

(4)

$$\begin{aligned} \text{Murex } 0.002 \mu\text{g/g} \\ \text{same as } \frac{0.002 \text{ mg}}{\text{kg}} \approx 0.002 \text{ ppm} \\ 0.002 \text{ ppm} \approx 0.002 \times 10^3 \text{ ppb} = 2.0 \text{ ppb} \end{aligned}$$

For air

(5)

$$\begin{aligned} \frac{\mu\text{g}}{\text{m}^3} &= \text{ppm} \times \text{MW} \times 1000 \frac{\text{P}}{\text{RT}} \quad \text{at } 20^\circ\text{C} \quad \text{RT} \\ &= 0.7 \times 30 \times 1600 \times \frac{1}{24.2} = 0.86 \mu\text{g}/\text{m}^3 = 24.2 \frac{\text{L atm}}{\text{mole}} \\ \therefore \mu\text{g} &= 800 \text{ m}^3 \times 0.86 = 687 \mu\text{g} \end{aligned}$$

(6)

$$\frac{10^{-5} \text{ g toxaphene}}{160 \text{ g soil}} = \frac{10^{-5} \text{ g} \times 10^3 \frac{\text{mg}}{\text{g}} \times 10^3 \frac{\mu\text{g}}{\text{mg}}}{100 \text{ g} \cdot \frac{\text{kg}}{1000 \text{g}}}$$

$$= 160 \frac{\mu\text{g}}{\text{kg}} = 160 \text{ ppb} > 60 \text{ ppb} \\ \text{will pose threat}$$

(7)

$$\text{Lead } 9.5 \mu\text{g/L} \quad \text{MW} = 207$$

$$\therefore \frac{9.5 \mu\text{g}}{\text{L}} \times \frac{\mu\text{mole}}{207 \mu\text{g}} \times 10^3 \frac{\text{nmole}}{\mu\text{mole}}$$

$$= 46 \text{ nmole/L}$$

8. $\frac{5 \text{ mg}}{\text{kg}}$ in soil \approx 5 ppm

⑨ 4 MEI \rightarrow $\frac{200 \mu\text{g}}{\text{bottle}} \times \frac{10 \text{ bottles}}{\text{day}} \times \frac{365 \text{ days}}{\text{year}} \times \frac{\text{mg}}{1000 \mu\text{g}}$
dose ingested \uparrow

divide dose by 65 kg

$= 11.23 \text{ mg/kg}$ per year
 $< 360 \text{ limit}$

