REFINE OF SULPHATE TURPENTINE BY DISTILLATION

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ABSTRACT

In this work the study of the refining of monoterpenes components of deodorized sulphate turpentine by vacum distillation is presented. The material used was the deodorized sulphate turpentine supplied by Dalquim company, who processes the sulphate turpentine produced as by-product in the paper and cellulose industry Klabin and commercialize it as industrial solvent. Is composed by 62% of α-pinene, 30 % of β-pinene and other terpenes and terpenóids and small amounts of organic sulphur composites remaining that causes malodorous. The main constituents of turpentine are starting material for a myriad of synthetic products for fragrance, pharmaceutical and fine chemical industries.

The distillation experiments was carried through in a glass column stuffed with glass spirals with a 80 cm of height and 1 cm of diameter corresponding to an efficiency of 6 theoretical plates. The column was operated at pressures of 8, 15 and 21 KPa, in batch operation with different reflux rates. Samples was analyzed by polarimetry, refratometry and gaseous chromatography. The results was compared with computational simulations of the experiments using equilibrium parameters cited in literature considering the binary system α-pinene β-pinene that produces satisfactory values.

A satisfactory purification of the α-pinene was reached, a maximum of 92% of α-pinene and 8% of β-pinene and absence of sulphur composites in the distillated. A greater purity can be reached using a bigger distillation column, with more theoretical plates. Was concluded in this work that the refining of the sulphate turpentine components by distillation is viable for the production of terpenes with more aggregate value.

The results of the simulation demonstrate the viability of the analysis of the distillation of sulphate turpentine as being a binary system and the published iteration parameters cited in literature are sufficiently satisfactory.