

447. Kolika je količinska koncentracija (mol/dm^3) koncentrovane sumporne kiseline kod koje je maseni udeo $\omega=0,98$ a gustina $1,84\text{g/cm}^3$. (S-32)

$$Mr(H_2SO_4) = 98$$

$$M(H_2SO_4) = 98 \frac{\text{g}}{\text{mol}}$$

$$\omega = 0.98 = 98\%$$

$$98\text{g}(H_2SO_4) \rightarrow 100\text{g}(\text{rastvora})$$

$$m(\text{rastvora}) = 100\text{g}$$

$$\rho(\text{rastvora}) = 1.84 \frac{\text{g}}{\text{cm}^3}$$

$$\rho(\text{rastvora}) = \frac{m(\text{rastvora})}{V(\text{rastvora})}$$

$$V(\text{rastvora}) = \frac{m(\text{rastvora})}{\rho(\text{rastvora})}$$

$$V(\text{rastvora}) = 54.35\text{cm}^3$$

$$V(\text{rastvora}) = 0.054\text{dm}^3$$

$$m(H_2SO_4) = 98\text{g}$$

$$M(H_2SO_4) = 98 \frac{\text{g}}{\text{mol}}$$

$$n = \frac{m}{M}$$

$$n = 1.0\text{mol}$$

$$c = \frac{n}{V}$$

$$c = \frac{1.0\text{mol}}{0.054\text{dm}^3}$$

$$c = 18.5 \frac{\text{mol}}{\text{dm}^3}$$
