

Oxidation states of nitrogen

<u>Ox. state</u>	<u>Species</u>	
+5	NO_3^-	Nitrate ion, oxidizing agent in acidic solution.
+4	NO_2	Nitrogen dioxide, a brown gas usually produced by the reaction of concentrated nitric acid with many metals. It dimerizes to form N_2O_4 .
+3	NO_2^-	Nitrite ion in basic solution and nitrous acid in acidic solution. Can be either an oxidizing agent to usually produce $\text{NO}(\text{g})$ or a reducing agent to form the nitrate ion.
+2	NO	Nitrogen oxide also called nitric oxide. A colorless gas produced by the reaction of metals with dilute nitric acid which then reacts with O_2 in the air to form the brown NO_2 gas.
+1	N_2O	Dinitrogen oxide also called nitrous oxide or laughing gas.
0	N_2	Commonly found in air and very unreactive because of the very strong triple bond.
-1	NH_2OH	Hydroxylamine, a weak base, which can act as either an oxidizing agent or reducing agent.
-2	N_2H_4	Hydrazine, a colorless liquid, is a weak base. Used as a rocket fuel. It disproportionates to N_2 and NH_3 .
-3	NH_3	In basic solution and as NH_4^+ in acidic solution. Not generally used as a reducing agent in aqueous solutions. When ammonia is burned in the presence of oxygen it is oxidized to either N_2 or NO . The oxidation of ammonium salts usually produces nitrogen gas.