| Condition | Acceptor | Equation | Process | Products |
|---|---|---|---|---|
| **Oxic** | $O_2$ | $138O_2 + (CH_2O)_{106}(NH_3)_{16}(H_3PO_4) \rightarrow 106CO_2 + 16HNO_3 + H_3PO_4 + 122H_2O$ | Aerobic respiration | $CO_2$ $H_2O$ |
| **Hypoxic** | $NO_3$ | $94.4HNO_3 + (CH_2O)_{106}(NH_3)_{16}(H_3PO_4) \rightarrow 106CO_2 + 55.2N_2 + H_3PO_4 + 177.2H_2O$ | Denitrification | $N_2$ |
| **Hypoxic** | Mn (IV) | $236MnO_2 + (CH_2O)_{106}(NH_3)_{16}(H_3PO_4) + 472H^+ \rightarrow 106CO_2 + 8N_2 + 236Mn^{2+} + H_3PO_4 + 336H_2O$ | Mn reduction | Mn (II) |
| **Hypoxic** | Fe (III) | $53SO_4^{2-} + (CH_2O)_{106}(NH_3)_{16}(H_3PO_4) \rightarrow 106CO_2 + 53S^{2-} + 16NH_3 + H_3PO_4 + 106H_2O$ | Fe reduction | Fe (II) |
| **Anoxic** | $SO_4^{2-}$ | $53SO_4^{2-} + (CH_2O)_{106}(NH_3)_{16}(H_3PO_4) \rightarrow 106CO_2 + 53S^{2-} + 16NH_3 + H_3PO_4 + 106H_2O$ | Sulphate reduction | $H_2S$ |
| **Anoxic** | - | $(CH_2O)_{106}(NH_3)_{16}(H_3PO_4) \rightarrow 53CO_2 + 53CH_4 + 16NH_3 + H_3PO_4$ | Methanogenesis | $CH_4$ |