

Problem 2.

Brass weights are used to weigh an aluminum-made sample on an analytical balance. The weighing is done in dry air and another time in humid air with the water vapor pressure $P_h = 2 \cdot 10^3$ Pa. The total atmospheric pressure ($P = 10^5$ Pa) and the temperature ($t = 20^\circ$ C) are the same in both cases.

What should the mass of the sample be to be able to tell the difference in the balance readings provided their sensitivity is $m_0 = 0.1$ mg ?

Aluminum density $\rho_1 = 2700$ kg/m³, brass density $\rho_2 = 8500$ kg/m³.