

Thermophysical Properties of Terpenic Mixtures

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The knowledge of thermophysical properties of oleoresin and essential oil components from the most representative Iberian pine species (*Pinus pinaster* Ait., *Pinus pinea* L.) [1] and aromatic plants (*Hyssopus officinalis* L., *Salvia lavandulifolia* L.) [2] is needed for the efficient design and optimization of chemical processing plants. For instance, heat capacity data of terpenic mixtures, integrating the major essential oil compounds, are extremely scarce but widely required in the vapour-liquid equilibrium and supercritical extraction modeling of natural products from raw materials.[2] This study was a part of a project between Spain and Portugal founded by the Foundation for Science and Technology (FCT) of Portugal. Both research groups, CCMM and the Group of Applied Thermodynamic and Surfaces (GATHERS), began this research line some years ago. A previous work about the density and heat capacity of a-pinene, b-pinene and limonene at atmospheric pressure was already presented in ECTP congress in Pau in 2008 [3]. Here, to continue with this research, we report data on the viscosity at atmospheric pressure and the density at several pressures of terpenic mixtures, in all the mole fraction range and for several temperatures.

[1] Sampaio M. O., Jesús I. C., Nieto de Castro C. A., The 5th Asian Thermophysical Properties Conference (1998), 37-40, Seoul (Korea)

[2] Ribeiro A. F., Langa E., Mainar A. M., Pardo J., Urieta J. S., Journal of Chemical and Engineering Data (2006), 51, 1846-1851

[3] Langa E., Urieta J. S., Palavra, A. M. F., Nieto de Castro, C. A., "Thermophysical Properties of Terpenic Mixtures. Phase I – Terpene Components", Paper presented at 18th ECTP, Pau, France, 31 Aug-4 Sept, 2008