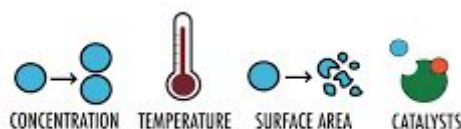


CHAPTER 6.2 - Factors Affecting the Rate of Chemical Reactions

We have learnt how to predict the products of a chemical reaction, based on the reaction type. In a chemical reaction, how quickly or slowly reactants turn into products is called the rate of reaction. A reaction that takes a long time has a low rate of reaction.

The next step is to be able to manipulate reactions. The 4 main factors that affect the rate of a chemical reaction are temperature, concentration, surface area and presence of a catalyst.

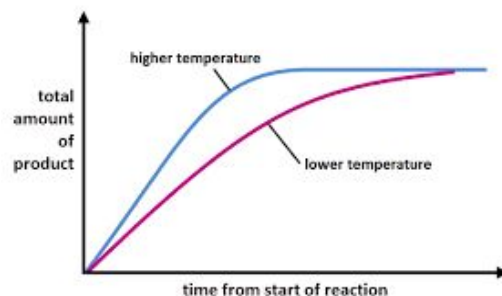


TEMPERATURE

How does temperature affect the rate of a reaction?

Examples:

Why does temperature affect reaction rate?

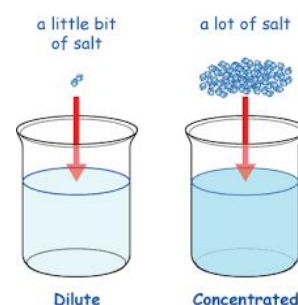


CONCENTRATION

Define concentration:

How does the concentration of the reactants affect the reaction rate?

We measure concentration by knowing the _____ of a substance in 1 litre of _____. In order for new substances to be formed, the reactants and molecules must be able to make _____.



Greater concentrations →

Lower concentrations →

SURFACE AREA

Define surface area:

How does surface area of the reactants affect the rate of a chemical reaction?



Surface area can also be important if the reaction occurs between two liquids that do not mix very well. This is because the reaction can only occur at _____ where the two liquids meet.

When is surface area **not** a factor?

If both reactants are gases or liquids that mix together, then surface area is **not** a factor.

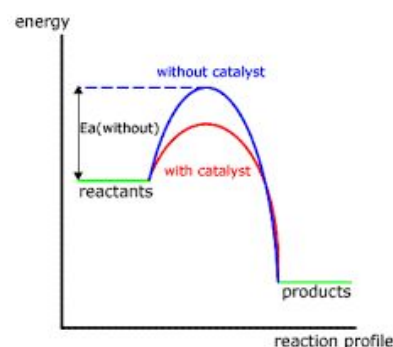
CATALYST

Define catalyst:

How do catalysts speed up reactions?

→

→



In the presence of a catalyst, molecules line-up better so that when they collide with each other, the reaction is more likely to take place.

Do we need to include the catalyst in a chemical equation?

No, a catalyst is generally not included directly when we write the chemical equation of a reaction.

Examples of catalysts:

PRACTICE MAKES PERFECT

What happens to the rate of a chemical reaction if you increase temperature?

What does cooling do to the frequency (how often) at which particles of reactants collide?

How does increasing concentration result in an increase in reaction rate? Explain.

How does increasing the surface area of a reactant increase the reactant rate?

MORE PRACTICE: Workbook pages 115-118