How to Use the
GILBERT MICROSCOPE

pp 38-57
EXPERIMENT 4. COATED IMAGE

EXPERIMENT 4. MAKING A PERMANENT SLIDE WITH KEROSENE "STAMP"

EXPERIMENT 4. MAKING A PERMANENT SLIDE WITH KEROSENE "STAMP"

EXPERIMENT 4. MAKING A PERMANENT SLIDE WITH KEROSENE "STAMP"

EXPERIMENT 4. MAKE A PERMANENT SLIDE WITH KEROSENE "STAMP"
The use of the hand microscope is explained on pages 66 and 67.

**The Hand Microscope**

Possible special adaptations required in some of our first experiments:

- The use of the hand microscope depends on your technique. The use of this apparatus makes the results easier to observe than with the eye. The hand microscope is to be used when the apparatus is not in operation, and the microscope is to be used when the apparatus is in operation.

**Preparation of Objects**

**CHAPTER 11**
ExPERIMENT 6. PREPARING A MOUNTING IN ON

The preparation of a mounting in order to prepare a slide for microscopic examination is a procedure that involves several steps:

1. **Collect and prep the specimen:** This step involves collecting the specimen and preparing it for examination under the microscope. This may include cleaning, mounting, and sectioning the specimen to ensure it is in a suitable form for observation.

2. **Mount the specimen:** Once the specimen is prepared, it is mounted onto a载玻片 (slide) using a mounting medium. This medium helps to preserve the specimen and ensure it remains in place for viewing under the microscope.

3. **Observe under the microscope:** With the specimen properly mounted, it can be observed under the microscope. This allows for detailed examination of the specimen's structure and features.

ExPERIMENT 7. HOW TO USE CLARIFYING LENS

Clarifying lenses are used to enhance the contrast and clarity of a specimen viewed through the microscope. They are particularly useful in situations where the image is not as clear due to factors such as low light or a lack of contrast. By using a clarifying lens, the image can be sharpened, making it easier to observe the specimen's details.

**Technique:**
- Place the specimen on the载玻片 (slide) as described above.
- Mount the specimen using the appropriate mounting medium.
- Select the desired magnification for your objective lens.
- Using a clarifying lens, carefully observe the specimen under the microscope.

ExPERIMENT 8. SEPARATION BY SPECIAL MEANING

This experiment involves the separation of materials based on their unique properties, often achieved through specialized techniques or equipment. Examples include the separation of proteins or DNA from mixtures, or the isolation of specific compounds from complex samples.

**Procedure:**
- Collect the sample containing the mixture of interest.
- Choose the appropriate method for separation, which may involve chromatography, electrophoresis, or other specialized techniques.
- Follow the specific protocols for the chosen method to separate the components of the mixture.
- Analyze the separated components to understand their properties and identify them.
EXPERIMENT 72. Sectioning with the Microscope

Be sure to clean and dry your microscope so that it will be ready for use when you need it otherwise. Some of the instruments may be damaged if not cleaned or dried properly.

EXPERIMENT 71. Sectioning Time Materials

1. Trim a thin slice from each of the sections to be sectioned. Place a drop of water on a slide and place the tissue section on the slide. Cover it with a coverslip.

EXPERIMENT 70. Use of the Hand Microscope

The hand microscope can be used to examine the sections under low magnification. The objective lens is focused on the sections and the eyepiece is adjusted to provide the correct magnification. The sections are then examined under the microscope.

EXPERIMENT 69. Testing Porous Cels

Combine a few drops of water and a drop of India ink on a slide. Mix well and observe the ink particles under the microscope. If the particles do not move, the material is considered to be non-porous. If they do move, the material is considered to be porous.

EXPERIMENT 68. Testing Paper Specimens

Dissolve a small amount of paper in water and observe the paper particles under the microscope. If the particles are large, the paper is considered to be porous. If they are small, the paper is considered to be non-porous.

Note: The presence of foreign particles in the ink or paper specimens may affect the results.

EXPERIMENT 67. The Microscope

The microscope is an instrument used to magnify small objects. It consists of a series of lenses, a stage, and an eyepiece. The stage is where the specimen is placed and the eyepiece is where the magnified image is viewed.

The microscope is used to observe a variety of specimens, including cells, tissues, and microorganisms. It is an important tool in many fields, including biology, medicine, and engineering.
EXPERIMENT 12. CRYSTALLIZATION

EXPERIMENT 19. SOLID-LIQUID EQUILIBRIUM

EXPERIMENT 9. WATER IN WASTING SAND CUPS

EXPERIMENT 17. WATER OF CRISTALLIZATION

EXPERIMENT 18. SPREADING CRYSTAL GROWTH

EXPERIMENT 11. STANDARDIZATION OF INORGIC REAGENTS
EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.

The Classification of Crystals

The Classification of Crystals

1. Cube
2. Octahedron
3. Dodecahedron
4. Tetrahedron
5. Icosahedron

CHAPTER 13

THE MICROSCOPE

THE MICROSCOPE

1. Place a drop of crystal solution on the slide.
2. Observe the crystals under the microscope.
3. Note the different types of crystals present.

From your observations, you can see that the crystals are made up of small, repeating units called molecules.

Fig. 16

The Classification of Crystals

1. Cube
2. Octahedron
3. Dodecahedron
4. Tetrahedron
5. Icosahedron

EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Alum on Crystal Growth

Effect of Alum on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of Alum to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Temperature on Crystal Growth

Effect of Temperature on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Heat the solution to a certain temperature.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Light on Crystal Growth

Effect of Light on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Expose the solution to a certain type of light.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of pH on Crystal Growth

Effect of pH on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Adjust the pH of the solution to a certain value.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Ionic Strength on Crystal Growth

Effect of Ionic Strength on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Add a small amount of salt to the solution.
3. Observe the changes in the crystal formation.

EXPERIMENT 8. Effect of Concentration on Crystal Growth

Effect of Concentration on Crystal Growth

1. Dissolve some of the crystals in a solution of water.
2. Increase the concentration of the solution by adding more crystals.
3. Observe the changes in the crystal formation.
EXPERIMENT 10. Microscopic Study of Copper

Copper is a metal that has been used for centuries due to its durability and malleability. In this experiment, we will investigate the microscopic properties of copper using a microscope.

**Materials Needed:**
- Microscope
- Prepared slide of copper

**Procedure:**
1. **Set up the Microscope:**
   - Turn on the microscope and focus it on a blank slide.
   - Adjust the microscope's objectives and eyepieces to achieve a clear image.

2. **Observe the Copper Slide:**
   - Place the prepared copper slide under the microscope.
   - Observe the surface of the copper under both low and high magnification.
   - Note any microstructural features such as grain boundaries, dislocations, or impurities.

3. **Record Your Observations:**
   - Sketch or take photos of the observed structures.
   - Write down any specific details or patterns you notice.

4. **Compare with Textbooks:**
   - Refer to textbooks or online resources to compare your observations with known microstructures of copper.
   - Discuss any discrepancies or insights you gained from the experiment.

**Conclusion:**
Copper's microstructure is typically complex, with a mix of grains and dislocations. Understanding these features is crucial for applications in electronics and industry.

---

**Note:**
This experiment is designed for educational purposes and should be conducted under the supervision of a qualified instructor.
EXPERIMENT II. Carboxylic from Exced Ar.

EXPERIMENT III. Hydrogen Gas from Zinc

EXPERIMENT IV. Test for a Carboxylic

EXPERIMENT I. Oxydation of Copper

EXPERIMENT II. Oxydation of Copper