

Limestone small



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Limestone is a sedimentary rock composed largely of calcium carbonate (CaCO_3). Many limestones are composed from skeletal fragments of marine organisms such as coral or foraminifera. Limestone makes up about 10% of the total volume of all sedimentary rocks. The solubility of limestone in water and weak acid solutions leads to karst landscapes, in which water erodes the limestone over thousands to millions of years. Most cave systems are through limestone bedrock.

Limestone has numerous uses, including as building material, as aggregate to form the base of roads, as white pigment or filler in products such as toothpaste or paints, and it is the raw material for the manufacture of quicklime (calcium oxide), slaked lime (calcium hydroxide), cement and mortar. Limestone reactions in word and symbol equations . Calcium Carbonate \Rightarrow Calcium Oxide + Carbon Dioxide. $\text{CaCO}_3 + \text{heat} \Rightarrow \text{CaO} + \text{CO}_2$. . Calcium Oxide+ Water \Rightarrow Calcium Hydroxide $\text{CaO} + \text{H}_2\text{O} \Rightarrow \text{Ca(OH)}_2$. . Calcium Hydroxide + Carbon Dioxide \Rightarrow Calcium Carbonate + Water $\text{Ca(OH)}_2 + \text{CO}_2 \Rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$

These equations do not need balancing, they are already balanced. here is a diagram showing the limestone cycle it shows that if you heat limestone (calcium carbonate) that it turns into quicklime (calcium oxide) then if you add water it becomes lime water/ hydrated lime (calcium hydroxide) then by adding more water it becomes slaked lime -(putty after 2 months)- and then if you mix the putty with sand and expose to air the plaster will dry and become limestone (calcium carbonate) again ! Another important use of limestone is to neutralise acid.

Limestone is ground into a powder which is used to neutralise acidic lakes caused by acid rain and it is used in farming. Soil is measured using an indicator and if it is too acidic, then limestone is mixed into the soil to neutralise it, as some plants can't grow in too acidic soil. Limestone is heated to a temperature of 1000°C in a kiln to form quicklime (calcium oxide) and carbon dioxide. The limestone actually decomposes and doesn't burn. Water is added so that the powder become hot before cooling into a harden mass to form calcium hydroxide which is an alkaline. Calcium hydroxide is used to purify water.

There are around 300 quarries in Britain, most which are in Wales and England. Over 700 lorries travel to and from the quarries each day. Although the quarries have provided jobs and improved the economy of the quarrying area, it has caused many problems. The quarry sites create lots of dust, traffic and noise. Some possible solutions to the problem is that when there are no more limestone to quarry in the site, then a lake will replace the area. Most of the people living in the area are looking forward to this. Construction workers are also trying to recycle a lot of the material so it doesn't go to waste.