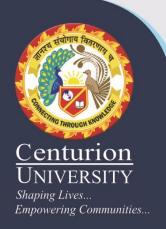


# PRIMARY STANDARD AND SECONDARY STANDARD

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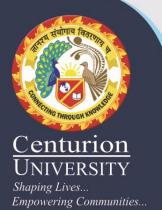


# **Primary Standards**

A primary standard is a reagent having the known concentration and used to determine the concentration of the different analyte.

### **Properties**

- extremely pure
- stable
- has no waters of hydration
- has a high molecular weight.



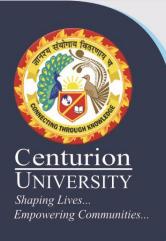
e.g, Some primary standards for titration of acids: sodium carbonate:

mol wt. = 105.99 g/mol tris -(hydroxymethyl) amino methane

(TRIS or THAM): mol wt. = 121.14 g/mol

Some primary standards for titration of bases: potassium hydrogen phthalate (KHP): mol wt. = 204.23 g/mol potassium hydrogen iodate: mol wt. = 389.92 g/mol

**Some** primary standards for redox titrations: potassium dichromate mol wt. = 294.19 g/mol



#### **SECONDARY STANDARD**

- secondary standard is a standard that is prepared in the laboratory for a specific compound or element analysis analysis.
- Properties-

standa<mark>r</mark>dized against a primary standard.

- Unknown concentration.
- Not pure
- e.g- Sodium hydroxide Potassium hydroxide



## Difference Between Primary and Secondary Standard Solution

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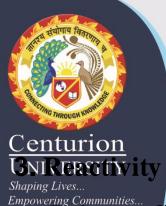
Expower in Communities ...

1. Definition

- Primary Standard Solution: Primary standard solutions are solutions made out of primary standard substances.
- Secondary Standard Solution: Secondary standard solutions are solutions made specifically for a certain analysis.

#### 2. Purity

- Primary Standard Solution: Primary standard solutions are extremely pure (about 99.9%).
- Secondary Standard Solution: Secondary standard solutions are not very pure.



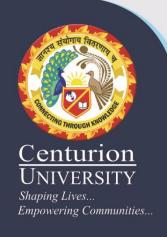
- Primary Standard Solution: Primary standards are less or not reactive.
- Secondary Standard Solution: Secondary standards are reactive than primary standards.

#### 4. Water Absorption

- Primary Standard Solution: Primary standards are not hygroscopic.
- Secondary Standard Solution: Secondary standards are somewhat hygroscopic.

#### 5. Applications

- Primary Standard Solution: Primary standard solutions are used to standardize secondary standards and other reagents.
- Secondary Standard Solution: Secondary standard solutions are used for specific analytical experiments.



# THANK YOU