

Assay of Ibuprofen by Alkalimetry

Experiment 13 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To estimate ibuprofen by neutralising its carboxylic acid group.

Principle

Ibuprofen is a monoprotic acid. Under the prescribed solvent conditions one mole reacts with one mole hydroxide; a solvent blank may be needed.

Requirements

- Assigned ibuprofen specimen
- Standardised NaOH, prescribed alcoholic solvent, indicator or specified endpoint system

Procedure

1. Prepare

Weigh accurately and dissolve in the specified neutralised solvent.

2. Blank

Perform the prescribed solvent blank using the same volume and endpoint system.

3. Titrate

Titrate with standard alkali to the method-defined endpoint.

4. Repeat and calculate

Obtain concordant readings and subtract blank where required.

5. Report

State the assay on the assigned mass basis and compare with the prescribed specification.

Observations and Record

Item	Record
Test mass, g	_____
Titrant M / factor	_____
Test / blank titre, mL	_____
Dilution factor	_____
Percentage assay	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Mass ibuprofen (mg) = corrected titre (mL) × NaOH M × 206.28 × dilution factor.
- 0.1000 M NaOH corresponds to 20.628 mg ibuprofen/mL.
- Example: 9.70 mL represents 200.09 mg. For a 205.00 mg test portion, the assay is 97.61%.

Result

Record the observed outcome and calculated value, with units. State whether the stated laboratory specification was met; do not copy the worked example as your result.

Precautions

- Use the specified solvent; poor dissolution can invalidate the endpoint.
- Keep alcohol away from ignition sources.
- Apply the blank and actual titrant strength.

Viva Questions and Answers

1. What group is titrated?

The carboxylic acid group.

2. Why is the mole ratio 1:1?

Ibuprofen has one titratable acidic proton in this assay.

3. What is the purpose of the blank?

To correct for solvent or reagent acid-base consumption.

Continue Learning with FirstHope

Complete Notes on the FirstHope App

Complete subject and semesters are available on FirstHope app only.

- Get complete subject and semester notes in the FirstHope app.
- Available for B.Pharm, D.Pharm, M.Pharm and Pharm.D students.

[Click here to get the FirstHope app](#)

Join the FirstHope Telegram Channel

Join FirstHope Notes and keep up with channel updates.

[Click here to join Telegram](#)

Instagram

@firsthope.official

[Click here to follow Instagram](#)

YouTube Channel

FirstHope-Pharmacy / Live streams

[Click here to watch the YouTube channel](#)

WhatsApp Channel

Follow FirstHope on WhatsApp.

[Click here to join the WhatsApp channel](#)

FirstHope Website

firsthopenotes.com

[Click here to visit the website](#)