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The World of Metals and Non-metals

Let Us Enhance Our Learning

Q1. Which metal is commonly used to make food packaging materials as it is cheaper, and its thin sheets can be folded easily into any shape?

Answer: (i) Aluminium

Aluminium is cheap, lightweight, and can be easily beaten into thin sheets, which makes it ideal for food packaging.

Q2. Which of the following metals catches fire when it comes in contact with water?

Answer: (iv) Sodium

Sodium is a very reactive metal. It reacts vigorously with water and catches fire, which is why it is stored in kerosene.

Q3. State with reason(s) whether the following statements are True [T] or False [F].

(i) Aluminium and copper are examples of non-metals used for making utensils and statues.

Answer: False (F)

Aluminium and copper are metals, not non-metals. They are used for making utensils and statues because they are good conductors and malleable.

(ii) Metals form oxides when combined with oxygen, the solution of which turns blue litmus paper to red.

Answer: False (F)

Metal oxides are basic in nature. They turn red litmus paper blue, not blue litmus paper red.

(iii) Oxygen is a non-metal essential for respiration.

Answer: True (T)

Oxygen is a non-metal and is essential for the process of respiration in living beings.

(iv) Copper vessels are used for boiling water because they are good conductors of electricity.

Answer: False (F)

Copper vessels are used because they are good conductors of heat, not electricity in this case.

Q4. Why are only a few metals suitable for making jewellery?

Answer: Only metals that are malleable, lustrous, and non-reactive, such as gold, silver, and platinum, are suitable for making jewellery. These metals do not corrode easily and can be shaped into delicate designs.

Q5. Match the uses of metals and non-metals in Column I with the jumbled names in Column II.

Column I	Column II (Jumbled)	Answer
(i) Used in electrical wiring	(c) P E P O R C	Copper
(ii) Most malleable and ductile	(e) O G D L	Gold
(iii) Living organisms cannot survive without it	(a) E N X Y G O	Oxygen
(iv) Plants grow healthy when fertilisers containing it are added	(d) T E N G O I N R	Nitrogen
(v) Used in water purification	(b) N E C O H I R L	Chlorine

Q6. What happens when oxygen reacts with magnesium and sulphur? What are the main differences in the nature of products formed?

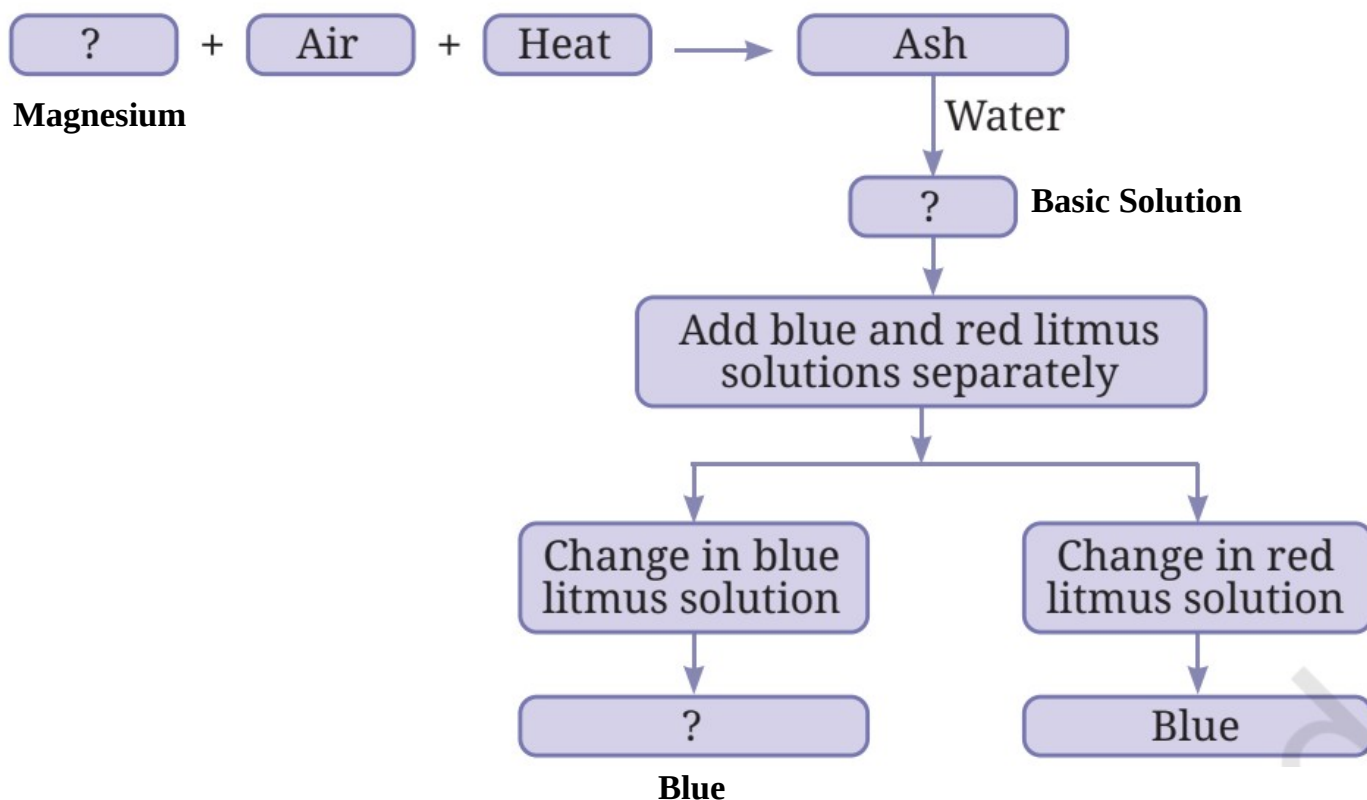
Answer:

- Magnesium + Oxygen \rightarrow Magnesium oxide, which is basic in nature.
- Sulphur + Oxygen \rightarrow Sulphur dioxide, which forms sulphurous acid in water and is acidic in nature.

Main Difference: Metal oxides (like magnesium oxide) are basic, while non-metal oxides (like sulphur dioxide) are acidic.

Q7. Complete the flow chart.

Answer:



Q8. You are provided with the following materials: Iron, copper, sulphur, coal, plastic, wood, cardboard. Which material would you choose to make a pan most suitable for boiling water and why?

Answer: I would choose copper because it is a good conductor of heat and does not react with water, making it suitable for cooking or boiling.

Q9. You are provided with three iron nails, each dipped in oil, water and vinegar. Which iron nail will not rust, and why?

Answer: The iron nail dipped in oil will not rust because oil prevents air and moisture from coming into contact with iron, which are necessary for rusting.

Q10. How do the different properties of metals and non-metals determine their uses in everyday life?

Answer:

- Metals are malleable, ductile, lustrous, and good conductors, so they are used for utensils, wires, and machinery.
- Non-metals are brittle, poor conductors, and reactive, so they are used in fertilizers (like nitrogen), antiseptics (like iodine), and respiration (oxygen).

Q11. One of the methods of protecting iron from getting rusted is to put a thin coating of zinc metal over it. Since sulphur does not react with water, can it be used for this purpose? Justify your answer.

Answer: No, sulphur cannot be used to protect iron from rusting because it is a non-metal and brittle. It cannot form a proper coating, unlike zinc which forms a protective layer and adheres well to iron.

Q12. An iron-smith heats iron before making tools. Why is heating necessary in this process?

Answer: Heating softens the iron, making it easier to shape and Mold into tools using a hammer or press.