The OpenFOAM class for reaction rate called Langmuir-Hinsheldwood provided the reaction rate of a reaction with two reactants and a single active site.
The reaction rate is:

$$r = \frac{K_0}{(a + K_1 c_1{}^{m_1} + K_1 c_2{}^{m_1})^{m_0}} = \frac{K_0}{b^{m_0}} \tag{1}$$

With

$$K_i = A_i \bullet T^{\beta_i} \exp\left(-\frac{T_{a,i}}{T}\right) \tag{2}$$

$$b = a + K_1 c_1{}^{m_1} + K_1 c_2{}^{m_1} \tag{3}$$

Derivative with respect to temperature:

$$\frac{\partial r}{\partial T} = \frac{1}{b^{m_0}}\left(\frac{\partial K_0}{\partial T} - \frac{K_0}{b} m_0 \frac{\partial b}{\partial T}\right) \tag{4}$$

Where:

$$\frac{\partial K_0}{\partial T} = \frac{K_0}{T}\left(\beta_0 + \frac{T_{a,0}}{T}\right) \tag{5}$$

$$\frac{\partial B}{\partial T} = c_1{}^{m_1} \frac{\partial K_1}{\partial T} + c_2{}^{m_2} \frac{\partial K_2}{\partial T} \tag{6}$$

Derivative with respect to molar concentration:

$$\frac{\partial r}{\partial c_i} = -\frac{1}{b^{m_0}} \frac{K_0}{b} m_0 \frac{\partial b}{\partial c_i} \tag{7}$$

Where:

$$\frac{\partial b}{\partial c_i} = \frac{m_i K_i c_i{}^{m_i}}{c_i} \tag{8}$$

So, the derivative with respect to molar concentration is:

$$\frac{\partial r}{\partial [c_i]} = -\frac{K_0}{b^{m_0}} \frac{m_0}{b} \bullet \frac{m_i K_i [c_i]^{m_i}}{[c_i]} = -k \bullet \frac{m_0}{b} \bullet \frac{\partial b}{\partial c_i} \tag{9}$$