Supporting information

The Influence of Organic Intercalation Montmorillonites on the Interfacial Tension and Structure of Oil-in-Water Nanoemulsions

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Molecular Structure of Brij 30 and G16-2-16,

Brij 30 : \( \text{CH}_3(\text{CH}_2)_{10}\text{CH}_2(\text{OCH}_2\text{CH}_2)n\text{OH} \)

G16-2-16:

| Tab.S1 Zeta potential of nanoemulsions measured by DLS method |
|-------------------|---|---|---|---|
| G16-2-16 %w/v     | OMr %w/v | Brij 30 %w/v | Paraffin oil %w/v | 0.01 M NaCl solution %w/v | Zeta potential mV |
| 0.01 M NaCl solution %w/v | | | | |
| 0                | 0        | 2.56   | 3.2    | 94     | 18.8  |
| \(1.7 \times 10^{-3}\) | 2.56     | 3.2    | 94     | 43.4   |
| \(3.4 \times 10^{-3}\) | 2.56     | 3.2    | 94     | 38.2   |
| \(5.1 \times 10^{-3}\) | 2.56     | 3.2    | 94     | 26.8   |
| \(6.8 \times 10^{-3}\) | 2.56     | 3.2    | 94     | 28.5   |
| OMt %w/v | 0.15 %w/v G16-2-16 | 0.20 %w/v G16-2-16 |
|---|---|---|
| Equilibrium time | 1800s | 2000s |
| 0 | 0.021 | 0.07 |
| $3.4 \times 10^{-3}$ | 0.006 | 0.225 |
| $6.8 \times 10^{-3}$ | 0.01 | 0.016 |

Fig. S1 Interfacial tension of crude oil/ water as a function of time at 45 °C.
Nanoemulsions with 0.15% w/v G16-2-16 (1 day); (b) G16-2-16 nanoemulsions with 0.15 wt% (90 days); (c) Size variation of nanoemulsions with 0.15% w/v G16-2-16 storing for 1 day and 90 days (a, A: without OMt; b, B: with 3.4×10^{-3} wt% OMt); (d) nanoemulsions with 0.20% w/v G16-2-16 (1 day); (e) nanoemulsions with 0.20% w/v G16-2-16 (90 days); (f) Size variation of nanoemulsions with 0.20% w/v G16-2-16 storing for 1 day and 90 days (a, A: without OMt; b, B: with 3.4×10^{-3} wt% OMt).

Fig. S3 Z-average diameter and the Polydispersity Index (PDI) of Nano-emulsion measured by DLS method