Potassium Permanganate

Student Worksheet

Name_____

Overview: It looks like magic, but it's really a chemical reaction involving a nifty little chemical called potassium permanganate.

What to Learn: You should focus on the fact that there are certain indicators of a chemical change in a reaction, including a color change, temperature change, and the formation of bubbles.

Materials

- 3% hydrogen peroxide, H_2O_2 (MSDS)
- Test tube rack
- 2 test tubes
- Potassium permanganate, $KMnO_4$ (MSDS)
- Sodium hydrogen sulfate, $NaHSO_4$ (MSDS) **Sodium hydrogen sulfate is very toxic. Respect it, handle it carefully and responsibly. Do not take it for granted.**
- Measuring syringe
- Water
- Measuring spoon
- Solid rubber stopper

Lab Time

1. In a clean test tube, measure out 5 milliliters (mL) of water.
2. To this, add a spoon tip (½ of the small spoon) potassium permanganate ($KMnO_4$). Swirl to mix. Cap chemical and set aside. Wash the spoon.
3. Add a small spoon of sodium hydrogen sulfate (NaHSO4). Cap chemical and set aside. Wash the spoon.
4. Have a stopper ready to cap the test tube before completing step 7!
5. Add 5 mL of hydrogen peroxide H_2O_2. Quickly cap test tube and observe!
6. Optional: Place a glowing splint into the test tube to test for oxygen gas.

Potassium Permanganate Data Table

Chemicals	Detailed Observations
potassium permanganate ($KMnO_4$)	

water + potassium permanganate (H_2O + $KMnO_4$)	
sodium hydrogen sulfate ($NaHSO_4$)	
Hydrogen peroxide (H_2O_2)	
$KMnO_4$ + $NaHSO_4$ + H_2O_2	

Exercises Answer the questions below:

1. Name all of the elements you experimented with in today's lesson.

2. How did you know a chemical change occurred?

3. What would happen if you placed a glowing splint into the test tube? Why?

4. Name three real-life examples of chemical changes that may happen around you.

Exercises

1. Name all of the elements you experimented with in today's lesson. (potassium, manganese, oxygen, sodium, hydrogen, sulfur)
2. How did you know a chemical change occurred? (formation of bubbles, color change from a milky white to clear, temperature change)
3. What would happen if you placed a glowing splint into the test tube? Why? (It would burst into flames because of the oxygen gas.)
4. Name three real-life examples of chemical changes that may happen around you. (Answers will vary. Possible answers include baking, rusting, mixing chemicals like baking soda and vinegar, digesting food, burning, exploding, rotting food, etc.)

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.