

# Mass of a Mole

- ① 20 beans → (Avg) Mass of 1 bean.
- ② Mass of 100 beans? →  $(\text{mass, 1 bean}) \times 100$   
 $(\text{mass of 20}) \times 5$   
 Calculate # → g mass 100 beans.  
 Count beans until scale reads) how close
- ③ Calc Mass of a mole of beans in g, Pounds, tons

## Red Bean

100 red beans = 34.3g

1 bean = 0.343g

1 mole red beans =  $(6.023 \times 10^{23})(0.343)$

→  $2.066 \times 10^{23}$  g

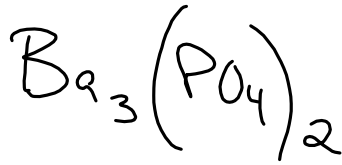
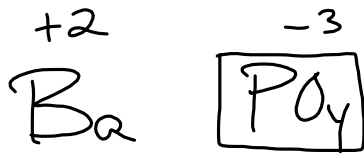
$$\frac{2.066 \times 10^{23} \text{ g}}{453.59 \text{ g}} = 4.555 \times 10^{20} \text{ pounds} \times \frac{1 \text{ ton}}{2000 \text{ pounds}}$$

$2.277 \times 10^{17}$  tons

227,000,000,000,000,000. tons  
 0 x b 4 x 1

mw Barium phosphate

P2 (4)



$$= \frac{601 \text{ g Ba}_3(\text{PO}_4)_2}{\text{mole}}$$

$$\begin{aligned}
 3\text{Ba} &= 3(137) \\
 2\text{P} &= 2(31) \\
 8\text{O} &= 8(16)
 \end{aligned}$$



Magnesium Sulfate      hepta hydrate

$$\begin{aligned}
 5 \text{ Mg} &= 5(24) \\
 5 \text{ S} &= 5(32) \\
 20 \text{ O} &= 20(16) = 320 \\
 14 \text{ H} &= 14(1) \\
 7 \text{ O} &= 7(16) = 112
 \end{aligned}$$

} 432

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726 g/mole

hydrate  
 $\% \text{O} = \frac{432}{726} \times 100$

- mono 1
- di 2
- tri 3
- tetra 4
- Penta 5
- hexa 6
- hepta 7
- octa 8
- nona 9
- deca 10

% Composition

$H_2O$   
 $2(1) + 16$   
 $2 + 16$   
 $18 \text{ g/mole}$

% O in  $H_2O$

$\% = \frac{\text{Part}}{\text{Whole}} \times 100$   
 ↳ parts per hundred  
 PPB

$PPB = \frac{\text{Part}}{\text{Whole}} \times 1 \text{ billion} =$

$\% O \text{ in } H_2O = \frac{16}{18} \times 100 = 88.89\%$

Find % H in Sodium Hydrogen Carbonate.

$Na^+ [HCO_3]^-$

$Na HCO_3$   
 $23 + 1 + 12 + 3(16) = 84$

$\% H = \frac{1}{84} \times 100 = 1.19\%$

$$P // + 12 \quad \# \quad 6 \rightarrow 12$$

SHOW ALL WORK