Vapor Pressure Measurement for Regulatory Compliance – The Story of E1719

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Vapor pressure is a fundamental thermodynamic property of a liquid. Vapor pressure and boiling temperature data often must be reported for governmental regulatory compliance. Examples of compliance reporting include: 1) preparation of material safety data sheets (MSDS), 2) estimation of volatile organic compounds (VOC), 3) prediction of the transport of chemicals in the environment, and 4) other reporting listed in the Code of Federal Regulations (CFR). Valid and widely accepted experimental methods for vapor pressure measurement are required for reporting of regulatory compliance data.

Two vapor pressure measurement methods that have been widely used in reporting regulatory compliance data are: isoteniscope total-pressure measurement and measurement of boiling point temperatures by ebulliometry. These methods have been issued as ASTM Test Methods D2879 and E1719. Vapor pressure can also be measured by thermal analysis (DSC and DTA) with lower precision, as described in E1782. Vapor pressures below 1 kPa can be measured by the gas-saturation method, E1194.

The key advantages of E1719 will be discussed in this poster. In addition, the history of vapor pressure measurement for regulatory compliance will be reviewed, and the advantages of using ASTM Test Methods will be highlighted. Finally, the procedures used to prepare and promulgate ASTM Test Methods will be discussed using E1719 as an example.