



Department of Chemistry

Faculty of Sciences

Chem241

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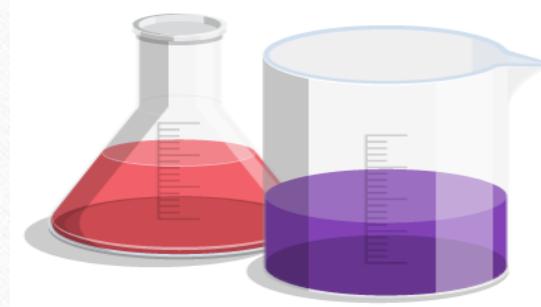
29/10/2022

NaOH

Formation and Uses

Introduction:

- In general chemistry, **bases** are chemical properties that lose electrons, accept them, or release OH- ions in most aqueous solutions. They oppose the properties of acids but would react with them in several chemical reactions to form salts and catalyze reactions. To start off, one of the various, most important bases found in nature is **NaOH**.



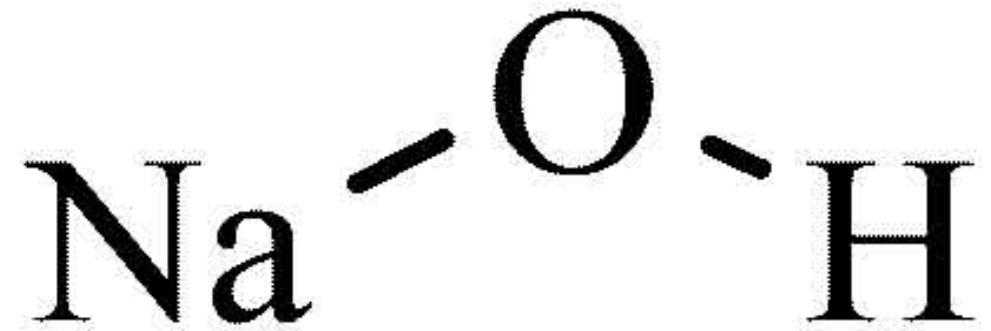
What is NaOH?



- Sodium Hydroxide, also known as **NaOH**, is an inorganic compound that has a white like solid physical feature. It is an ionic compound made of sodium cations **Na⁺** and hydroxide anions **OH⁻**. Moreover, it is highly **soluble** in water (H₂O), and highly absorbs carbon dioxide and moisture of any kind. Therefore it is a highly polar chemical.

Chemical and Physical Properties

- White Colored
- Caustic
- Corrosive to skin
- Freezes at 15.5°C
- Molar Mass: 39.997 g/mol
- pH: 13-14 (base)
- Part of the Alkali Metal group
- Strong Base
- Density: 2.61 g/cm³
- Soluble in water
- Stable compound
- Melting Point: 318. 4°C

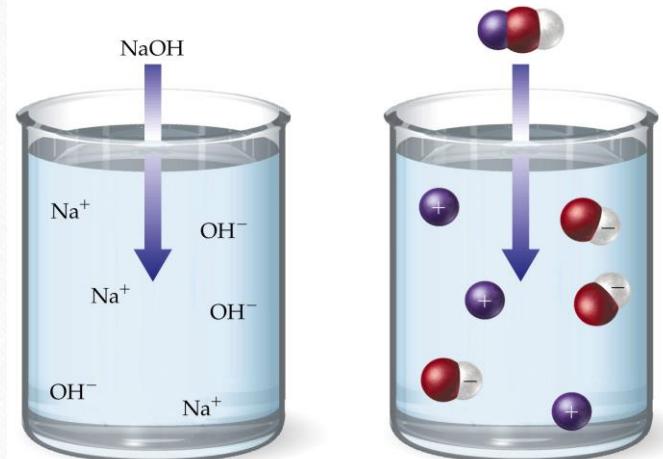


Structural Formula of **NaOH**

Preparation (1)

In order to prepare 1 M of **NaOH** solution:

- 1) We fill a well cleaned volumetric flask with distilled water.
- 2) Add 1.0 M of **NaOH**.
- 3) Add distilled water to reach the 1L mark.
- 4) Mix carefully to obtain a 1 M of **NaOH** solution.



Safety Warning!

- It is to be considered that **NaOH** compound is a **caustic** solution. Therefore, it is *highly* recommended to wear safety goggles and gloves before undergoing the preparation. Mainly due to the reason that it may cause **chemical burns**.



Preparation (2)

- **NaOH** can also be produced using the industrial way:
Sodium hydroxide is produced via the *chloralkali* process.
 1. By turning sodium ions into sodium metal.
 2. After that we react sodium metal with Mercury to produce Sodium Mercury.
 3. Finally, we hydrate the Sodium Mercury with Hydrogen gas and Hg.

Uses For NaOH

- Sodium Hydroxide has a wide range of uses around the world, but most manufacturers use it for the production of dyes, soaps, aluminum, paper, and petroleum products.



Conclusion

- In conclusion, we can not deny that **NaOH** is an essential chemical compound in the lives of the industrial world we live in now. Therefore it is crucial to highlight on it and emphasize it's importance.

Sources

- www.cdc.gov.com
- www.protank.com
- www.aakash.ac.in