**Section 215.108 Measurement of Vapor Pressures**

a) Vapor Pressure of Volatile Organic Liquids

1) If the volatile organic liquid consists of only a single compound, the vapor pressure shall be determined by ASTM Method D 2879-86, or the vapor pressure may be obtained from a published source such as "The Vapor Pressure of Pure Substances," "Perry's Chemical Engineer's Handbook," "CRC Handbook of Chemistry and Physics," or "Lange's Handbook of Chemistry," each source incorporated by reference at Section 215.105.

2) If the volatile organic liquid is a mixture, the vapor pressure shall be determined by ASTM Method D 2879-86 or by the following equation:

|  |  |  |  |
| --- | --- | --- | --- |
| Pvol | = | n | PiXi |
| Σ |
| i=1 |

where:

|  |  |  |
| --- | --- | --- |
| Pvol | = | Total vapor pressure of the mixture. |
| n | = | Number of components in the mixture. |
| i | = | Subscript denoting an individual component. |
| Pi | = | Vapor pressure of a component determined in accordance with subsection (a)(1). |
| Xi | = | Mole fraction of the component in the total mixture. |

b) Vapor Pressure of Organic Material or Solvent

1) If the organic material or solvent consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86, or the vapor pressure may be obtained from a published source such as "The Vapor Pressure of Pure Substances," "Perry's Chemical Engineer's Handbook," "CRC Handbook of Chemistry and Physics," or "Lange's Handbook of Chemistry," each source incorporated by reference at Section 215.105.

2) If the organic material or solvent is a mixture made up of both organic material compounds and compounds which are not organic material, the vapor pressure shall be determined by the following equation:

GRAPHIC MATERIAL

See printed copy of IAC for detail

 where:

 Pom = Total vapor pressure of the portion of the mixture which is composed of organic material.

 n = Number of organic material components in the mixture.

 i = Subscript denoting an individual component.

 Pi = Vapor pressure of an organic material component determined in accordance with subsection (b)(1).

 Xi = Mole fraction of the organic material component of the total mixture.

3) If the organic material or solvent is a mixture made up of only organic material compounds, the vapor pressure shall be determined by ASTM Method D2879-86 or by the above equation.

c) Vapor Pressure of Volatile Organic Material

1) If the volatile organic material consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86, or the vapor pressure may be obtained from a published source such as "The Vapor Pressure of Pure Substances," "Perry's Chemical Engineer's Handbook," "CRC Handbook of Chemistry and Physics," or "Lange's Handbook of Chemistry," each source incorporated by reference at Section 215.105.

(2) If the volatile organic material is a mixture made up of both volatile organic material compounds and compounds which are not volatile organic material, the vapor pressure shall be determined by the following equation:

GRAPHIC MATERIAL

See printed copy of IAC for detail

 where:

 Pvom = Total vapor pressure of the portion of the mixture which is composed of volatile organic material.

 n = Number of volatile organic material components in the mixture.

 i = Subscript denoting an individual component.

 Pi = Vapor pressure of a volatile organic material component determined in accordance with subsection (c)(1).

 Xi = Mole fraction of the volatile organic material component of the total mixture.

3) If the volatile organic material is a mixture made up of only volatile organic material compounds, the vapor pressure shall be determined by ASTM D2879-86 or by the above equation.

(Source: Added at 15 Ill. Reg. 8018, effective May 14, 1991)