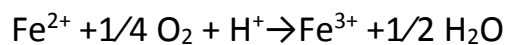# Answer on Question #55004 – Chemistry – Other

Task:

If Fe^{2+} spontaneously oxidized by the oxygen of the air in acidic solution? Calculate ΔG and K.

Solution:

$Fe^{2+} + 1/4\ O_2 + H^+ \rightarrow Fe^{3+} + 1/2\ H_2O$

ΔG°=-84.88 kJ/mol

ΔG° = −RT ln K

lnK= ΔG°/−RT

R=0.008144621 kJK^{-1}·mol^{-1}

lnK=-84.88/(-0.008144621 ·298)=34.93

K=1.5·10^{15}

Answer: ΔG°=-84.88 kJ/mol, K=1.5·10^{15}