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Determination of Equivalent Mass Formulas

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List of 10 Determination of Equivalent Mass Formulas

Determination of Equivalent Mass

1) Determination of Equivalent Mass of Acid using Neutralization Method

Open Calculator

fx $$\mathrm{E.M_{acid}} = \frac{\mathrm{W_a}}{\mathrm{V_{base}} \cdot \mathrm{N_b}}$$

ex $$0.44\mathrm{g} = \frac{0.33\mathrm{g}}{1.5\mathrm{L} \cdot 0.5\mathrm{Eq/L}}$$

2) Determination of Equivalent Mass of Base using Neutralisation Method

Open Calculator

fx $$\mathrm{E.M_{base}} = \frac{\mathrm{W_b}}{\mathrm{V_{acid}} \cdot \mathrm{N_a}}$$

ex $$1.6\mathrm{g} = \frac{0.32\mathrm{g}}{2\mathrm{L} \cdot 0.1\mathrm{Eq/L}}$$

3) Determination of Equivalent Mass of Metal added using Metal Displacement Method

Open Calculator

$$E_1 = \left(\frac{W_1}{W_2}\right) \cdot E_2$$

$$5.485964\text{g} = \left(\frac{0.336\text{g}}{0.55\text{g}}\right) \cdot 8.98\text{g}$$

4) Determination of Equivalent Mass of Metal Displaced using Metal Displacement Method

Open Calculator

$$E_2 = \left(\frac{W_2}{W_1}\right) \cdot E_1$$

$$8.970238\text{g} = \left(\frac{0.55\text{g}}{0.336\text{g}}\right) \cdot 5.48\text{g}$$

5) Determination of Equivalent Mass of Metal using Chloride Formation Method

Open Calculator

$$E.M_{Metal} = \left(\frac{W}{M_{reacted}}\right) \cdot E.M_{Cl}$$

$$3.099206\text{g} = \left(\frac{0.033\text{g}}{0.378\text{g}}\right) \cdot 35.5\text{g}$$

6) Determination of Equivalent Mass of Metal using Oxide formation Method

Open Calculator

fx $$\mathrm{E.M_{Metal}} = \left(\frac{\mathrm{W}}{\mathrm{M}}\right) \cdot \mathrm{E.M_{Oxygen}}$$

ex $$3.105882\mathrm{g} = \left(\frac{0.033\mathrm{g}}{0.085\mathrm{g}}\right) \cdot 8\mathrm{g}$$

7) Determination of Equivalent Mass of Metal using Oxide formation Method given vol. of Oxygen at STP

Open Calculator

fx $$\mathrm{E.M_{Metal}} = \left(\frac{\mathrm{W}}{\mathrm{V_{displaced}}}\right) \cdot \mathrm{V_{Oxygen}}$$

ex $$3.3\mathrm{g} = \left(\frac{0.033\mathrm{g}}{56\mathrm{mL}}\right) \cdot 5600\mathrm{mL}$$

8) Determination of Eqv. Mass of Metal using Chloride Formation Method given vol. of Cl at STP

Open Calculator

fx $$\mathrm{E.M_{Metal}} = \left(\frac{\mathrm{W}}{\mathrm{V_{reacted}}}\right) \cdot \mathrm{V_{Chlorine}}$$

ex $$3.299705\mathrm{g} = \left(\frac{0.033\mathrm{g}}{112.01\mathrm{mL}}\right) \cdot 11200\mathrm{mL}$$

9) Determination of Eqv. Mass of Metal using H2 Displacement Method given vol. of H2 displaced at STP

Open Calculator

fx $$\mathrm{E.M_{Metal}} = \left(\frac{\mathrm{W}}{\mathrm{V}}\right) \cdot \mathrm{V_{E.M}}$$

ex $$3.3\mathrm{g} = \left(\frac{0.033\mathrm{g}}{112\mathrm{mL}}\right) \cdot 11200\mathrm{mL}$$

10) Equivalent Mass of Metal using Hydrogen Displacement Method

Open Calculator

fx $$\mathrm{E.M_{Metal}} = \left(\frac{\mathrm{W}}{\mathrm{M_{displaced}}}\right) \cdot \mathrm{E.M_{Hydrogen}}$$

ex $$3.108785\mathrm{g} = \left(\frac{0.033\mathrm{g}}{0.0107\mathrm{g}}\right) \cdot 1.008\mathrm{g}$$

Variables Used

- E_1 Equivalent Mass of Metal added *(Gram)*
- E_2 Equivalent Mass of Metal displaced *(Gram)*
- $E.M_{acid}$ Equivalent mass of acids *(Gram)*
- $E.M_{base}$ Equivalent mass of bases *(Gram)*
- $E.M_{Cl}$ Equivalent Mass of Chlorine *(Gram)*
- $E.M_{Hydrogen}$ Equivalent Mass of Hydrogen *(Gram)*
- $E.M_{Metal}$ Equivalent Mass of Metal *(Gram)*
- $E.M_{Oxygen}$ Equivalent Mass of Oxygen *(Gram)*
- M Mass of Oxygen displaced *(Gram)*
- $M_{displaced}$ Mass of Hydrogen Displaced *(Gram)*
- $M_{reacted}$ Mass of Chlorine reacted *(Gram)*
- N_a Normality of acid used *(Equivalents per Liter)*
- N_b Normality of base used *(Equivalents per Liter)*
- V Vol. of hydrogen displaced at STP *(Milliliter)*
- V_{acid} Vol. of acid required for neutralisation *(Liter)*
- V_{base} Vol. of base required for neutralisation *(Liter)*
- $V_{Chlorine}$ Vol. of Chlorine reacts with eqv. mass of metal *(Milliliter)*
- $V_{displaced}$ Vol. of Oxygen displaced *(Milliliter)*
- $V_{E.M}$ Vol. of Hydrogen displaced at NTP *(Milliliter)*
- V_{Oxygen} Vol. of oxygen combined at STP *(Milliliter)*
- $V_{reacted}$ Vol. of Chlorine reacted *(Milliliter)*

- **W** Mass of Metal *(Gram)*
- W_1 Mass of Metal added *(Gram)*
- W_2 Mass of Metal displaced *(Gram)*
- W_a Weight of acid *(Gram)*
- W_b Weight of bases *(Gram)*

Constants, Functions, Measurements used

- Measurement: **Weight** in Gram (g)
  Weight Unit Conversion
- Measurement: **Volume** in Liter (L), Milliliter (mL)
  Volume Unit Conversion
- Measurement: **Molar Concentration** in Equivalents per Liter (Eq/L)
  Molar Concentration Unit Conversion

Check other formula lists

- **Determination of Equivalent Mass Formulas**
- **Important Formulas of Basic Chemistry**

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