

Burning Sulfur

Student Worksheet

Name _____

Overview: You've probably smelled it before... that rotten egg stink or the smell from the hot springs. Who's the culprit? Sulfur, which is element number 6 on the periodic table. Today you get to burn it and see what happens!

What to Learn: You should understand that when sulfur burns, it combines with oxygen to produce sulfur dioxide. This is called a synthesis reaction, because sulfur and oxygen from the air react and form a new substance, sulfur dioxide.

Materials

- Goggles
- Gloves
- Measuring spoon
- Sulfur ([MSDS](#))
- Alcohol burner
- Lighter
- Test tube of O₂

Lab Time

1. Bend the small end of the measuring spoon 90° so that it acts like a ladle.
2. Open the sulfur container. (Be careful, as it is a powder!) Put some sulfur on the end of a ladle.
3. With adult help, light the alcohol burner. Put the sulfur in the flame. It will become liquid, turn color, and then have a flame.
4. As soon as there is a flame in the ladle, carefully lower it into the oxygen tube and observe. If you leave the oxygen uncapped too long, the oxygen will escape.

Cleanup: Clean everything thoroughly after the lab. After cleaning with soap and water, rinse thoroughly. Chemists use the rule of “three” in cleaning glassware and tools. After washing, chemists rinse out all visible soap and then rinse three times more.

Storage: Place cleaned tools and glassware in their respective storage places.

Disposal: Liquids can be washed down the drain. Solids are thrown in the trash.

Burning Sulfur Data Table

Item/Object	Observations (Be thorough! Include colors, odors, liquid or solids, etc.)
Sulfur in powder form	
Sulfur burning in air	
Sulfur burning in oxygen tube	

Exercises Answer the questions below:

1. What was the chemical equation for the reaction in today's experiment? What type of reaction was it?
2. Why did the flame burn brighter in the oxygen tube?
3. State two positive uses for sulfur and one negative consequence of having sulfur in the air.

Exercises

1. What was the chemical equation for the reaction in today's experiment? What type of reaction was it? ($S + O_2 \rightarrow SO_2$, a synthesis reaction.)
2. Why did the flame burn brighter in the oxygen tube? (There was much more oxygen that could react with the sulfur.)
3. State two positive uses for sulfur and one negative consequence of having sulfur in the air. (Answers will vary, but positive uses may include the following: Sulfur is used in fertilizer, black powder, matches, and insecticides. One negative about sulfur is that when it is burned in a coal fired power plant, sulfur dioxide is produced. The sulfur is spewed into the air, where it reacts with moisture in the air to form sulfuric acid. This comes back down to earth as acid rain).

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.