

particle size increases with the increase of the concentration of the polymer, and the amplitude value is relatively large, and the addition of polymer emulsion particle size increases (Without the addition of polymer, particle size is 2.28 μm). With the increase of the concentration of polymer, the emulsion median particle size increased from 7.12 μm to 78.49 μm . There are two reasons for this: firstly, in the process of crude oil emulsion to form water-in-oil microemulsion phase and polymer adsorption on the oil-water interface, the bending modulus of the improved interfacial film, against the spontaneous curvature of interfacial film change; Secondly, under the certain stirring intensity, along with the increase of polymer concentration, improved the water phase viscosity, that against shear dispersion of droplets, so the formation of the droplet diameter increase gradually.

Table 3. Different polymer concentration of emulsion particle size distribution.

Polymer Concentration (mg/L)	D [4,3]	D (v,0.1)	D (v,0.5)	D (v,0.9)
100	9.00	0.78	7.12	20.30
500	41.43	2.52	32.14	92.21
1000	64.80	14.45	55.70	126.94
2000	90.34	16.14	78.49	185.01

As shown in Fig. (3), with the increase of polymer concentration, the emulsion particle size distribution curve peak moves to the right gradually, and the particle size distribution widened gradually, consistent with the bigger particle size.

CONCLUSION

- (1) The concentration of surfactant affects a little on the emulsion particle size distribution, but the surfactant has lower interfacial tension and solubilization ability which make the emulsion particle size much smaller.
- (2) The emulsion particle size becomes larger with the increase on salinity.

- (3) With the increase in polymer concentration, particle size of emulsion becomes larger, and the particle size distribution wider.

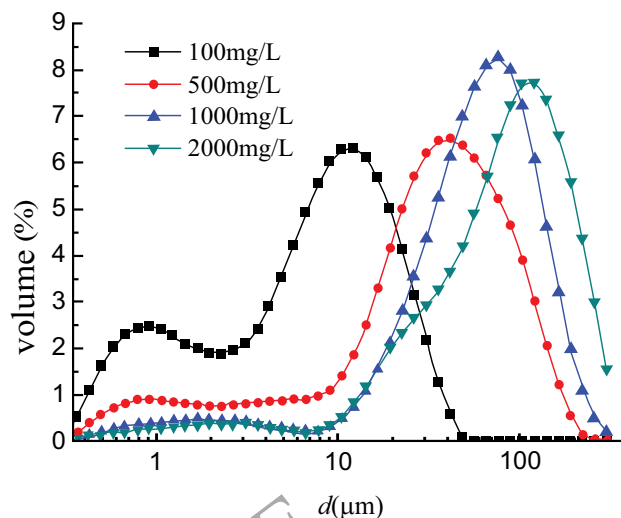


Fig. (3). Polymer concentration of emulsion particle size distribution curve

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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