

Civil Side 411

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En William Terry

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called 4 Oct 84
and discussed with Jerry.

K is only an adjustable
parameter. No
speculation.

13 Feb 85

called to get permission or acknowledgement
he was out of town.

$$\frac{dC_d}{dt} = \frac{2 \cdot P_{molar} \cdot D_{ab}}{\phi} \left[\frac{C_a}{M_w \rho_{molar}} - K \frac{P''}{P_T} \right] M_w \frac{v}{\rho_{solid}} = R$$

$$\frac{dC_d}{dt} = 0 = h \cdot D_{ab} \cdot \frac{d^2 C_a}{dz^2} - \frac{R}{\epsilon}$$

$$h = \frac{\epsilon}{\tau} \quad \epsilon = \text{void frac} \quad \tau = \text{porosity}$$

$$\frac{dC_d}{dt} = 0 = \frac{\epsilon}{\tau} \cdot D_{ab} \cdot \frac{d^2 C_a}{dz^2} - \frac{R}{\epsilon}$$

or

$$\left[\left(\frac{\epsilon}{\tau} \right) D_{ab} \frac{d^2 C_a}{dz^2} \right] = R$$

Egn 1.

Use only for short periods of time. This is basis for Jurek's model. ^{Comments} _{is differently}

collect toward into
constants α and K'
(Eqn 2)

$$\frac{dC_d}{dt} = \alpha (C_a - K' C_d) = R$$

Now from mass balance studies, we know

that $C_a = K' C_d$ (Eqn 3)

$$\therefore \frac{dC_d}{dt} = \frac{1}{K'} \frac{dC_a}{dt} = R \text{ (Eqn 4)}$$

Substituted into Eqn 1

$$\frac{1}{K'} \frac{dC_a}{dt} = \frac{E^2}{\gamma} D_{ab} \frac{d^2 C_a}{dz^2}$$

or

$$\frac{dC_a}{dt} = \frac{E^2}{\gamma} D_{ab} K' \frac{d^2 C_a}{dz^2}$$

but we know that over the short

term $\frac{dC_a}{dt} = 0$

$$\frac{d\mathcal{L}}{d\mathbf{p}} = \mathbf{J}(\mathcal{L} - \mathbf{K}'\mathbf{G}) = \mathbf{R}$$

$$\frac{d\epsilon_a}{dt} = h Dab - \frac{\sqrt{\epsilon_a}}{\sqrt{\epsilon}^2} - \frac{P}{E}$$

$$\frac{dC_2}{dt} = k_1 D a b - \frac{dC_2}{dt} \frac{dC_2}{dt}$$

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$$\frac{d}{dt} [E_{Ca} + E_d] = E_h D_{AB} \frac{d^2 C_a}{dz^2}$$

Alibi

$$p_j = \frac{1}{k} \log \frac{1}{p_j} = -\log p_j$$

And. Titto.

$$\frac{d^2 \psi}{d\tau^2} = \psi \quad \psi = e^{\pm \tau}$$

$$\frac{d}{dt} \left[ca \left(\epsilon + \frac{1}{K} \right) \right] = \epsilon h Dab \frac{\sqrt{ca}}{\sqrt{Z}^2}$$

or

$$\frac{dca}{dt}$$

$$= \frac{\epsilon h Dab}{\epsilon + \frac{1}{K}}$$

$$= \frac{\sqrt{ca}}{\sqrt{Z}^2}$$

$$\frac{\epsilon h Dab}{\epsilon + \frac{1}{K}}$$

$$\frac{\sqrt{ca}}{\sqrt{Z}^2}$$