

Example:

$$p_{\text{abs}} = 99.980 \text{ kPa}$$

$$T_{\text{sat}} = T_{\text{dew}} = 9.5 \text{ }^{\circ}\text{C}$$

Using Eq. 1065.645-1,

$$p_{\text{H}_2\text{O}} = 1.1866 \text{ kPa}$$

Using Eq. 1065.645-3,

$$x_{\text{H}_2\text{O}} = 0.011868 \text{ mol/mol}$$

Using Eq. 1065.640-9,

$$M_{\text{mix}} = 28.83563 \text{ g/mol}$$

$$R = 8.314472 \text{ J}/(\text{mol}\cdot\text{K})$$

$$T_{\text{amb}} = 20 \text{ }^{\circ}\text{C}$$

$$\rho_{\text{air}} = \frac{99.980 \cdot 28.83563}{8.314472 \cdot 293.15}$$

$$\rho_{\text{air}} = 1.18282 \text{ kg/m}^3$$

$$m_{\text{uncorr}} = 100.0000 \text{ mg}$$

$$\rho_{\text{weight}} = 8000 \text{ kg/m}^3$$

$$\rho_{\text{media}} = 920 \text{ kg/m}^3$$