

WorksheetCloud: MEMORANDUM

Grade 9

Subject: Natural Sciences

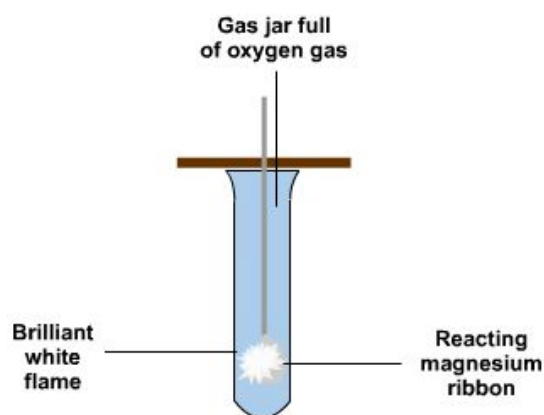
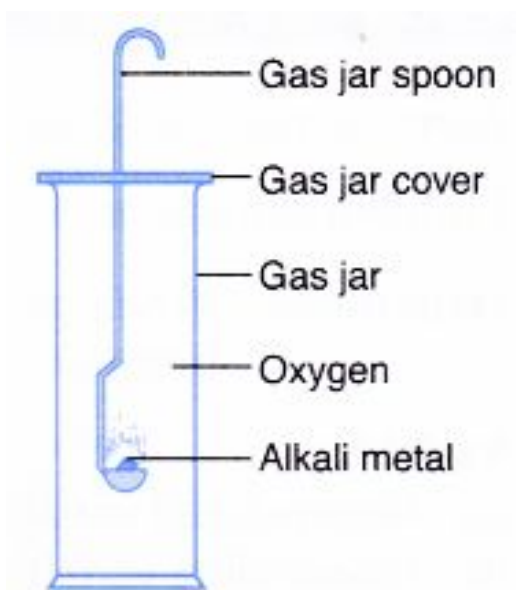
Topic: Experiment reactions of metals with oxygen

Experiment: The reaction of metals with oxygen

Aim: To observe the flame colour when elements react with oxygen

Method:

- Fill gas jars with oxygen
- Heat each of the following metals over a flame
- Place the heated element in a cylinder of oxygen and observe the flame colour.



Results

Table showing the observation, products and chemical equation for metal elements reaction with oxygen

Element	Symbol	Flame Colour	Name of product	Chemical Equation
Sodium	Na	bright yellow	Sodium oxide White powder	$4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$
Potassium	K	very bright purplish	Potassium oxide White powder	$4\text{K} + \text{O}_2 \rightarrow 2\text{K}_2\text{O}$
Lithium	Li	red	lithium oxide White powder	$4\text{Li} + \text{O}_2 \rightarrow 2\text{Li}_2\text{O}$
Magnesium	Mg	brilliant white	Magnesium oxide White powder	$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
Iron	Fe	Does not burn. Hot metal glows in oxygen and gives off yellow sparks.	Fe ₂ O ₃ , iron oxide - an orange powder.	$4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$
Copper	Cu	Does not burn. Metal eventually coats with a black layer.	CuO, copper oxide - a black powder.	$2\text{Cu} + \text{O}_2 \rightarrow 2\text{CuO}$

Conclusion

Metals react with oxygen to make a metal oxide

Metals in the same group on the periodic table will react in similar ways

Group 1 metals

metal + oxygen → metal oxide



Group 2 metals

metal + oxygen → metal oxide

