

Supporting Information

Controllable CO₂-Responsiveness of Oil-in-Water Emulsion: by Varying the Number of Tertiary Amine Group or the Position of Hydroxyl Group of Tertiary Amine

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The number of pages: 8

The number of figures: 12

The number of tables: 2

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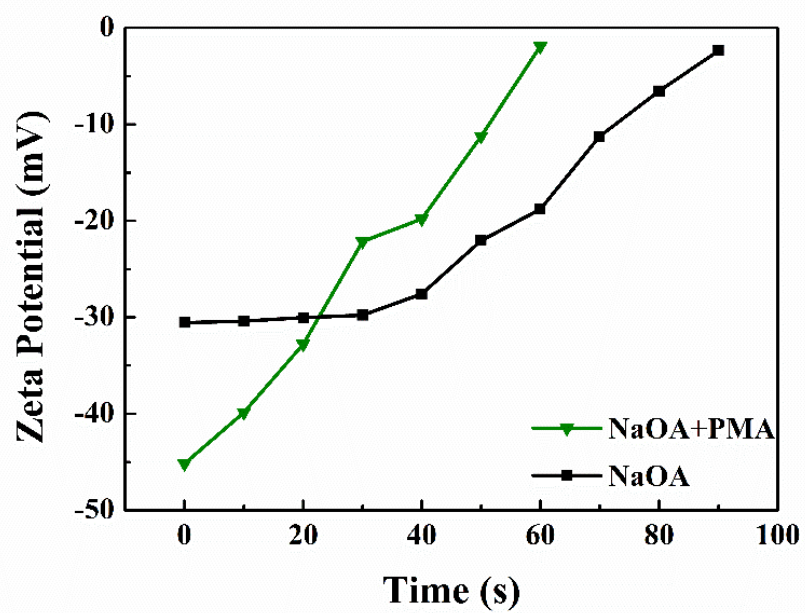


Figure S1. The Zeta potential of emulsions with 0.5wt% concentration of NaOA and equimolar PMA during the process of bubbling of CO₂ at 25°C

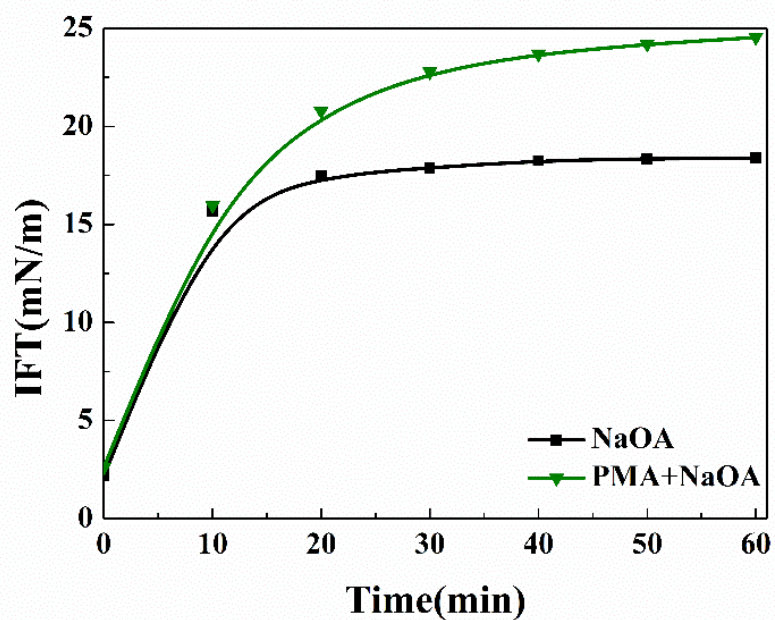


Figure S2. The interfacial tension of emulsions with 0.5wt% concentration of NaOA and equimolar PMA during the process of bubbling of CO₂ at 25°C

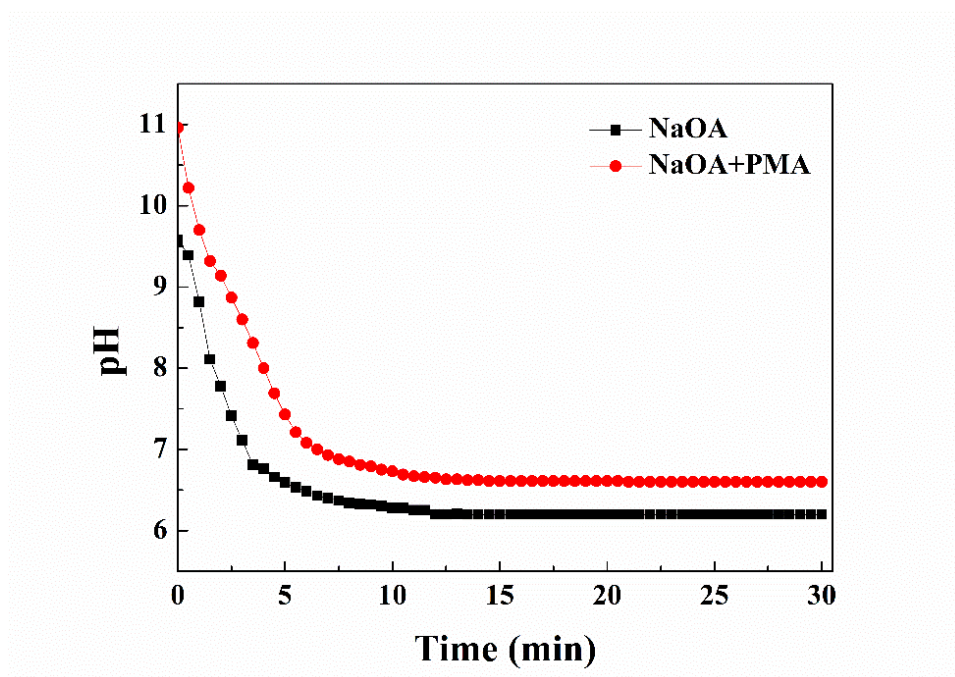


Figure S3. The pH of emulsions formed by 0.5wt% concentration of NaOA and equimolar PMA as a function of time during bubbling of CO₂ at 25°C

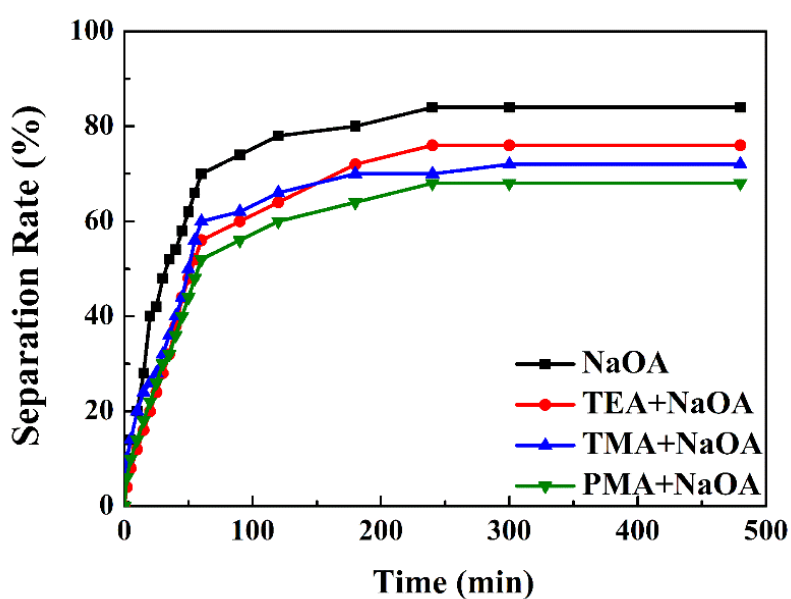


Figure S4. The separation rate of emulsions with 0.5wt% concentration of NaOA and equimolar TA of different number of tertiary amine groups

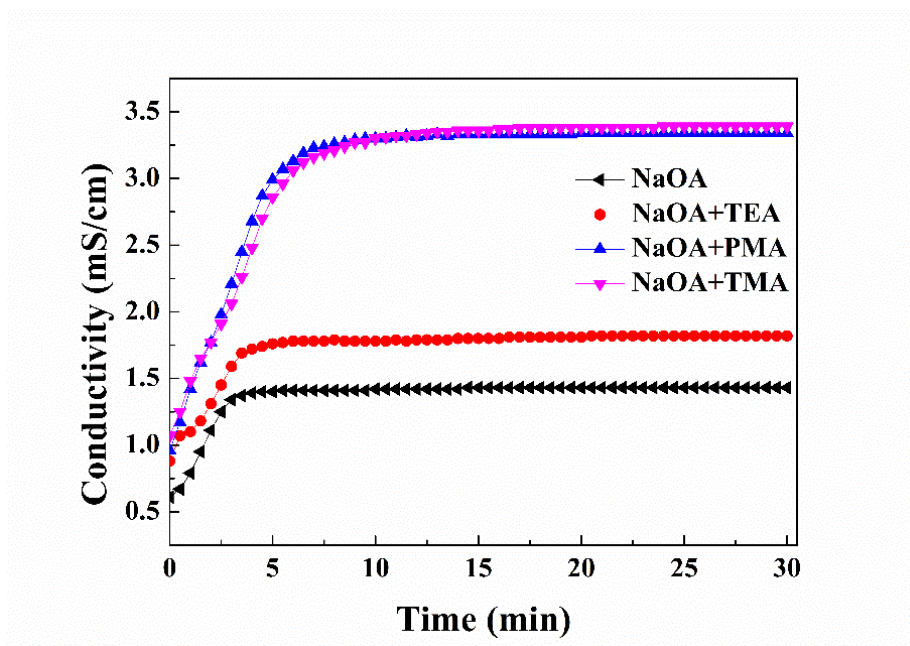


Figure S5. Conductivity of the emulsions with 0.5wt% concentration of NaOA and equimolar TA with different number of tertiary amine group with bubbling of CO₂ at 25°C

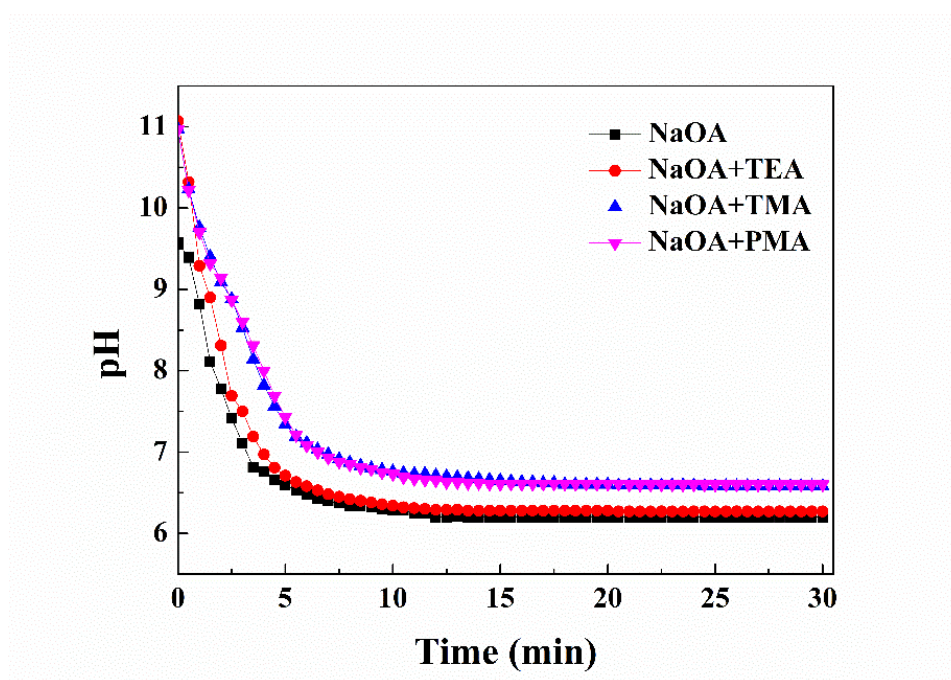


Figure S6. pH value of the emulsion with 0.5wt% concentration of NaOA and equimolar TA with different number of tertiary amine group with bubbling of CO₂ at 25°C

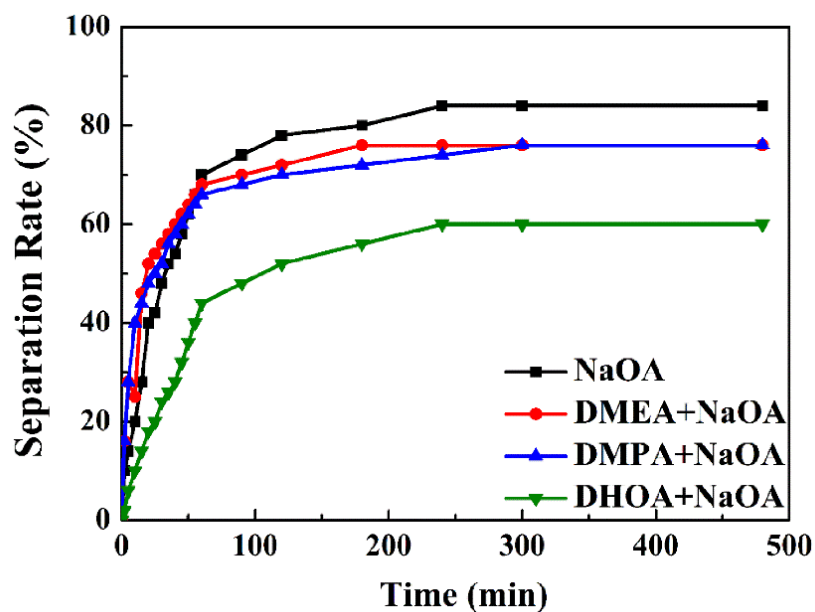


Figure S7. The separation rate of emulsion with 0.5wt% concentration of NaOA and the equimolar amines of different position of hydroxyl group

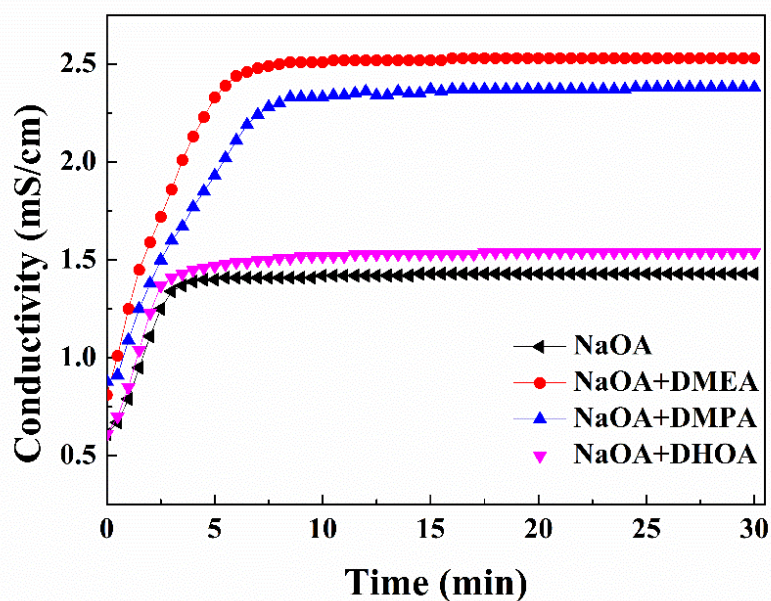


Figure S8. The conductivity of the emulsions with 0.5wt% concentration of NaOA and equimolar TA with different position of hydroxyl group with bubbling of CO₂ at 25°C

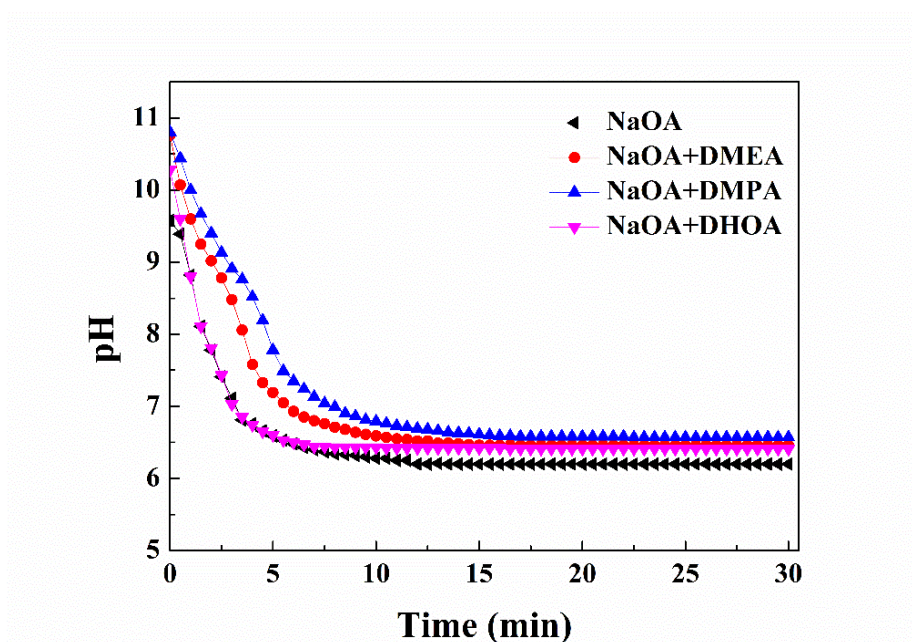


Figure S9. The pH value of the emulsions with 0.5wt% concentration of NaOA and equimolar TA with different position of hydroxyl group with bubbling of CO₂ at 25°C

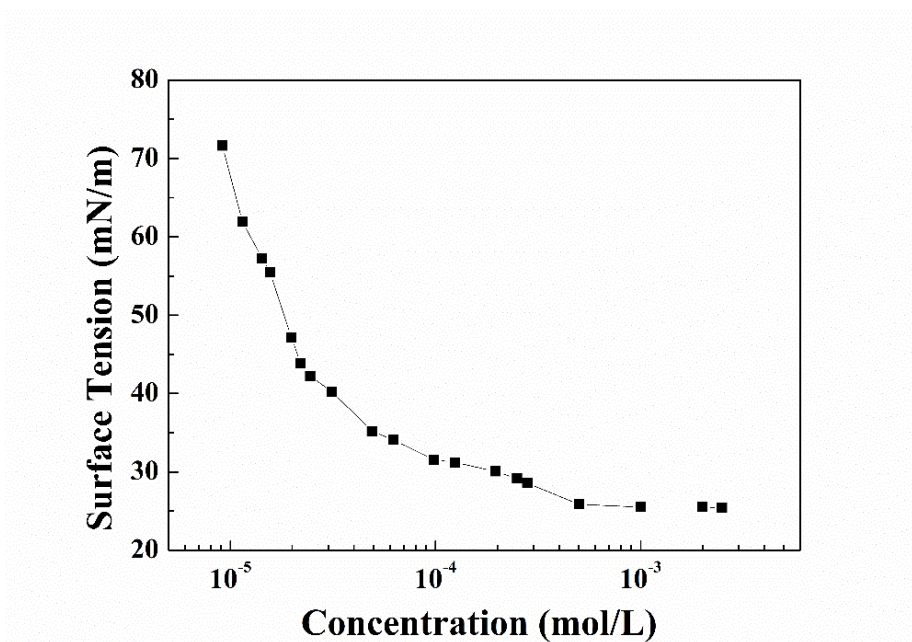


Figure S10. Surface tension as a function of the concentration of aqueous solutions of NaOA under air at 25°C

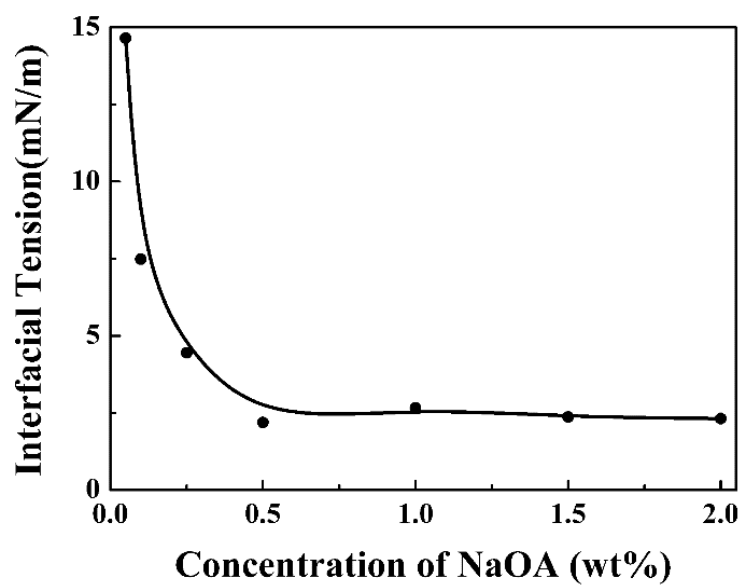


Figure S11. The interfacial tension between dodecane and the NaOA aqueous solutions as a function of NaOA concentration at 25°C

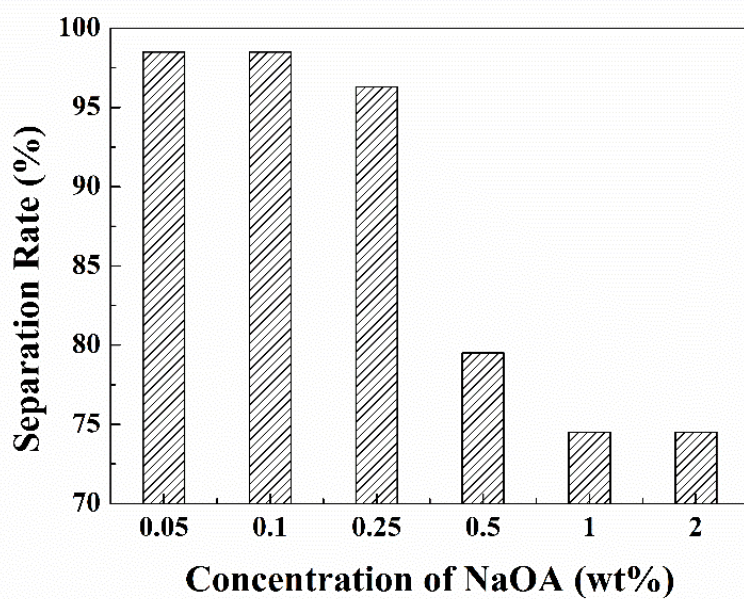


Figure S12. The water separation rate of the different concentration of NaOA based emulsions at 12h standing after preparation.

Table S1. The zeta potential of emulsions with 0.5wt% concentration of NaOA and equimolar TA with different number of tertiary amine group at 25°C

| System | Zeta potential (mV) |
|----------|---------------------|
| NaOA | -30.56 |
| NaOA+TEA | -42.08 |
| NaOA+TMA | -42.54 |
| NaOA+PMA | -42.59 |

Table S2. The zeta potential of emulsions with 0.5wt% concentration of NaOA and equimolar TA with different position of hydroxyl group at 25°C

| System | Zeta potential (mV) |
|-----------|---------------------|
| NaOA | -30.56 |
| NaOA+DMEA | -45.78 |
| NaOA+DMPA | -52.07 |
| NaOA+DHOA | -52.17 |