First Hope

COMPLETE NOTES

Click here to visit our website

PHARMACY PRACTICAL NOTES

Complete subject and semesters are available on FirstHope app only.

Scan or click here

Click here to get the app >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHopeNotes

Instagram

@firsthope.official

Click here to follow >

YouTube channel

FirstHope-Pharmacy / Live streams

Click here to watch >

WhatsApp channel

Follow FirstHope on WhatsApp

Click here to join >

FirstHope website

firsthope.co.in

Click here to visit >

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Complete subjects and semesters are available in the FirstHope app.

Potassium Iodate and Iodine in Potassium Iodide

Experiment 12 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To distinguish tests for free iodine and iodate impurity in the prescribed potassium iodide preparation.

Principle

Free iodine gives a characteristic colour with starch under the test conditions. In acid, iodate reacts with iodide to liberate iodine: $IO_3^- + 5\ I^- + 6\ H^+ \rightarrow 3\ I_2 + 3\ H_2O$. Separate observations before and after acidification help distinguish existing iodine from newly liberated iodine.

Requirements

- Potassium iodide test portion, fresh prescribed starch indicator and specified acid.
- Appropriate blanks and impurity standards, water and matched test vessels.

Procedure

1. Prepare the material

Dissolve the prescribed KI portion and inspect the initial appearance. Prepare separate aliquots for the tests.

2. Test free iodine

Apply the specified starch test to an aliquot without the iodate-liberation stage. Record any colour against its prescribed blank or comparator.

3. Test iodate

Use another aliquot and the prescribed acidification stage. Record newly developed iodine-starch colour at the specified time.

4. Review validity

Consider pre-existing iodine and reagent contamination. Use the method's separate controls rather than interpreting every blue colour as iodate.

5. Report

State the individual iodine and iodate observations and compare with the prescribed purity criteria.

Observations and Record

Aliquot / stage	Observed colour	Interpretation
Free-iodine test	_____	_____
Iodate test after acidification	_____	_____
Blank / standard	_____	Valid / invalid: ____

Worked Example

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

- Reaction ratio: 1 mol iodate releases 3 mol iodine in excess iodide and acid.
- In a separate validated iodometric calculation, those 3 mol iodine consume 6 mol thiosulphate. Thus 6 mol thiosulphate corresponds to 1 mol iodate.
- This ratio explains chemistry; the visual purity test itself must use its prescribed comparator and limit.

Result

Free-iodine test: ____. Iodate test: ____. Control validity and comparison with the prescribed purity criteria: ____.

Precautions

- Use separate aliquots and fresh specified indicator to reduce interpretation errors.
- Acidification conditions and reading time must match the method.
- Do not mistake pre-existing iodine for iodate-derived iodine.

Viva Questions and Answers

1. Why is acid needed in the iodate test?

The reaction that liberates iodine consumes hydrogen ions.

2. What does starch detect?

The iodine-containing complex that gives the characteristic colour.

3. Why test free iodine separately?

It may otherwise obscure the interpretation of an acidified iodate test.

First Hope

COMPLETE NOTES

Click here to visit our website

PHARMACY PRACTICAL NOTES

Complete subject and semesters are available on FirstHope app only.

Scan or click here

Click here to get the app >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHopeNotes

Instagram

@firsthope.official

Click here to follow >

YouTube channel

FirstHope-Pharmacy / Live streams

Click here to watch >

WhatsApp channel

Follow FirstHope on WhatsApp

Click here to join >

FirstHope website

firsthope.co.in

Click here to visit >

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Complete subjects and semesters are available in the FirstHope app.