Assumption College Ubonratchathani
**English for Science 3**

Name:..... Class:..... No. .....

# Chemical Reaction Between Iron and Copper Sulphate $Fe + CuSO_4$

(ปฏิกิริยาเคมีระหว่างเหล็กกับคอปเปอร์ซัลเฟต)

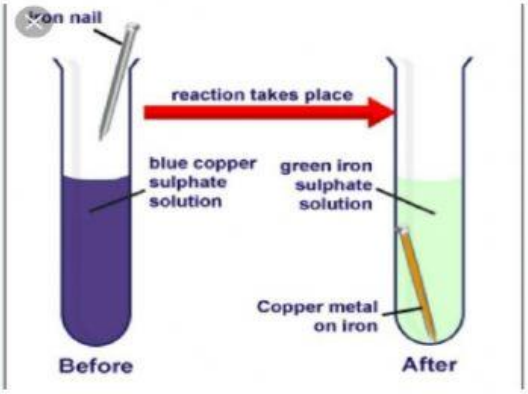
The chemical equation when Iron and Copper Suplhate is

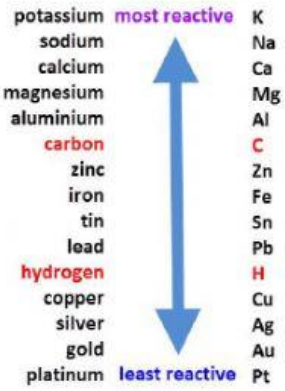
| $Fe_{(s)}$ | + | $CuSO_{4\,(aq)}$ | -----> | $FeSO_{4\,(aq)}$ | + | $Cu_{(s)}$ | + | heat |
|---|---|---|---|---|---|---|---|---|
| solid metal | | salt solution | | salt solution | | solid metal | | (exothermic) |
| (grey) | | (blue) | | (green) | | (reddish brown) | | |

Fe = iron (nail) is a metal
Cu = copper is a metal
$CuSO_4$ = copper sulphate (blue vitriol)
$FeSO_4$ = iron sulphate (ferrous sulphate)
(s) = solid substance
(aq) = aqueous solution (a solution where solvent is water)

## THEORY (ทฤษฎี)

Iron (Fe) is more reactive than Copper (Cu) so iron will displace copper in copper sulphate ($CuSO_4$+) and produce iron sulphate ($FeSO_4$) and copper (Cu)



**Tick the correct answer.**

1. The reaction of iron (Fe) and copper sulphate ($CuSO_4$) solution produces iron sulphate and _____.

a. iron
c. iron sulphate
b. copper sulphate
d. copper

2. Which is a metal?

a. iron only
c. copper only
b. both iron and copper
d. none of the choices

3. What is the color of the copper sulphate ($CuSO_4$) solution?

a. green
c. blue
b. grey
d. reddish brown

4. What is the color of the iron (Fe) nail before it was dipped in copper sulphate ($CuSO_4$) solution?

a. green
c. grey
b. blue
d. reddish brown

5. What is the color of iron sulphate ($FeSO_4$) solution?

a. green
c. blue
b. brown
d. reddish brown

6. What is the color of copper (Cu)?

a. green
c. blue
b. brown
d. reddish brown

7. What are the reactants in chemical reaction between iron (Fe) and copper sulphate ($CuSO_4$) solution?

a. iron and copper sulphate
c. iron and copper
b. iron sulphate and copper sulphate
d. copper and iron sulphate

8. What are the products in chemical reaction between iron (Fe) and copper sulphate ($CuSO_4$) solution?

a. iron and copper sulphate
c. iron and copper
b. iron sulphate and copper sulphate
d. copper and iron sulphate

9. What is the reddish brown substance deposited on the nail?

a. iron sulphate
b. copper
c. iron
d. copper sulphate

10. What is the green solution formed in the reaction between iron (Fe) nail and copper sulphate ($CuSO_4$) solution?

a. copper
b. iron
c. iron sulphate
d. copper sulphate

11. What substance was displaced in chemical reaction between iron and copper sulphate solution?

a. copper
b. iron
c. iron sulphate
d. copper sulphate

12. Which element is more reactive, iron (Fe) or copper (Cu)?

a. copper is more reactive
b. iron is more reactive
c. both have the same reactivity
d. none of the above

13. What type of reaction is the chemical reaction between iron (Fe) and copper sulphate solution?

a. endothermic reaction
b. exothermic reaction
c. neutral reaction
d. no temperature change

14. What characteristic of chemical reaction was **not observed** when the iron nail was dipped into copper sulphate solution?

a. new substances were formed
b. change in color
c. gas was formed
d. change in temperature

15. Why did the blue copper sulphate changes green color?

a. Because the solution is now iron sulphate.
b. Because of the presence of copper.
c. Because of the precipitate.
d. Because there was a gas formed.

16. Why did copper was displaced by iron in the sulphate solution?

a. Because copper is more reactive than iron.
b. Because iron is more reactive than copper.
c. Because both iron and copper are reactive.
d. Because both iron and copper are not reactive.