

# Nitrogen



MOP:-

**It is prepared by fractional distillation of liquid air**

# Properties :-

## a) Physical Properties:

Colorless gas

Odorless

tasteless

Dissolve in water

Less dissolve in alcohol

Innert in nature

Non inflammable gas

## **b) Chemical Properties :-**

- i) It is directly combine with metals and form nitrides at high temperature.
- ii) Not support combustion.

## Uses:

- Antioxidant
- for replacement of air in container of Parenterals
- Reagent in pharmaceutical preparation
- Manufacturing of ammonia, nitric acid
- Preservation of materials
- Liquid nitrogen used as a coolant in freezing process

## Storage

“ It should be stored in metal cylinder painted gray on neck and black on body, painted name “nitrogen” on cylinder.”

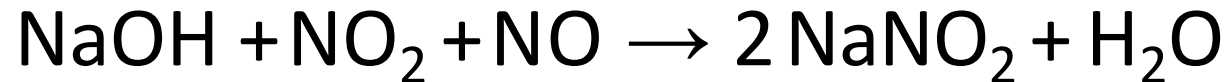
# Sodium nitrite

Formula:  $\text{NaNO}_2$

Mol Wt : 69 g/mol

# Method of Preparation

1. The salt is prepared by treating sodium hydroxide with mixtures of nitrogen dioxide and nitric oxide:



The conversion is sensitive to the presence of oxygen, which can lead to varying amounts of sodium nitrate.

2. Sodium nitrite can be prepared from sodium carbonate.



# PHYSICAL PROPERTIES

**It is a white to slightly yellowish crystalline powder**

**Odor: specific odor**

**Density: 2.168g/cm<sup>3</sup>**

**Solubility: freely soluble in water and soluble in alcohol.**

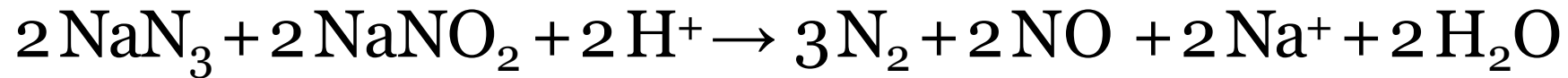
**Melting Point: 271 °C**

**PH: Between 7 and 9.**



# Chemical Properties

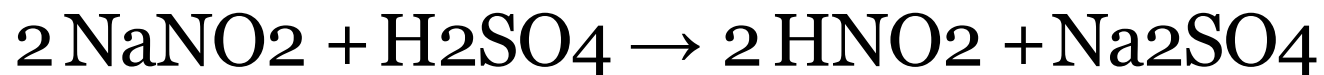
1. In the laboratory, sodium nitrite can be used to destroy excess sodium azide.



2. Above 330 °C sodium nitrite decomposes (in air) to sodium oxide, nitric oxide and nitrogen dioxide.

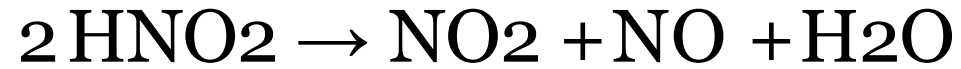


3. Sodium nitrite can also be used in the production of nitrous acid via sulfuric acid. This reaction first yields nitrous acid and sodium sulfate:

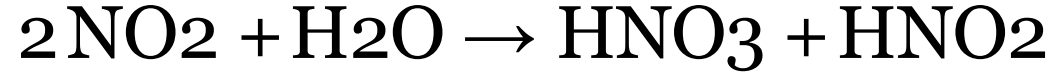


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The nitrous acid then, under normal conditions, decomposes:



The nitrogen dioxide of the prior decomposition is yield nitric acid:



# Uses

1. Act as anti-oxidant that is used to cure meats
2. Sodium Nitrite is used as part of an intravenous mixture with sodium thiosulfate to treat cyanide poisoning
3. sodium nitrite works with sodium chloride, or salt, to inhibit the growth of Clostridium botulinum. Clostridium botulinum is an organism that can cause fatal food poisoning.