

Excess molar volumes and refractive indices for binary and ternary mixtures of solvent and modifier for extraction of molybdenum(VI) at 298.15 K

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Molybdenum has extensive industrial applications and is regarded as one of the vital strategic metals in modern technology. An outstanding application of this element is in the manufacture of anticathode for X-ray tubes. Due to molybdenum's widespread use this natural resource has become depleted, and, Therefore, the extraction and purification process of Mo is very important. The common used solvent, PC-88A, provides high extent of extraction of metal anions. It is used usually with modifiers, such as alcohol, tributylphosphate(TBP), 1-octanol, 1-decanol. The process design of liquid extraction needs appropriate phase equilibrium data and mixture properties. However, the mixture properties for PC-88A and modifiers are not available in the literature as far as we know. We report the excess molar volumes and deviations in molar refractivity data at 298.15K under atmospheric pressure for the binary systems of PC-88A + TBP, PC-88A + 1-octanol and PC-88A + 1-decanol. Also for ternary systems of PC-88A + TBP + 1-octanol, PC-88A + 1-octanol + 1-decanol, PC-88A + TBP + 1-decanol and TBP + 1-octanol + 1-decanol.