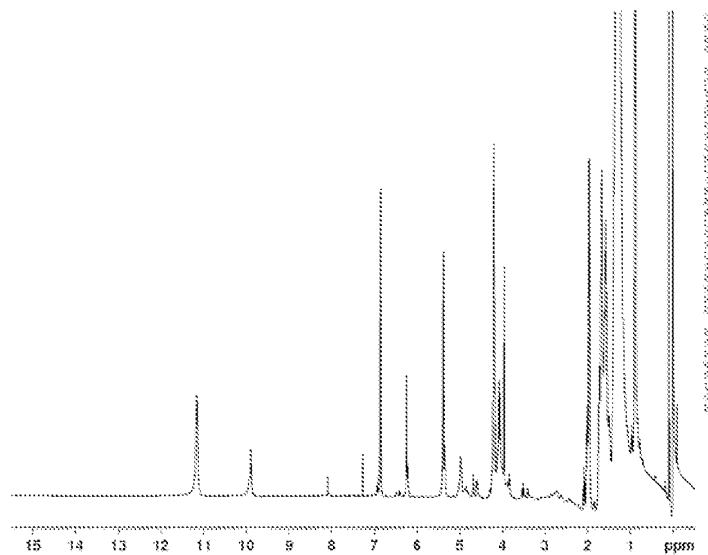
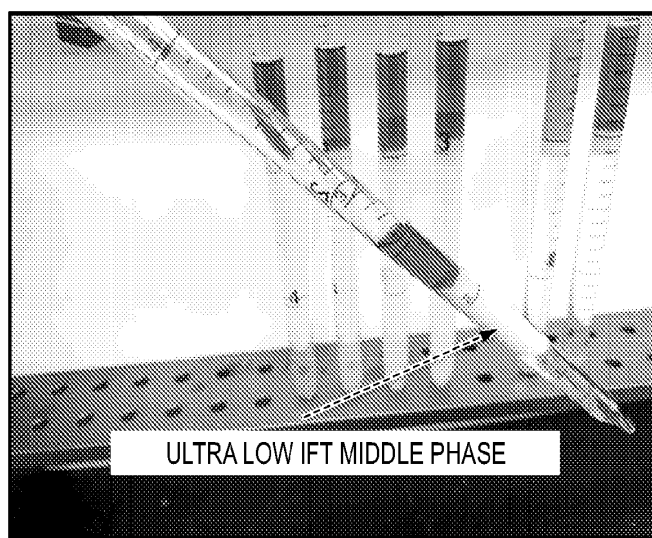
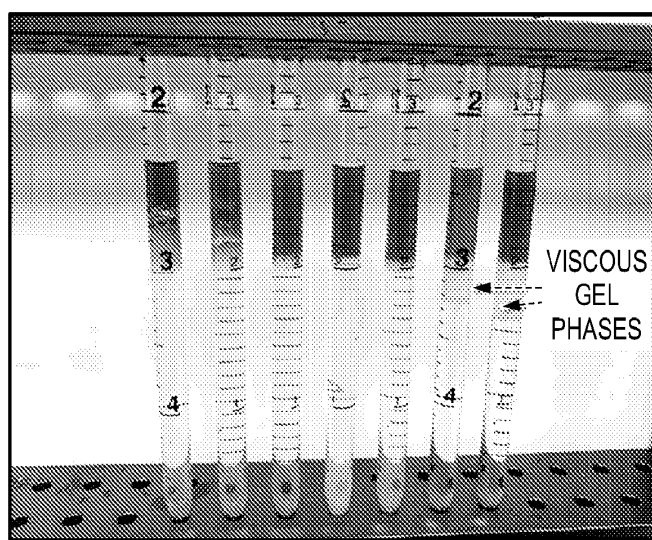
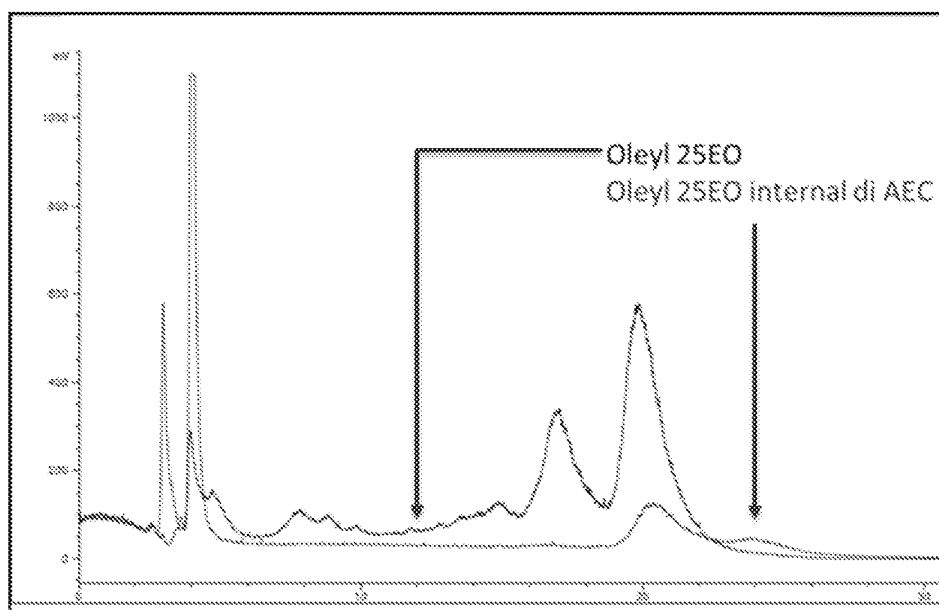
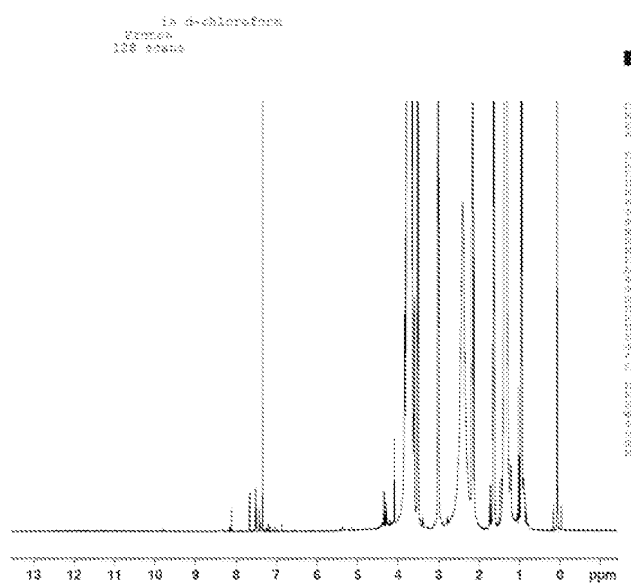


FIGURE 7B

**FIG. 8****FIG. 9**

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**FIGURE 10****FIGURE 11**