

## Synthesis and Properties of Sulfonate Gemini Surfactants with Amide Groups

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**Abstract :** A sulfonate Gemini surfactant sodium N,N'-bis(tetradecanoyl) propanediamine dipropyl sulfonate (GNS-14) was synthesized from 1,3-propanediamine, tetradecanoyl chloride, and 1,3-propanesulfonic lactone. GNS-14 was characterized by FT-IR, <sup>1</sup>H NMR. The surface activity, interfacial activity, and emulsification properties of GNS-14 solution were systematically studied. The critical micelle concentration (CCMC) of GNS-14 surfactant was 0.056 mmol/L, and the surface tension ( $\gamma_{CMC}$ ) was 18.2 mN/m; at 50°C, 0.5% GNS-14 solution can reduce the oil-water interfacial tension to  $6.5 \times 10^{-2}$  mN/m. GNS-14 has excellent surface activity, interfacial activity, and emulsifying properties.

**Keywords :** gemini surfactants, surface tension, low interfacial tension, emulsifying properties

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