With respect to the beverage container described in today’s problem, it has been suggested that the rate of loss will be significantly less if a coating is applied to the interior surface of the bottle. The proposed coating has the following characteristics:

\[
\begin{align*}
L &= 25 \text{ µm} \\
D &= 10^{-9} \text{ m}^2/\text{s} \\
S_{\text{coating/plastic}} &= 0.1
\end{align*}
\]

1. Do you recommend that the coating be adapted? Why?

2. Sketch the new concentration profile on the figure below.

\[
\begin{array}{c|c|c}
\text{Beer} & \text{Coating} & \text{Plastic} \\
\hline
C &= 0.25 \text{ moles/L} \\
\hline
\text{Air} & C &= 20 \times 10^{-6} \text{ moles/L} \\
\hline
& C &= 0
\end{array}
\]