Answer to the Question 64589

I have reference material that consists of 75% total solids and 25% liquid.

How would I calculate the amount of water required to add to the reference material so I get a total solids concentration of 5% (liquid is 95%).

I would like 10 grams of final product

$$W = \frac{m_s * 100\%}{m_s + m_L}$$

$$W_1 = \frac{m_s * 100\%}{m_s + m_L} = 75$$

$$W_2 = \frac{m_s * 100\%}{m_s + m_L + m_{H_2}o} = 5$$

$$m_s + m_L + m_{H_2}o = 10$$

$$m_s = 0.75 * (m_s + m_L)$$

$$m_s = 0.05 * (m_s + m_L + m_{H_2}o)$$

$$0.75 * (m_s + m_L) = 0.05 * (m_s + m_L + m_{H_2}o)$$

$$(m_s + m_L) = \frac{0.05 * (m_s + m_L + m_{H_2}o)}{0.75} = \frac{0.05 * 10}{0.75} = \frac{2}{3}$$

$$m_{H_2}o = (m_s + m_L + m_{H_2}o) - (m_s + m_L) = 10 - \frac{2}{3} = 9\frac{1}{3}\ g$$