

Acid-Base Titrations

Spoken Tutorial Project

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objectives



Learning Objectives

We will learn to standardise:



Learning Objectives

We will learn to standardise:

- ▶ **Strong-Acid with Strong-Base**



Learning Objectives

We will learn to standardise:

- ▶ **Strong-Acid with Strong-Base**
- ▶ **Strong-Acid with Weak-Base**



Learning Objectives

We will learn to standardise:

- ▶ **Strong-Acid with Strong-Base**
- ▶ **Strong-Acid with Weak-Base**
- ▶ **using titration method**



Pre-requisites



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- ▶ **ChemCollective Vlabs interface**



Pre-requisites

- ▶ ChemCollective Vlabs interface
- ▶ If not for relevant tutorials please visit our website
www.spoken-tutorial.org



System Requirement



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- ▶ Mac OS v 10.10.5



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- ▶ **Mac OS v 10.10.5**
- ▶ **ChemCollective Vlabs v 2.1.0**



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- ▶ **Mac OS v 10.10.5**
- ▶ **ChemCollective Vlabs v 2.1.0**
- ▶ **Java v 8**



Calculations



Calculations

- ▶ V_i (Initial buret reading of NaOH) = 50 mL
- ▶ V_f (Final buret reading) = 29.991 mL
- ▶ $V_2 = V_i - V_f = 20.009 \text{ mL}$
- ▶ M_2 (Molarity of NaOH) = 0.1 M
- ▶ V_1 (Volume of HCl) = 20 mL
- ▶ $M_1 V_1 = M_2 V_2$
- ▶ $M_1 * 20 = 0.1 * 20.009$
- ▶ $M_1 = 0.1 \text{ M}$



Calculations



Calculations

- ▶ V_i (Initial buret reading of HCl) = 50 mL
- ▶ V_f (Final buret reading) = 29.991 mL
- ▶ $V_2 = V_i - V_f = 20.009 \text{ mL}$
- ▶ M_2 (Molarity of HCl) = 1 M
- ▶ V_1 (Volume of NH_3) = 20 mL
- ▶ $M_1 V_1 = M_2 V_2$
- ▶ $M_1 * 20 = 1 * 20.009$
- ▶ $M_1 = 1 \text{ M}$



Summary



Summary

We have learnt to standardise:

- ▶ **Strong-Acid with Strong-Base**
- ▶ **Strong-Acid with Weak-Base**
- ▶ **using titration method**



Assignment



Assignment

1. **Standardize a solution of ethanoic acid (acetic acid) using titration method**



Assignment

1. **Standardize a solution of ethanoic acid (acetic acid) using titration method**
2. **Hint: All the necessary solutions and apparatus are available in default lab setup window**



About the Spoken Tutorial Project

- ▶ Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project
- ▶ If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Forum for specific questions

- ▶ Do you have questions in **THIS Spoken Tutorial?**
- ▶ Please visit
<http://forums.spoken-tutorial.org>
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ Someone from our team will answer them



Acknowledgements

- ▶ **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- ▶ **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- ▶ **More information on this Mission is available at**

<http://spoken-tutorial.org /NMEICT-Intro>

