VAPOR-LIQUID EQUILIBRIUM (VLE) AND ACTIVITY COEFFICIENTS AT INFINITE DILUTION (γ∞) OF BINARY SYSTEMS WITH CAPRIC ACID.

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Capric Acid (CA) is a saturated fatty acid. It is part of fatty systems which are involved in the extraction and refining of edible oils. These processes have several stages of separation, in which thermodynamic equilibrium information is essential. VLE for CA+ethanol at 313.15K and 353.15K, and γ∞ for four solutes in CA (313.13K to 353.19K) have been determined. For the VLE measurements, a static apparatus was used. The γ∞ measurements were carried out using the dilutor technique. The highest values of γ∞ were for ethanol (2.190 at 313.13K and 1.773 at 333.14K), followed by acetone (1.575 at 313.2K and 1.533 at 333.22K), cyclohexane (1.471 at 313.13K and 1.342 at 353.19K) and toluene (1.162 at 333.11K). High γ∞ indicates low solubility or no strong interaction between the solute and CA. It was verified that γ∞ decreases with increase of the temperature. The lowest γ∞ for toluene is a consequence of the availability of localized or delocalized π-electrons clouds in benzene structure. It was not possible to obtain reliable VLE data at 353.15K, it was observed the occurrence of chemical reaction during the experiment (evidenced by pressure variation, increased water content and appearance of ethyl ester). The VLE measurement at 313.15K produced reliable results (isothemal with 20 points P vs. xethanol) confirmed by stabilized pressure and the final mixture composition. From VLE data was obtained γ∞ for ethanol in CA (2.297), which agrees with dilutor data. These results allow a more accurate description of the real behavior of fatty systems.