

Answer on Question #39400-Chemistry-Inorganic Chemistry

Question

Which three helps mostly for acid rain

SO₂ H₂S SO₃ NO₂ NO

Answer

SO₃, NO₂ and SO₂ contribute mostly for acid rain, because when reacting with water they form sulfuric acid: $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$,

nitric and nitrous acid: $2\text{NO}_2 + \text{H}_2\text{O} \rightarrow \text{HNO}_3 + \text{HNO}_2$

and sulfurous acid: $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3$,

Sulfuric and nitric acids are strong acids and sulfurous acid is medium acid.

H₂S and NO contribute much less for acid rain because H₂S is very weak acid, and NO does not react with water, and form very weak nitrous acid only under the influence of oxygen:

$4\text{NO} + \text{O}_2 + 2 \text{H}_2\text{O} \rightarrow 4\text{HNO}_2$