Supporting Information

Investigation on Micelle Formation by *N*-(Diethyleneglycol) Perfluorooctane Amide Fluorocarbon Surfactant as a Foaming Agent in Aqueous Solution

Qing You^{1,2}, Zhuojing Li^{1,2}, Qinfang Ding³, Yifei Liu³, Mingwei Zhao³, Caili Dai³

1. School of Energy Resources, China University of Geosciences (Beijing)

2. Key Laboratory of Marine Reservoir Evolution and Hydrocarbon Accumulation Mechanism, Ministry of Education, China University of Geosciences (Beijing)

3. School of Petroleum Engineering, China University of Petroleum (East China)

*Corresponding author. Tel.: +86-13911326678.

E-mail address: youqing@cugb.edu.cn



Figure S1. Variations of the observed enthalpies $\Delta H_{\rm m}^{0}$) as a function of NPFOA concentration (C) at 25 °C.

In order to further study the thermodynamic process of micelle formation, ITC measurement is carried out, which is a effictive method to investigate the cmc. The typical experimental isothermal calorimetric titration curve is described by injecting the concentrated NPFOA solution into pure water at 298.15 K. The observed dilution enthalpic curve is shown in Figure S1. At the beginning of concentrated NPFOA solution injection, the observed enthalpy (ΔH_m^0) increases slowly. This enthalpy change can be ascribed to the further dilution of monomers and demicellization of micelles. With the further increase of NPFOA concentration, the value increases significantly, which indicates the formation of micelles and the concentration is assigned to be cmc. After the formation of micelles, the value changes slightly.