This presentation demonstrates that the Modified Critical Point-based version of the Perturbed-Chain Association Fluid Theory (CP-PC-SAFT) Equation of State attached by universal value of k_{12} = 0.3 is a robust estimator of solubility of metallic mercury in liquid and vapor phases of various hydrocarbons at different temperatures and pressures. This model predicts that in spite of the divergence of phase behavior in the systems under consideration, they exhibit a fundamental regularity, namely the nearly identical ratio between solubility of mercury in saturated vapors and liquids expressed in mol/dm^3 and plotted versus the reduced pressures of various solvents. In other words, according to CP-PC-SAFT, the distribution of metallic mercury between saturated vapors and liquids of different compounds actually displays similar patterns of behavior. This observation can apparently be confirmed by the available limited experimental data.