

## 8.2: Reaction Chemistry of Nitrogen

Despite nitrogen being the inert component of the Earth's atmosphere, dinitrogen undergoes a range of reactions, although it only reacts with a few reagents under standard temperature and pressure. Nitrogen reacts with oxygen in an electric arc, (8.2.1), both in the laboratory and within lightening strikes.



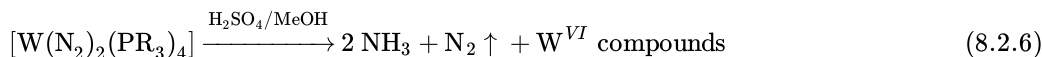
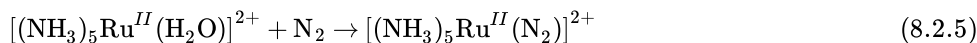
The synthesis of ammonia is accomplished by the Harber process, using an iron oxide ( $\text{Fe}_3\text{O}_4$ ) catalyst, (8.2.2), at about 500 °C and 200 atmospheres pressure.



Nitrogen reacts with lithium metal at room temperature to form the nitride, (8.2.3). Magnesium also burns in nitrogen, forming magnesium nitride, (8.2.4).



Nitrogen forms complexes with transition metals yielding nitrogeno complexes, (8.2.5). Under some conditions these complexes react to give ammonia, (8.2.6), and as such may give a hint to the action of nitrogenase in which molybdenum is the active site.



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