

Determine the *actual* concentration of an I₂ solution with Na₂S₂O₃•5•H₂O

1. Fill a 50mL burette with the I₂ solution to just below the zero mark.
2. Weigh ca. 0.200g of Na₂S₂O₃•5•H₂O. Record the exact weight from the balance in the table below.
3. Using a stir plate and stir bar, dissolve the solid in a 125mL Erlenmeyer flask with about 30mL of DI water.
4. Titrate the Na₂S₂O₃•5•H₂O using the I₂ solution. Record the initial and final volumes from the burette in the table below.
5. Calculate the actual molar concentration (molarity) of I₂ using the given equation and record the molarity in the table below.

$$\text{Molarity I}_2 = \frac{(\text{g Na}_2\text{S}_2\text{O}_3 \cdot 5 \cdot \text{H}_2\text{O})}{(496 \cdot \text{Liters I}_2)}$$

PERFORM 3X

Trial	Mass Na ₂ S ₂ O ₃ •5•H ₂ O	Moles Na ₂ S ₂ O ₃ •5•H ₂ O	Initial V _{NaOH}	Final V _{NaOH}	Total V	M I ₂
1						
2						
3						

Each student – Using Google Docs create and share with me a spreadsheet titled, CHM130VV-Ripper your FULL NAME. Reproduce the above table in a sheet labeled “standardization of I₂”. Use the spreadsheet to carry out all calculations. Do not simply type the numbers into the cells.

Free SO₂ in SO₂ spiked wine

1. Fill a 25mL burette with the I₂ solution to just below the zero mark.
2. Use a 25mL volumetric pipet to add 25.00mL of wine to a 125mL Erlenmeyer flask.
3. Use a disposable graduated plastic pipette to add 2mL of starch indicator to the wine.
4. For RED WINE, shine an incandescent lamp onto the wine solution.
6. Use a 5mL or 10mL graduated cylinder to add 5mL of 25% sulfuric acid to the wine mixture and IMMEDIATELY titrate with the I₂ solution to a blue color lasting 30 seconds. Record the initial and final volumes from the burette in the table below.

Calculations:

Free or Total SO₂ (ppm) = Molarity of I₂ * mL I₂ used X 1280

For White

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

For Red

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

Reproduce the above table in a sheet labeled "Free SO₂ spiked". Use the spreadsheet to carry out all calculations. Do not simply type the numbers into the cells.

Total SO₂ in SO₂ spiked wine

1. Use a 25mL volumetric pipet to add 25.00mL of wine to a 125mL Erlenmeyer flask.
2. Use a disposable graduated plastic pipette to add 2mL of starch indicator to the wine.
3. Use a 10mL graduated cylinder to add 10mL of 1M NaOH to the wine. LET STAND for ca. 10 min.

AVOID CROSS CONTAMINATION OF THE NaOH with the SULFURIC ACID

4. For RED WINE, shine an incandescent lamp onto the wine solution.
7. Use a 5mL or 10mL graduated cylinder to add 5mL of 25% sulfuric acid to the wine mixture and IMMEDIATELY titrate with the I₂ solution to a blue color lasting 30 seconds. Record the initial and final volumes from the burette in the table below.

Calculations:

Free or Total SO₂ (ppm) = Molarity of I₂ * mL I₂ used X 1280

For White -

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

For Red

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

Reproduce the above table in a sheet labeled "Total SO₂ spiked". Use the spreadsheet to carry out all calculations. Do not simply type the numbers into the cells.

Free SO₂ in wine

1. Use a 25mL volumetric pipet to add 25.00mL of wine to a 125mL Erlenmeyer flask.
2. Use a disposable graduated plastic pipette to add 2mL of starch indicator to the wine.
3. For RED WINE, shine an incandescent lamp onto the wine solution.
4. Use a 5mL or 10mL graduated cylinder to add 5mL of 25% sulfuric acid to the wine mixture and IMMEDIATELY titrate with the I₂ solution to a blue color lasting 30 seconds.

Calculations:

Free or Total SO₂ (ppm) = Molarity of I₂ * mL I₂ used X 1280

For White

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

For Red

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

Reproduce the above table in a sheet labeled "Free SO₂". Use the spreadsheet to carry out all calculations. Do not simply type the numbers into the cells.

Total SO₂

Use a 25mL volumetric pipet to add 25.00mL of wine to a 125mL Erlenmeyer flask.

1. Use a disposable graduated plastic pipette to add 2mL of starch indicator to the wine.
2. Use a 10mL graduated cylinder to add 10mL of 1M NaOH to the wine. LET STAND for ca. 10 min.

AVOID CROSS CONTAMINATION OF THE NaOH with the SULFURIC ACID

3. For RED WINE, shine an incandescent lamp onto the wine solution.
4. Use a 5mL or 10mL graduated cylinder to add 5mL of 25% sulfuric acid to the wine mixture and IMMEDIATELY titrate with the I₂ solution to a blue color lasting 30 seconds. Record the initial and final volumes from the burette in the table below.

Calculations:

Free or Total SO₂ (ppm) = Molarity of I₂ * mL I₂ used X 1280

For White

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

For Red

Trial	Initial V _{I₂}	Final V _{I₂}	Total mL	Total SO ₂ (ppm)
1				
2				
3				

Reproduce the above table in a sheet labeled "Total SO₂". Use the spreadsheet to carry out all calculations. Do not simply type the numbers into the cells.