

Question 21 (7 marks)

Evaluate the impact of industrial sources of sulfur dioxide and nitrogen oxides on the environment, making use of appropriate chemical equations.

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The ~~real~~ release of sulfur dioxide and nitrogen oxides into the atmosphere have a detrimental effect on the environment. The burning of sulfur in oxygen: $S + O_2 \rightarrow SO_2$ in the extraction of iron is one source of SO_2 . Nitrogen oxides are similarly produced when N_2 is burnt in oxygen. The substances, when ~~real~~ released into the atmosphere ~~may~~ be ~~also~~ dissolved by rain water which then becomes acidic. Acid rain results in the weathering of limestone and a decrease in the pH of rivers and lakes. This is damaging to marine life. NO_3^{2-} dissolves in water to become nitric acid. $NO_3^{2-} + H_2O \rightarrow HNO_3$, a this is an example of how the pH of rainwater decreases. Also, ~~and~~ sulfur dioxide and nitrogen oxides form photochemical smog which can cause breathing difficulties in humans and adds to the greenhouse effect.