

α -TERPINEOL PRODUCTION FROM SULPHATE TURPENTINE REFINED

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ABSTRACT

This work presents the study of the use of monoterpenes distilled from deodorized sulphate turpentine, a by-product of the Kraft process of paper production, in the chemical synthesis of α -terpineol, a terpenic alcohol widely used in the industry of fragrances, pharmaceuticals and fine chemical.

Due to the sulphur contaminants of deodorized sulphate turpentine, the separation of main components are previously performed by distillation, the distilled obtained are composed by α -pinene, 78%, and β -pinene. The distilled was used as start material for the synthesis of α -terpineol. The synthesis are carried out by hidration of α -pinene and β -pinene catalyzed by acid. In Brasil only the gum turpentine is used as source of these terpenes, being the sulphate one rejected by this industry.

Samples of the distilled product was reacted with aqueous sulfuric acid 15 % in the presence of excess acetone as solubility promoter, under constant agitation and temperature controlled by a thermal bath.

The reaction conditions was investigated, samples was collected in different times of reaction and different conditions of temperature and analyzed by gaseous chromatography. The complete conversion of the α -pinene and β -pinene and maximum selectivity for α -terpineol, 55%, was reached in 4 hours of reaction and temperature between 80 and 85°C, results comparable to the literature using α -pinene and crude turpentine. Experiments using α -pinene from gum turpentine was also realized and produce similar results. A serie of by-product was also produced as carene, limonene, eucaliptol, fenchol and borneol, all of great commercial importance. The product obtained presents good quality with the absence of the sulphur contaminants of the sulphate turpentine, removed in the distillation stage.