

79. We consider the can with nearly its total volume submerged, and just the rim above water. For calculation purposes, we take its submerged volume to be  $V = 1200 \text{ cm}^3$ . To float, the total downward force of gravity (acting on the tin mass  $m_t$  and the lead mass  $m_\ell$ ) must be equal to the buoyant force upward:

$$(m_t + m_\ell)g = \rho_w Vg \implies m_\ell = (1 \text{ g/cm}^3)(1200 \text{ cm}^3) - 130 \text{ g}$$

which yields 1070 g for the (maximum) mass of the lead (for which the can still floats). The given density of lead is not used in the solution.