Synthesis and Properties of a Glucono-δ-lactone-Modified Silicone Surfactant from High-Amine-Value Amodimethicone

Lingxiao Guo1, Yanyun Bai1,\*, Dianlong Zhang2, Guoyong Wang1

1 China Research Institute of Daily Chemistry Co., LTD, Taiyuan 030001, P. R. China

2Department of Chemistry, Shanxi Datong University, Datong Shanxi, 037009, P. R. China.

E-mail: 13503517996@163.com

**Supplemental Materials**

**Optimum** **reaction conditions determination of APSO**

**Reaction time on the effect of reaction degree of APSO**

Reaction times were 0-8 h, the usage of catalyst was 0.07%, reaction temperature was 90°C, the mole ratio of APMS-H:D4:MM was 2.6:1:1, samples were removed at different reaction times, and the completeness of reaction was calculated by means of glass capillary viscometer method.

**Reaction temperature on effect of reaction degree of APSO**

Temperature was 70-110°C, the usage of catalyst was 0.07%, the mole ratio of APMS-H:D4:MM was 2.6:1:1, reaction time was 5 h, and analysis reaction degree by means of viscosity method.





**Figures S 1a and b**: Kinematic viscosity of APSO at different reaction times and reaction temperatures

The decrease of kinematic viscosity flattens and there is no significant difference as the time increased after reaction 5 h (Figure S 1a). Hence, the optimum reaction time is 5 h. The kinematic viscosity of APSO decreased slightly as the temperature increased (Figure S 1b). Therefore, the optimum reaction temperature is 90°C.