

# Non-aqueous Titration

1st year student :

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# By the end you will able to :

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List Types of  
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What's the  
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Non-aqueous  
titrations



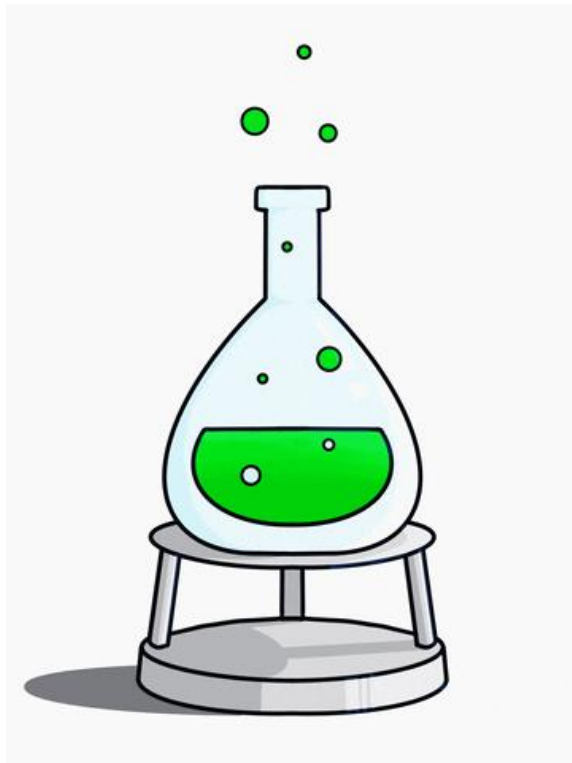
01

# Definition of non-aqueous titrations



# Define of Non-aqueous Titration :

- Non aqueous titration are those titration in which titration of weak acidic or basic substance carried out using non aqueous substance. It provide a solvent in which organic compound are soluble.
- The most commonly used procedure is the titration of organic bases with perchloric acid in anhydrous acetic acid.





02

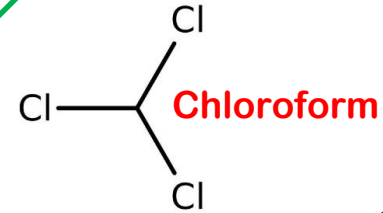


# List Types of Non Aqueous Solvents

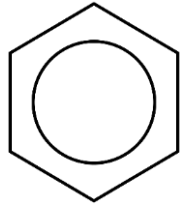


# Types of Non Aqueous Solvents :

Typically, there exist **four** types of solvents used in the non-aqueous titration of a given analyte these are

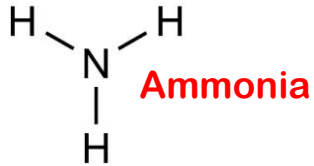


**Benzene**

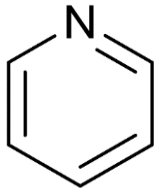


## Aprotic Solvents :

These solvents are neutral in charge and are chemically inert. Examples of these types of solvents include chloroform and benzene.



**Pyridine**



## Protophilic Solvents :

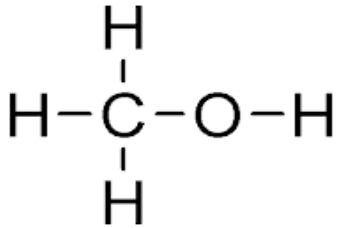
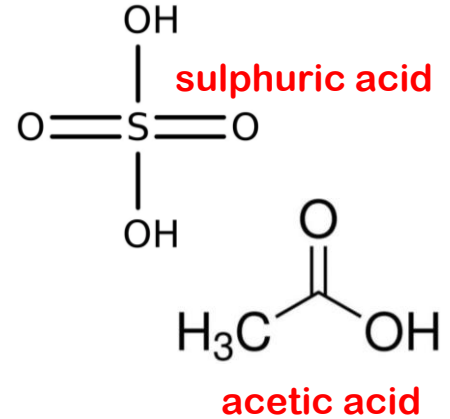
These are basic in nature and react with acids to form solvated protons. A strong protophilic solvent changes the weak acids to strong acids. Examples: ammonia, pyridine.

# Cont...



## Protogenic Solvents:

These are acidic substances and readily donate the proton. These are used to increase the basicity of weak acid., Example: sulphuric acid, acetic acid .



Alcohols

## Amphiprotic Solvents :

These solvents have properties which are protophilic as well as protogenic. Examples are alcohols.



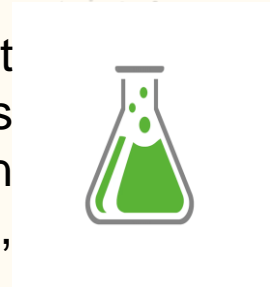
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# Difference between aqueous & non- aqueous titration



# Difference between aqueous & non aqueous titration :

- The aqueous and non-aqueous titrations both are the types of titration used to determine the amount of analyte present in the sample.
- Difference between aqueous and non-aqueous titration is that the solvents used in aqueous titration contain water, whereas the solvents used in non-aqueous titration does not contain water (Example. Chloroform, benzene, acetic acid, and alcohol, etc.).





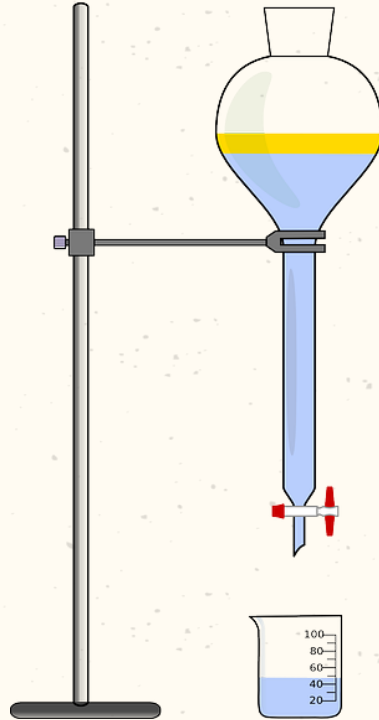
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# Applications of Non-aqueous titrations

# Applications of Non-aqueous titrations :

Non-aqueous titration is used to know the purity of assays.

It is used in the determination of hydrophobic compounds, phenobarbitone, diuretics, steroids.



It is used for the determination of concentration expressions.

It is used in the determination of the composition of antitubercular drugs and adrenergic drugs.



05

**List Advantage & Disadvantage  
of non-aqueous titration**

## Advantages

Non-aqueous titrations are additionally used to analyze a mixture of acids too.



Non-aqueous titrations facilitate the titration of weak acids and weak bases.



Non-aqueous titrations are simple and easy to perform.



Non-aqueous titrations great offer selectivity.

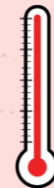


## Disadvantages

Non-aqueous solvents are less stable compared to aqueous solvents.



Non-aqueous titrations require corrections in temperature from time to time.

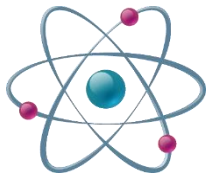


Non-aqueous titrations Solvent are expensive.



Non aqueous titration calibration is mandatory after every single use.

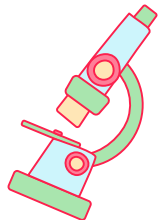




# Summary



- ❖ Non-aqueous titration is the titration of substances dissolved in solvents other than water.
- ❖ Their types of solvents such as Protogenic Solvents and Amphiprotic Solvents etc...
- ❖ Its have application like is very important in pharmacopoeia assays Advantage of Non-aqueous titration like is Non aqueous titration are easy to perform and disadvantage like Solvent are expensive.



# Refreneces :

- <https://www.vedantu.com/chemistry/non-aqueous-titration>
- <https://byjus.com/chemistry/non-aqueous-titration/>
- <https://www.aakash.ac.in/important-concepts/chemistry/non-aqueous-titration>
- <https://chrominfo.blogspot.com/2021/08/difference-between-aqueous-and-non-aqueous-titration.html?m=1>



*Thank you for your listening , and i  
hope you all enjoy in our presentations*

