

Miscibility is often applied to liquids, and the term is meant by the extent of two or more liquids dissolve in each other. A system consisting of phenol and water is one of systems that exhibit partial miscibility. Apart from temperature and pressure factors, the presence of a third component can influence the mutual solubility of the pair of partially miscible liquids. Phase rule is useful for relating the effect of the least number of independent variables like temperature, pressure and concentration upon the various phases (solid, liquid and gaseous) that can exist in an equilibrium system containing a given number of components. Two liquids may be partially miscible if they mix with each other in limited proportions, for example, ether–water and phenol–water. Oil and water are said to be immiscible due to the formation of two layers of liquids after mixing. In general, both liquids become more soluble as the temperature increases until a critical solution temperature is reached. The composition for two layers of liquids in equilibrium state is constant and does not depend on the relative amount of these two phases below the critical solution temperature. Miscibility can be categorized into miscible, partially miscible and immiscible.