

TABLE X. Rate Expression for the Manganese-Catalyzed Oxidation

Expression <sup>a,b,c</sup>	pH	Investigators
$\frac{d[\text{SO}_4^{2-}]}{dt} = 44 [\text{Mn(II)}]^{1.7} [\text{S(IV)}]^0 [\text{H}^+]^0$	3,4	Adapted from Hoather Good-eve (1934)
$\frac{d[\text{SO}_4^{2-}]}{dt} = 1.7 \times 10^{-5} [\text{Mn(II)}] [\text{S(IV)}] [\text{H}^+]_0^{-1}$	2.2	Adapted from Neytzell-de Wilde and Traverner (1958)
$\frac{d[\text{SO}_4^{2-}]}{dt} = 8[\text{Mn(II)}]^2 [\text{S(IV)}]^0$	3-4	Adapted from Coughanowr and Krause (1965); dependence on pH not reported

<sup>a</sup>The units are: liter, mole, second.

<sup>b</sup>Concentrations shown with zero power (e.g.,  $[\text{S(IV)}]^0$ ) indicate that the investigators found the rate to be independent of those species. Note that any concentration to the zero power is equal to unity.

<sup>c</sup>The term  $[\text{H}^+]_0^{-1}$  indicates that the rate is dependent only on the inverse of the initial  $\text{H}^+$  ion concentration; changes in  $\text{H}^+$  concentration after the reaction is in progress do not affect the rate.