Acid Rain

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Introduction

Acid rain is caused by a reaction that begins when compounds like sulfur dioxide are released into the atmosphere. These compounds rise into the atmosphere, where they react with water, oxygen, and other chemicals to form more acidic substances known uas acid rain. It can be very harmful to forests, aquatic ecosystems and animals.

Why Rain is Normally Slightly Acidic

Normal rain, is usually slightly acidic since there is the presence of dissolved carbonic acid. This happens because the rain dissolves with carbon dioxide from the atmosphere. Carbonic acid, which has a weak ph of 6 will turn into a ph of 3 as we burn more fossil fuels, etc this ph level change to a ph of 3 which is a 1000 times more acidic will make the rain be classified as Acid Rain.

The Chemistry behind Acid Rain

The two main acids that contribute to acid rain are Sulfuric Acid and Nitric Acid. These two acids are the acids produced when acid rain is taking place. But how are the acids produced. Sulfuric Acid is produced from the burning of fossil fuels, and Nitric Acid is produced by our car engines.

Sulfuric Acid: Fossil Fuels such as coal is an organic fuel source, it is mostly comprised of carbon but also contain an amount of Sulfur (S). When coal is burned the Sulfur is released into the earth's atmosphere as Sulfur Dioxide which in turn reacts with the water in the atmosphere and produces Sulfuric Acid.

Nitric Acid: Nitric Acid is mostly formed from our car engines. Our car engines have catalytic converters that take in air to burn the petrol in our engines. But our air is made up of 80% nitrogen, so when they take in the air, the nitrogen reacts with the oxygen to form Nitric Oxide. The car then releases the fumes of Nitric Oxide that then in turn reacts with more oxygen to form Nitric Acid.

How Does Acid Rain Impact the Environment?

Acid Rain has the biggest impact on aquatic ecosystems, such as lakes, streams and wetlands. The acid rain goes into the water, causing the water to be more acidic than normal, causing fish, crayfish and other aquatic life to die. Animals are also affected because the water that they drink turns acidic. Acid rain also damages forests, especially those at higher elevations. It robs the soil of important nutrients and releases aluminum in the soil, which makes it hard for trees to take up water .This can cause the forests, animals and marine life to die due to acid rain. Living things don't grow well done in acidic conditions.

What Steps are Being Done to Reduce Acid Rain

Power plants have been forced under law to not exceed a certain amount of sulfur dioxide emissions daily that they can release, it also reduces the amount of nitrogen oxide that power plants can release. Also coal that contains less sulfur is being used more now to reduce the amount of sulfur dioxide being released, to do this you can also wash the coal to get rid of some of the sulfur dioxide.Modern day power plants can now also install equipment called scrubbers, which remove the sulfur dioxide from gases leaving the smokestack. The best way to counter against acid rain is to not burn fossil fuels. This can be done by using solar power or wind power, also electric cars don’t produce sulfur dioxide.