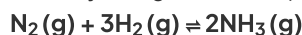




Your notes

Properties of Ammonia

- Ammonia is a compound of nitrogen and will turn damp **red** litmus paper **blue** as it is an **alkaline** gas
- Ammonia is made on a large scale in industry using the **Haber** process:



Basicity of ammonia

- Ammonia can act as a **Brønsted–Lowry base** by accepting a **proton** (H^+) using the **lone pair** of electrons on the nitrogen atom to form an **ammonium ion**:



- In an aqueous solution of ammonia, an equilibrium mixture is established



- Since the position of the equilibrium lies well over to the left the ammonia solution is only **weakly alkaline**
- There is a higher concentration of ammonia molecules than hydroxide ions in solution
- Ammonia is therefore a **weak base**

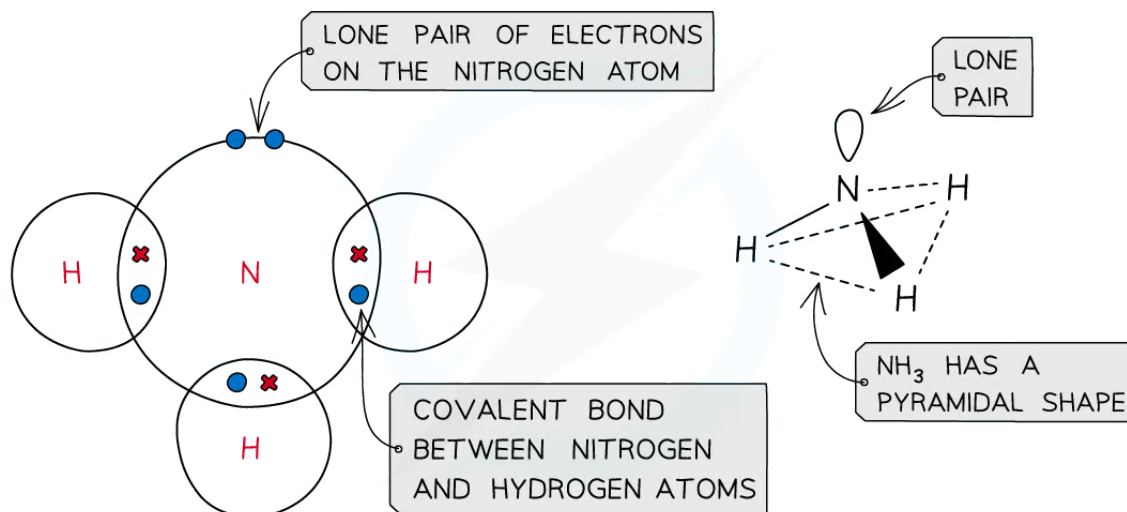
Structure & formation of ammonium ion

- The ammonium ion is formed by an acid-base reaction of ammonia with water:



- The nitrogen in ammonia is covalently bonded to three hydrogen atoms and has one lone pair of electrons causing the ammonia molecule to have a **pyramidal shape**

Bonding in ammonia

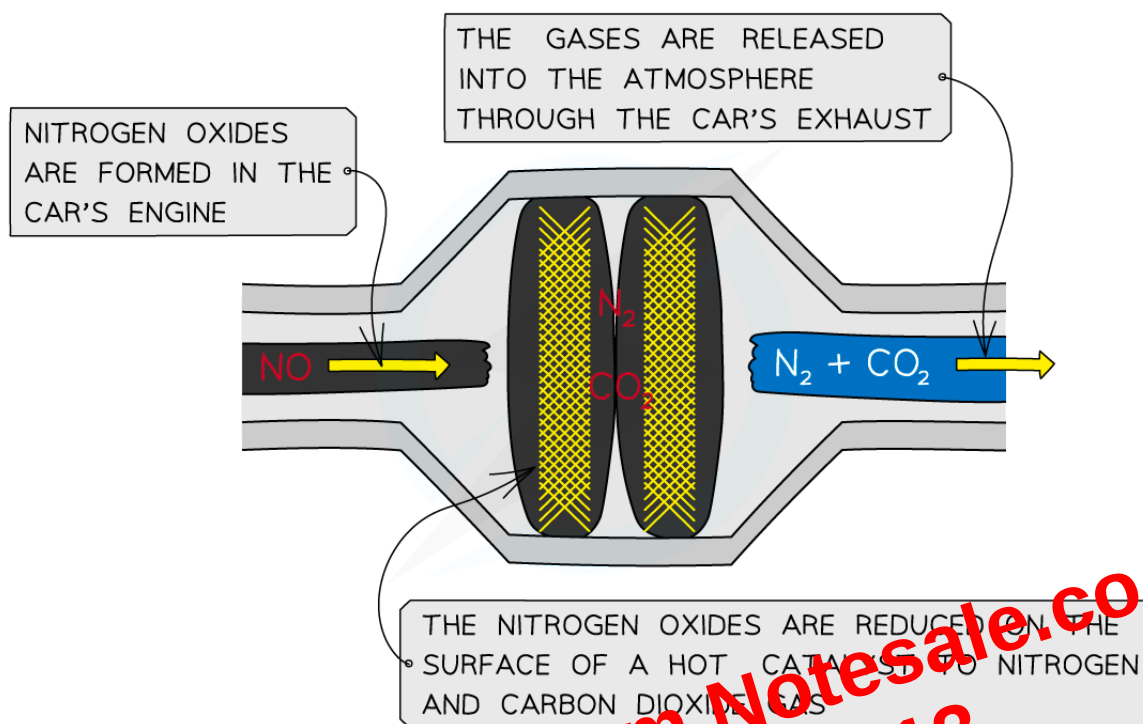


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Ammonia has a pyramidal shape due to its lone pair of electrons



Your notes



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Catalytic converters help to reduce the pollutant emissions from motor vehicles

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