

Boundary	Condition	
$z = 0$	Known concentration	(1) $PO_4(0) = PO_{40}$
$z = z_{\text{bio}}$	Continuity	(2) $PO_4(z_{\text{bio}}^-) = PO_4(z_{\text{bio}}^+)$
	Flux	(3) $(D_{PO_4,0} + D_{\text{bio}}) \cdot \frac{\partial PO_4}{\partial z} \Big _{z_{\text{bio}}^-} = D_{PO_4,0} \cdot \frac{\partial PO_4}{\partial z} \Big _{z_{\text{bio}}^+}$
$z = z_{\text{ox}}$	Continuity	(4) $PO_4(z_{\text{ox}}^-) = PO_4(z_{\text{ox}}^+)$
	Flux	(5) $-\frac{D_{PO_4}}{1 + K_{PO_4}^{\text{ox}}} \cdot \frac{\partial PO_4}{\partial z} \Big _{z_{\text{ox}}^-} = -\frac{D_{PO_4}}{1 + K_{PO_4}^{\text{anox}}} \cdot \frac{\partial PO_4}{\partial z} \Big _{z_{\text{ox}}^+}$
$z = z_{\text{max}}$	Flux	(10) $\frac{\partial PO_4}{\partial z} \Big _{z_{\text{max}}} = 0$
$z = 0$	Known concentration	(1) $FeP(0) = FeP_0$
$z = z_{\text{bio}}$	Continuity	(2) $FeP(z_{\text{bio}}^-) = FeP(z_{\text{bio}}^+)$
	Flux	(3) $\frac{\partial FeP}{\partial z} \Big _{z_{\text{bio}}^-} = \frac{\partial FeP}{\partial z} \Big _{z_{\text{bio}}^+}$
$z = z_{\text{ox}}$	Continuity	(4) $FeP(z_{\text{ox}}^-) = FeP(z_{\text{ox}}^+)$
	Flux	(5) $\frac{\partial FeP}{\partial z} \Big _{z_{\text{ox}}^-} = \frac{\partial FeP}{\partial z} \Big _{z_{\text{ox}}^+}$
$z = z_{\text{max}}$	Asymptotic concentration	(10) $FeP(z_{\text{max}}) = FeP^\infty$