

72. We denote the total mass M and the melted mass m . The problem tells us that $\text{Work}/M = p/\rho$, and that all the work is assumed to contribute to the phase change $Q = Lm$ where $L = 150 \times 10^3 \text{ J/kg}$. Thus,

$$\frac{p}{\rho} M = Lm \implies m = \frac{5.5 \times 10^6}{1200} \frac{M}{150 \times 10^3}$$

which yields $m = 0.0306M$. Dividing this by 0.30M (the mass of the fats, which we are told is equal to 30% of the total mass), leads to a percentage $0.0306/0.30 = 10\%$.