

SEPARATING A MIXTURE

LABORATORY (16 PTS)

BACKGROUND

The ability to separate and recover substances from **mixtures** is extremely important in scientific research and industry. Chemists often need to work with **pure substances**, but naturally occurring materials are seldom pure. Engineers can design solutions to such problems. In this lab, you will use principles of engineering and chemistry to solve a similar problem—separating a mixture of common items.

In this laboratory you will be given a granular mixture of **salt**, **sand**, **iron filings**, and **poppy seeds** and tasked with implementing a safe procedure for physically separating the mixture into four pure substances.



PRE-LAB QUESTIONS

1. Explain the relationship between mixtures and pure substances. (1 pt)
2. List properties that you know about: (4 pts)
 - a. salt.
 - b. sand.
 - c. iron filings.
 - d. poppy seeds.

NAME: _____ DATE: _____ PERIOD: _____

MATERIALS

- Safety goggles
- 20 mL sample mixture (salt, sand, iron filings, poppy seeds)
- Water
- Filter paper
- Funnel
- Hot plate
- Scoopula
- 4 Test tubes with rack
- 150 mL beaker
- Magnet

SAFETY

- Iron filings are hazardous if swallowed, inhaled, or enter your eyes or nose.
- Wear goggles
- Do not eat or drink
- Wash your hands immediately after completing and cleaning up your station.

PROCEDURE

Using the materials above, design a safe procedure for separating the mixture of salt, sand, iron filings, and poppy seeds into 4 test tubes of pure substances. Get your procedure approved before you begin.

Teacher approval signature: _____ (5 pts)

NAME: _____ DATE: _____ PERIOD: _____

DATA

1. Summarize how your procedure worked for each component. (4 pts)

a. Salt

b. Sand

c. Iron filings

d. Poppy seeds

2. Describe changes you could make to improve the procedure. (2 pts)