title

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Chapter 1

Introduction

Chapter 2

Demos

2.1 Chemical formulae

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\begin{split} & \text{H}_2\text{O}, \text{Sb}_2\text{O}_3 \\ & \text{H}^+, \text{CrO}_4^{2^-}, [\text{AgCl}_2]^-, \text{Y}^99^+, \text{Y}^{99+} \\ & \text{Fe}^{\text{II}}\text{Fe}^{\text{III}}\text{2O}_4, 2\,\text{H}_2\text{O}, 2\,\text{H}_2\text{O}, 0.5\,\text{H}_2\text{O}, \frac{1}{2}\,\text{H}_2\text{O}, (_{1/2})\text{H}_2\text{O} \ , n\,\text{H}_2\text{O} \\ & ^{227}\text{Th}^+, \, ^227\,_{9}0\,\text{Th}^+, \, _{1}^{0}\text{n}^-, \, _{1}^{0}1\,\text{n}^- \\ & \text{H}^3\text{HO}, \, \text{H}^3\text{HO} \\ & (\text{NH}_4)_2\text{S}, \, [\{(\text{X}_2)_3\}_2]^{3+} \\ & \text{H}_2(\text{aq}), \, \text{CO}_3^2-_{(\text{aq})}, \, \text{NaOH}(\text{aq},\infty) \\ & \text{OCO}^{\, \, -}, \, \text{NO}^{(2\, \, \cdot \, )-} \\ & \text{NO}_x, \, \text{`sffamily\bfseries\ce{NO}_x}, \, \text{Fe}^{\text{n}+}, \, \text{`sffamily\bfseries\ce{Fe}^n+} \\ & \text{`ce{\mu-Cl}}, \, \, \text{`ce{[Pt(\eta^2-\text{C2H4})\,\text{Cl3]}-} \\ & \text{KCr}(\text{SO}_4)_2 \cdot 12\,\text{H}_2\text{O}, \, \text{KCr}(\text{SO}_4)_{2.12}\text{H}_2\text{O}, \, \text{KCr}(\text{SO}_4)_2 * 12\,\text{H}_2\text{O} \\ & \text{C}_6\text{H}_5-\text{CHO}, \, \text{A}-\text{B}=\text{C}\equiv\text{D}, \, \text{`sffamily\bfseries\ce{A}-B=C\#D}} \\ & \text{A}-\text{B}=\text{C}\equiv\text{D}, \, \text{A}-\text{B}=\text{C}, \, \text{A}\equiv\text{B}\equiv\text{C}\equiv\text{D}, \, \text{A}-\text{B}-\text{C}} \end{split}
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2.2 Chemical equations

 $\mathbf{A} \longrightarrow \mathbf{B}$

 $\mathbf{A} \longleftarrow \mathbf{B}$

 $\mathbf{A} \longleftrightarrow \mathbf{B}$

$$\mathbf{A} \longleftarrow -> \mathbf{B}$$

$$A \rightleftharpoons B$$

$$A \longrightarrow B$$

$$A \stackrel{\rightharpoonup}{\longleftarrow} B$$

$$\mathbf{A} \xrightarrow{\mathbf{H}_2\mathbf{O}} \mathbf{B}$$

$$\mathbf{A} \xrightarrow{textabove} \mathbf{B}$$

$$\mathbf{A} \xrightarrow[x_i]{x} \mathbf{B}$$

$$A \xrightarrow{x} B$$

$$A + B$$

$$A-B$$

$$A = B$$

$$A \pm B$$

$$SO_4^{2-} + Ba^{2+} \longrightarrow BaSO_4 \downarrow$$

$$A \downarrow B \downarrow \longrightarrow B \uparrow B \uparrow$$

$$CH_4 + 2 \left(O_2 + \frac{79}{2} N_2\right)$$

$$xNa(NH_4)HPO_4 \xrightarrow{\Delta} (NaPO_3)_x + xNH_3 \uparrow + xH_2O$$

$$\mathrm{CO}_2 + \mathrm{C} \longrightarrow 2\,\mathrm{CO}$$

$$\mathrm{Hg}^{2+} \xrightarrow{I-} \mathrm{HgI}_2 \xrightarrow{I-} \left[\mathrm{Hg}^{\mathrm{II}}\mathrm{I}_4\right]^{2-}$$

$$\operatorname{Zn}^{2+} \xrightarrow{+2\operatorname{OH}^{-}} \operatorname{Zn}(\operatorname{OH})_{2} \downarrow \xrightarrow{+2\operatorname{OH}^{-}} \left[\operatorname{Zn}(\operatorname{OH})_{4}\right]^{2-}$$

$$K = \frac{[{\rm Hg}^{2+}][{\rm Hg}]}{[{\rm Hg}_2^{2+}]}$$

$$K = \frac{[Hg^2 +][Hg]}{[Hg2^2 +]}$$

2.3 Structural formulae

$$\begin{array}{c} \text{CH}_3 \\ \text{H}_3\text{C} \\ \text{H} \end{array}$$

$$O$$
 CH_3
 CH_3
 CH_3

$$O = C \xrightarrow{F} Cl \xrightarrow{C} Cl \xrightarrow{F} Cl \xrightarrow{O} Cl \xrightarrow{O} Cl$$

$$Cl \xrightarrow{F} Cl \xrightarrow{O} Cl \xrightarrow{C} Cl \xrightarrow{O} Cl$$

$$Cl \xrightarrow{O} Cl \xrightarrow{O} Cl$$

$$Cl \xrightarrow{O} Cl \xrightarrow{C} Cl$$

$$Cl \xrightarrow{O} Cl$$

$$Cl \xrightarrow{O$$

$$F$$
 $C = C$
 H
 H
 H_3C
 C
 CH_3