

carefully performed, the same black ring will be formed.

NITROUS OXIDE N_2O .

(1). By plunging a glowing splint of wood into a jar of this gas the splint will burst into flame.

(2). Phosphorous burns brightly in it.

Nitrous Oxide resembles Oxygen in many of its properties, so also does Nitric Oxide, but a glowing splint will not relight in the latter. Nitrous Oxide may be distinguished from Oxygen by the following tests:

(1). It has a sweet taste, Oxygen is tasteless.

(2.) It is more soluble in water than Oxygen.

(3). By the introduction of Pyrogallate of Potash into Oxygen, the latter is absorbed and a black solution left. There is no reaction when the compound is brought into Nitrous Oxide.

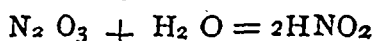
Nitrous Oxide may be distinguished from Nitric Oxide in the following way:—ruddy fumes are formed by the contact of Oxygen and Nitric Oxide. No fumes are formed when Nitrous Oxide is brought into contact with Oxygen.

NITRIC OXIDE NO .

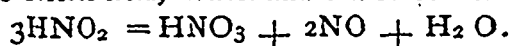
(1) This gas is distinguished from all other gases by the formation of ruddy fumes in the presence of Oxygen, and it is distinguished from Oxygen by not being absorbed by the pyrogallate of potash.

NITROGEN TRIOXIDE N_2O_3

This compound can be condensed to a liquid at a temperature of $-18^\circ C$. By the addition of water, Nitrous acid (HNO_2) is formed. The reaction is as follows:



This acid is unstable and easily decomposes into Nitric acid, Water and Nitric Oxide.



NITROGEN TETROXIDE N_2O_4

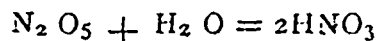
(1). This compound can be condensed to a yellow liquid at a temperature very slightly below the freezing point. If a mere trace of

water is present it is green; and if a little water be added, drop by drop, it becomes deep blue and then colorless, giving off bubbles of gas, (Nitric Oxide), while Nitric Acid remains in the liquid.

(2). Nitrogen Tetroxide produces a red color in a neutral solution of Sulphocyanide of Potassium.

NITROGEN PENTOXIDE N_2O_5

This substance unites with water to form Nitric Acid, thus:



This acid may be tested.

AMMONIA NH_3 ; mol. wt. 17; $N = 14$, $H = 3$, i. e., 1 vol. $N + 3$ vols. H when united form 2 vols. of Ammonia, hence density = 8.5.

Physical Properties:

(a) Harsh alkaline taste, when diluted with water.

(b) Does not support combustion, but has a tendency to burn. It will burn with a greenish flame if a stream of it, mixed with Oxygen, be passed into a jar of the latter.

(c) It is lighter than air.

(d) It is very soluble in water; cold water will dissolve about 1100 vols. of it.

(e) It has a very pungent odor.

(f) Condenses to a liquid at $-40^\circ C$, or under a pressure of 6 to 7 atmospheres. At $-75^\circ C$ it becomes a transparent solid.

Chemical Properties:

(a) Turns red litmus, blue.

(b) Turns the purple solution of red cabbage, green.

(c) Turns solution of turmeric from yellow to brown.

(d) When a glass rod is dipped into any of the volatile acids, then exposed to the vapor of Ammonia, dense white fumes are formed.

(e) When Ammonia is passed into a solution of any salt of Copper, it will first produce a greenish-blue cloudy precipitate, but upon further addition this is dissolved and a splendid azure blue solution is left.