THE PREPARATION OF OXYGEN FROM HYDROGEN PEROXIDE AND POTASSIUM IODIDE

Maximum = 9

(1) Proper layout

PURPOSE: to prepare oxygen gas and observe some of its properties.

METHOD: See Lab handout sheet

APPARATUS: See Lab handout sheet

OBSERVATIONS:

(1/2) • When the colourless hydrogen peroxide was mixed with the white potassium iodide in the flask, bubbles of gas started to form immediately and the mixture became a clear yellow-brown colour.

(1/2) • The water in the inverted test tube was displaced by a colourless gas.

(1/2) • When a glowing splint of wood was inserted into the test tube, the wood burst into flame but no sound was made.

(1/2) • The oxygen in a test tube had no smell.

(1/2) • When water was sprayed into a flask full of oxygen, no change was observed.

(1/2) • When water was sprayed into a flask full of ammonia, water was immediately sucked into the flask.

CONCLUSIONS:

A. Summarize all the properties of oxygen gas that you observed (appearance, smell, effect on a glowing splint, ability to dissolve in water).

(1) Oxygen is a colourless, odourless gas that supports combustion and is much less soluble in water than ammonia.

B. How could you use the results of this experiment to help decide if an unknown gas was or was not oxygen?

(1) If an unknown gas was colourless and odourless and supported combustion and was not very soluble in water, then the unknown gas could be oxygen.

QUESTIONS:

• What was the reaction that generated the oxygen?
• What caused the yellow colour to form?
• What other reactions will create oxygen?
• Could this reaction be altered to create other gases?
• Why is oxygen not very soluble in water? Does oxygen dissolve in other liquids?
• Are there other gases that support combustion?
• Does any gas besides oxygen have the set of properties that we recorded?
• Does oxygen actually have a smell?

(3) 3 = more than 5 questions and at least one creative question
2.5 = more than 5 questions, none creative
2 = 3 - 5 questions and at least one creative question
1.5 = 3 - 5 questions, none creative
1 = 1 - 2 questions
0 = no questions

+1/2 bonus if 2 or more creative questions