

Student's Card 1 Renewable Keratin wastes for use in metal mining

Module 1



Objective: KERATIN EXTRACTION FROM WOOL

Introduction

Keratin is a filamentous protein with a quaternary structure. It is rich in sulphur and it is very stable and resistant. It is found in nail, skin, hair and horns. In this experiment we are going to extract keratin starting from wool. This can be done using an extraction solution.

Necessities



Reagents	Formula		Quantity (g) or Concentration (M)
Sodium Hydroxide	NaOH		1.0/0.5 N solution

List of materials/tools

- Coarse wool fibres: Wool must be coarse, untreated and undyed in order to prevent treatments from altering the results.
- Beaker
- Glass rod
- Gloves
- Safety Glasses

Lab Procedure

- Put coarse wool fibres into the beaker and cover them with the solution of sodium hydroxide. Then mix the compound with a glass rod.
- Wait at least 4-5 hours; alternatively, a 0.5 N solution can be used: then and wait for one night
- Pull out part of the fibres from the extraction solution and observe its aspect.

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Additional Safety Notes



Using NaOH, wear gloves and safety glasses

Results:

Wool aspect before the extraction	
Wool aspect after the period of extraction	
Aspect of the extraction solution at the end of the experiment	



Questions/Quiz

1. Do you think that a chemical reaction which has modified the wool in some way has occurred?
2. Can you imagine what kind of changes might have occurred at molecular level?