

5.2 Balancing Chemical Equations

Balancing Chemical Equations by Inspection

1. Write the chemical formula for each reactant and product, including the state of matter for each one.
2. Try balancing any atom that is not in a polyatomic ion and is not oxygen or hydrogen.
3. If possible, balance polyatomic ions as a group.
4. Balance the remaining atoms and molecules, taking into account the oxygen and hydrogen atoms and water; leave until last any elements such as H_2 or O_2 .
5. Check the final reaction equation to ensure that there is the same number of each type of atom before and after the reactions.

Mole Ratios in Balanced Chemical Equations

- In a balanced chemical equation the coefficients can be used to determine the mole ratio of reactants and products.
- See example on page 212 of the Haber process.

How Much Is Too Much?

- Sometimes we need to supply excess amounts of reactants to ensure that the chemical reaction goes to completion.
- Sometimes a little extra is not good...e.g. fertilizer

Homework

- Practice Questions: 1,2,3,4,5,6,7,8,9,10
- Section Questions: 1,2,3