

Practical and Philosophical Observations from a Review of Vapor Pressures of Explosives and Related Compounds

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Experimental measurements of the vapor pressures of the pure components of common explosives have been made for over 100 years, yet a data set covering the entire temperature range of interest in current explosives detection applications is by no means available. A recent review of the literature produced examples of key issues in evaluating and extrapolating vapor pressure data. These include the identity of the vapor phase species, proper accounting for phase changes, and the use of the empirical, but often remarkably useful, Antoine correlation expression. Several examples will be discussed, drawn from a set of compounds including trinitrotoluene (TNT), the mono- and dinitrotoluenes, ethylene glycol dinitrate (EGDN), dimethyldinitrobutane (DMNB), nitroglycerin, and ammonium nitrate.