

论文

# 聚苯乙烯磺酸钠与阳离子表面活性剂的相互作用和纳米聚集体的生成

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**摘要** 在聚苯乙烯磺酸钠(PSS)的水溶液中,引入阳离子表面活性剂(CTAB或DDAB)使与PSS通过静电相互作用实现聚苯乙烯磺酸盐不同程度的中性化,并进而对PSS/表面活性剂复合物在水中的行为特征、特别是PSS因疏水化而产生的聚集行为以及临界聚集浓度等采用多种方法如溶液的透光率;荧光光谱;荧光探针以及扫描电镜观察等进行了研究,得到一些颇为有趣的结果.结果表明PSS-CTAB或DDAB加成物可自发的形成约70 nm的纳米粒子.而中性化程度则对加成物的构型以及体系的透光率等有较大影响.结果还表明所得具有亲水外壳和疏松的疏水内核的聚集体能容易的使疏水分子进入其中.

**关键词** [高分子聚电解质与表面活性剂的相互作用](#) [聚苯乙烯磺酸钠](#) [阳离子表面活性剂](#) [分散体系的聚集](#) [荧光探针](#)

分类号

## A STUDY ON THE INTERACTION OF SODIUM POLYSTYRENE SULFONATE WITH CATIONIC SURFACTANTS AND THE FORMATION OF NANO-AGGREGATES

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**Abstract** In aqueous solutions of sodium polystyrene sulfonate(PSS)the different degree of neutralization is realized by electrostatic interaction with cationic surfactants(cetyltrimethylammonium chloride(CTAB)or didodecyldimethylammonium bromide(DDAB))added. The aggregation behavior of adducts of PSS and cationic suffactants with different degree of neutralization(DN)is studied by several methods in aqueous solution,such as the transmittance measurements,the fluorescence spectrum,fluorescence probe and the observation of scanning electron microscopy. The results indicate that PSS-CTAB(DDAB)nano—particles with a diameter of about 70 nm could be synthesized and possess hydrophilie shell and loose hydrophobic core into which the pyrene molecules can enter.

**Key words** [The interaction between polyelectrolyte and surfactant](#) [Sodium polystyrene sulfonate](#) [Cationic surfactant](#) [The aggregation of dispersed system](#) [Fluorescence probe](#)

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