

Combustion

$$C_x H_y + O_2 \rightarrow CO_2 + H_2O$$

Moles "C" →  $C_x H_y$  →  $CO_2$

$10g O_2$	$1 \text{ mole } O_2$	$1 \text{ mole } C$
$44g O_2$	$1 \text{ mole } O_2$	$1 \text{ mole } C$

Moles "H" →  $C_x H_y$  →  $H_2O$

$10g H_2O$	$1 \text{ mole } H_2O$	$2 \text{ mole } H$
$18g H_2O$	$1 \text{ mole } H_2O$	$1 \text{ mole } H_2$

—  $\text{Mole } H!$

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$C H_4$       $16g / \text{mole}$      empirical

$C_4 H_{16}$ 
 $\xrightarrow{\times 4}$ 
 $64g / \text{mole}$      Molecular

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Neutralize, titrate

$$n_A \times M_A \times l_A = n_B \times M_B \times l_B$$

$$\text{# H's} \rightarrow n_A \times (M_A \times l_A) = \text{# OH's} \rightarrow n_B \times (M_B \times l_B)$$

Acids:

- $\text{HCl}$  ( $n=1$ )
- $\text{H}_2\text{SO}_4$  ( $n=2$ )
- $\text{H}_3\text{PO}_4$  ( $n=3$ )

Bases:

- $\text{NaOH}$  ( $n=1$ )
- $\text{Ca(OH)}_2$  ( $n=2$ )

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~~Density =  $\frac{\text{Mass}}{\text{Volume}}$~~

Density:  $\frac{5.5 \text{ g}}{\text{ml}}$

have 30g mass

\_\_\_\_\_ volume in ml

1 ml	30g
5.5g	= 5.45 ml

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Density =  $\frac{239g}{ml}$  , 10 g sample \_\_\_\_\_ ml

$\frac{10g}{2.39g/ml} = 4.184 ml$

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$D = \frac{2.39g}{ml}$  , ? mass 100ml

$\frac{2.39g}{ml} \times 100ml = 239g$

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$2A + B \rightarrow 4C$

5g      10g      8g

Used up

Smallest  
2g C

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Naming Acids

① H + element  
hydro — -ic acid

② H + Polyatomic ion. Ate-ic, ite-ous.

$\text{HNO}_3$	}	$\text{HNO}_2$
nitrate		nitrite
Nitric Acid		Nitrous acid

  

$\text{SO}_4^{-2}$	,	$\text{SO}_3^{-2}$
Sulfate		Sulfite

  

$\text{PO}_4^{-3}$	,	$\text{PO}_3^{-3}$
Phosphate		phosphite

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