

**Task:**

how much  $\text{NaNO}_3$  must be weighed out to make  $50 \text{ cm}^3$  of an aqueous solution containing  $70 \text{ mgNa}^+$  per  $\text{cm}^3$

**Solution:**

There must be  $70 \text{ mg Na}$  in  $1 \text{ cm}^3$ . In  $50 \text{ cm}^3$  there will be

$$m(\text{Na}) = 70 \cdot 50 = 3500 \text{ mg} = 3.5 \text{ g}$$

The number of moles of  $\text{Na}$  in  $3.5 \text{ g}$  is

$$n(\text{Na}) = m(\text{Na}) / \text{MW}(\text{Na}) = 3.5 / 23 = 0.15 \text{ mol}$$

The number of moles of  $\text{NaNO}_3$  is equal to the number of moles of  $\text{Na}$

The mass of  $\text{NaNO}_3$  is

$$m(\text{NaNO}_3) = n(\text{NaNO}_3) \cdot \text{MW}(\text{NaNO}_3) = 0.15 \cdot 85 = 12.8 \text{ g}$$

**Answer:**  $m(\text{NaNO}_3) = 12.8 \text{ g}$