

The School of Chemistry

HAZARD ASSESSMENT SHEETS

KICKSTART CHEMISTRY WORKSHOPS

CHEMICAL MONITORING AND MANAGEMENT

- 1. Atomic Absorption Spectroscopy – demonstration**
- 2. Infrared Spectroscopy – demonstration**
- 3. Sulfate Content of Lawn Food**
- 4. Iron Content in Water**
- 5. Hardness in Water**
- 6. Chlorine Content in Water**

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Atomic Absorption Spectroscopy

LABORATORY LOCATION: School of Chemistry

Practical Type: Demonstration, Non Hazardous. Supervised at all times, equipment is operated by experienced handler.

SOLVENT: Water and dilute nitric or hydrochloric acid.

TEMPERATURE: PRESSURE:

SPECIAL EQUIPMENT USED: Atomic Absorption Spectrometer

HAZARD CONTROL MEASURES: Safety Glasses and Lab coat, no student involvement.

LABORATORY SUPERVISOR: Dr Jeanette Hurst

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Infrared Spectroscopy

LABORATORY LOCATION: School of Chemistry

Practical Type: Demonstration, non hazardous, no student participation.

SPECIAL EQUIPMENT USED:

Fourier Transform Infrared Spectrophotometer.

HAZARD CONTROL MEASURES: Safety Glasses and Lab coat provided.

LABORATORY SUPERVISORS SIGNATURE: Dr Jeanette Hurst

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Sulfate Content in Lawn Food

LABORATORY LOCATION: School of Chemistry, Level 3 laboratory

Practical Type: Hands-on practical with student participation.

Reagent	hazardous	flammable	toxic	irritant	disposal
Barium nitrate Use gloves	yes		Toxic handle with gloves	Can cause skin irritation	Heavy metal waste container
Ammonium sulfate	Non hazardous				
Hydrochloric acid (concentrated 10M) Use gloves	yes			Can burn skin if touched	

SOLVENT: Deionised water

TEMPERATURE: 25⁰C PRESSURE: 1 atm

SPECIAL EQUIPMENT USED: vacuum pumps and filtering glassware

HAZARD CONTROL MEASURES: Safety Glasses, Lab coat and gloves are provided. Supervision by a qualified demonstrator at all times.

LABORATORY SUPERVISORS SIGNATURE: Dr Jeanette Hurst

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Iron Content in Water

LABORATORY LOCATION: The School of Chemistry

Practical Type: Hands on by carried out by students. Close supervision by qualified demonstrator.

reagent	hazardous	flammable	toxic	irritant	disposal
Iron nitrate solution 5 ppm	Non hazardous				
1,10 phenanthroline solution 0.3 %	Non hazardous				
10 % hydroxylamine hydrochloride	Non hazardous				
Sodium citrate	Non hazardous				

SOLVENT: water TEMPERATURE: room temperature
PRESSURE: 1 atm

SPECIAL EQUIPMENT USED: Absorption Spectrophotometer – non hazardous

HAZARD CONTROL MEASURES: Gloves, Lab coat and safety glasses.

LABORATORY SUPERVISORS SIGNATURE: Dr Jeanette Hurst

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Chlorine Content in Water.

LABORATORY LOCATION: School of Chemistry

Practical Type: Hands-on practical with student participation.

reagent	hazardous	flammable	toxic	irritant	disposal
0.05 M Ag NO ₃ silver nitrate solution				Slight irritant causes skin discolouration	
0.25 M Potassium dichromate solution (indicator) only 2 drops required	extremely		carcinogen	corrosive	<u>Only handled by experienced demonstrator</u>

SOLVENT: water TEMPERATURE: 25⁰C PRESSURE: 1 atm

SPECIAL EQUIPMENT USED: Titration equipment and glassware – burette. General glassware.

HAZARD CONTROL MEASURES: Safety glasses, Lab coat and gloves. Close supervision by qualified demonstrator.

LABORATORY SUPERVISORS SIGNATURE: Dr Jeanette Hurst.

WORKSHOP: Chemical Monitoring and Management

EXPERIMENT NAME: Hardness Determination in Water

LABORATORY LOCATION: School of Chemistry

Practical Type: Hands-on practical with student participation.

Reagent	Hazardous	Flammable	Toxic	Irritant	Disposal
0.01 M Na ₂ EDTA	Non hazardous				
pH 10 buffer solution (ammonium hydroxide)				Slight irritant if inhaled	
Erichrome black T indicator	Wear Gloves when handling				

SOLVENT: water TEMPERATURE: 25°C PRESSURE: 1 atm

SPECIAL EQUIPMENT USED: general glassware, burettes

HAZARD CONTROL MEASURES: Lab coat, safety glasses and gloves must be worn. Students are closely supervised by a qualified demonstrator.

LABORATORY SUPERVISORS SIGNATURE: Dr Jeanette Hurst.