Disappearing Foam Cup

Student Worksheet

Name_____

Overview Abracadabra, hocus pocus, make this cup disappear! (Or melt into a blob. That's also very cool).

What to Learn You should understand that Styrofoam is made mostly of air and a polymer called polystyrene. When acetone dissolves the bonds between these long polymer chains, the air is released and voilà, you have a polystyrene puddle.

Materials

- Styrofoam cup (can also try Styrofoam beads, packing peanuts, or other Styrofoam packing materials)
- disposable metal pie plate
- acetone (MSDS)

Lab Time

1. Put on safety goggles and gloves.
2. Place a Styrofoam cup into the disposable metal pie plate.
3. Carefully pour a small amount of acetone into the cup and observe. Add more acetone as needed.

Disappearing Foam Cup Data Table

What else can you dissolve in acetone? Try some common plastic household items, such as plastic yogurt containers, plastic mailers, and cd jewel cases. Record your findings in the following table.

Item	Did It Dissolve?	How Long Did It Take?

Exercises Answer the questions below:

1. What did the acetone do in this experiment?

2. Why is Styrofoam so light?

3. Was this experiment an example of a physical or chemical change? How do you know?

Exercises

1. What did the acetone do in this experiment? (It dissolved the bonds between the polymer, allowing all of the air to escape.)
2. Why is Styrofoam so light? (It's mostly air!)
3. Was this experiment an example of a physical or chemical change? How do you know? (A physical change, because the acetone only removed the air from the polystyrene. The polystyrene did not change into something else.)

Closure Before moving on, ask your students if they have any recommendations or unanswered questions that they can work out on their own. Brainstorming extension ideas is a great way to add more science studies to your class time.