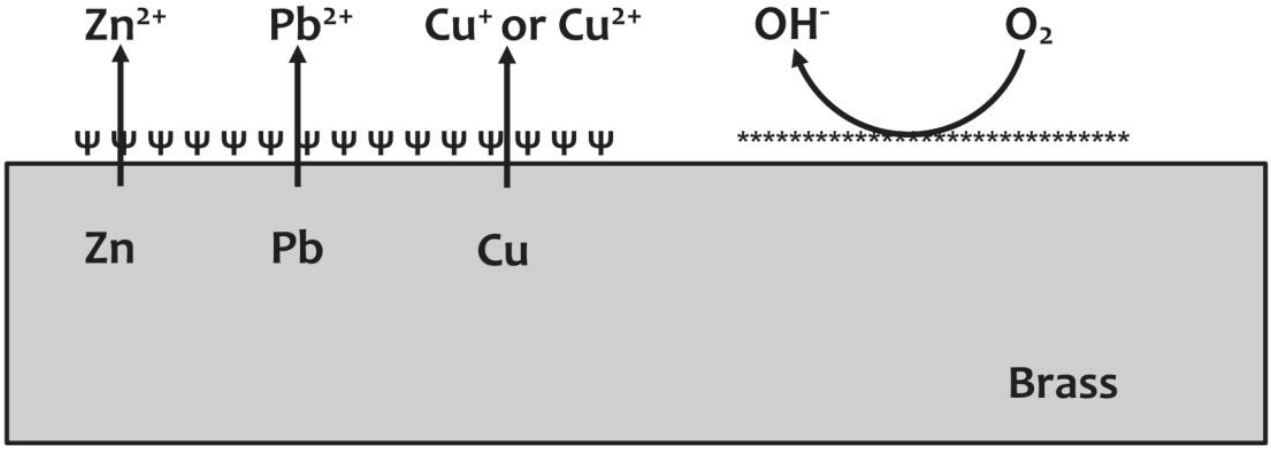
The corrosion of brass plumbing fixtures has been identified as a possible cause of the presence of lead in drinking water. Brass is an alloy of copper and zinc but can also contain lead to improve machinability.

The corrosion of brass is a redox process, with an electrochemical cell forming on the surface of the brass as illustrated below.



6. The overall equation for the reaction of lead with oxygen is as follows:

$$2\ Pb(s) + O_2(g) + 2\ H_2O(\ell) \rightarrow 2\ Pb(OH)_2(s)$$

What is the theoretical E^0 value for the overall Pb/O_2 reaction under standard conditions?

(a) − 0.27 V
(b) + 0.27 V
(c) + 0.53 V
(d) + 0.93 V