

## RESEARCH PAPERS

表面活性剂-油-水体系界面张力的分子热力学模型

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**摘要** An interfacial equation of state based on perturbation theory for surfactant-oil-water system has been developed. By combining the interfacial equation of state with Boudh-Hir and Mansoori's model, a molecular thermodynamic model has been proposed. The interfacial

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**关键词** [interfacial tension](#) [molecular thermodynamic model](#) [perturbation theory](#) [surfactant-oil-water system](#)

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### **A Molecular Thermodynamic Model for Interfacial Tension in Surfactant-Oil-Water System**

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#### **Abstract**

An interfacial equation of state based on perturbation theory for surfactant-oil-water system has been developed. By combining the interfacial equation of state with Boudh-Hir and Mansoori's model, a molecular thermodynamic model has been proposed. The interfacial tension of surfactant-oil-water systems can be calculated from the surface tensions of pure oil and water by this model. The interfacial tension data for sodium dodecyl sulphate-heptane-water system, polyoxyethylene n-octylphenol-heptane-water system and hexadecyl trimethyl ammonium bromide-heptane-water system have been correlated. By using the adjustable parameters obtained, the interfacial tensions of these systems at other temperatures have been predicted. Both the correlated and the predicted values are satisfactory.

**Key words** [interfacial tension](#); [molecular thermodynamic model](#); [perturbation theory](#); [surfactant-oil-water system](#)

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