

41a.  $\text{NH}_4$

$$\begin{array}{|l|l|l|} \hline 1.00 \text{ g NH}_4 & 1 \text{ mol NH}_4 & 6.02 \times 10^{23} \text{ atoms N}_2 + 14 \\ \hline & 18 \text{ g NH}_4 & 1 \text{ mol N}_2 + 14 \\ \hline \end{array}$$

$$= 3.44 \times 10^{22} \text{ molecules}$$

41b.  $N_2H_4$

$$\frac{1.00 \text{ g } N_2H_4}{32.0 \text{ g } N_2H_4} \times \frac{1 \text{ mol } N_2H_4}{1 \text{ mol } N_2H_4} \times \frac{6.02 \times 10^{23} \text{ atoms } N_2H_4}{1 \text{ mol } N_2H_4}$$

$$= 1.88 \times 10^{22} \text{ molecules}$$

4/c.  $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$

$$\frac{1.00\text{g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7}{252\text{g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7} \times \frac{1\text{ mol } (\text{NH}_4)_2\text{Cr}_2\text{O}_7}{1\text{ mol } (\text{NH}_4)_2\text{Cr}_2\text{O}_7} \times \frac{6.02 \times 10^{23}\text{ atoms}}{1\text{ mol } (\text{NH}_4)_2\text{Cr}_2\text{O}_7}$$

$$= 2.39 \times 10^{21} \text{ formula units}$$