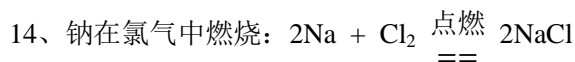
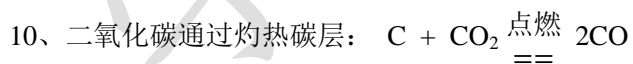
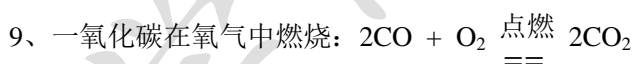
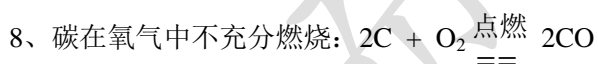
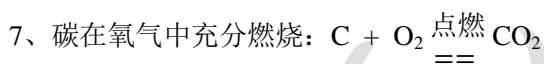
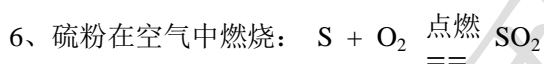
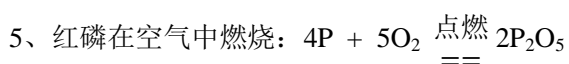
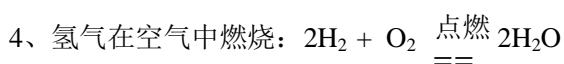
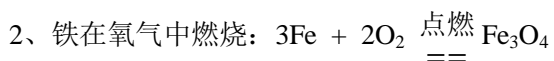
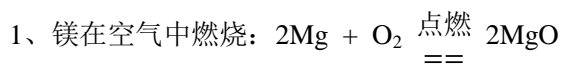
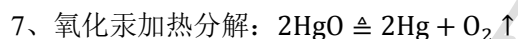
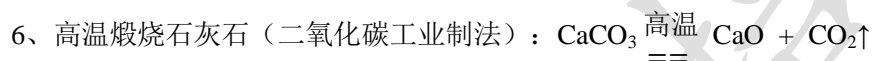
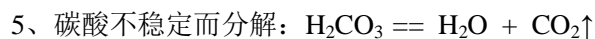
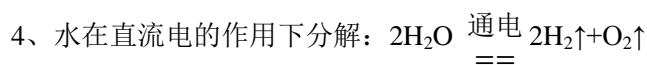
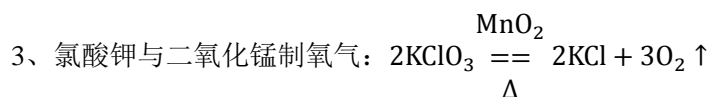
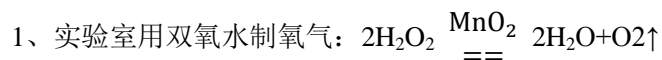


# 初中化学常见化学方程式

## 一、化合反应

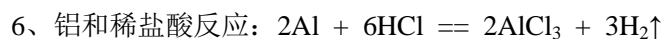
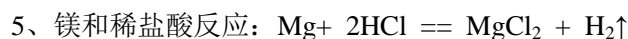
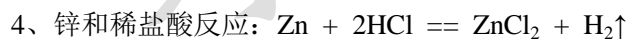
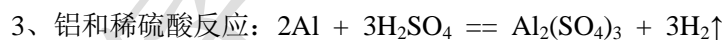
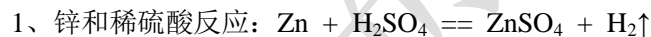


## 二、分解反应

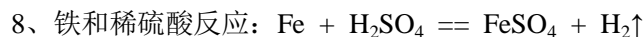
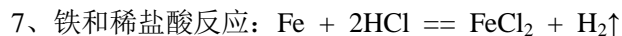


## 三、置换反应

### I、金属单质 + 酸 ----- 盐 + 氢气（置换反应）

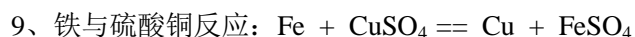


注: 1—6 的现象, 有气泡产生。



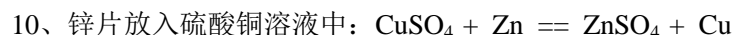
注: 7—8 的现象, 有气泡产生, 溶液由无色变成浅绿色。

## II、金属单质 + 盐(溶液) → 另一种金属 + 另一种盐

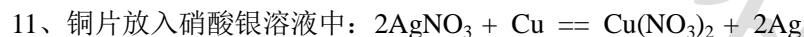


现象: 铁条表面覆盖一层红色的物质, 溶液由蓝色变成浅绿色。

(古代湿法制铜及“曾青得铁则化铜”指的是此反应)

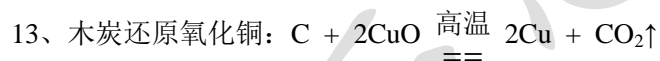
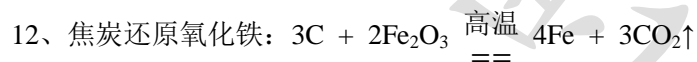


现象: 锌片表面覆盖一层红色的物质, 溶液由蓝色变成无色。

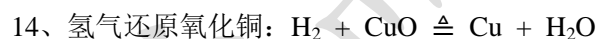


现象: 铜片表面覆盖一层银白色的物质, 溶液由无色变成蓝色。

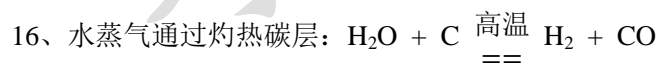
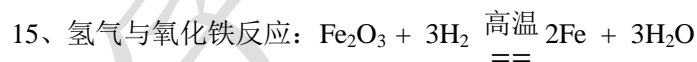
## III、金属氧化物 + 木炭或氢气 → 金属 + 二氧化碳或水



现象: 黑色粉末变成红色, 澄清石灰水变浑浊。

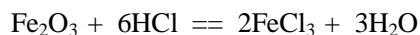


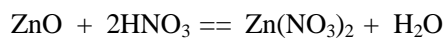
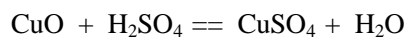
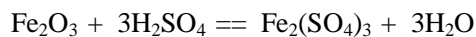
现象: 黑色粉末变成红色, 试管内壁有水珠生成



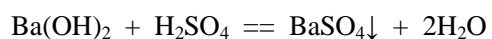
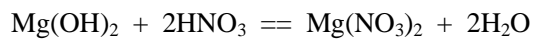
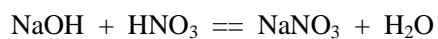
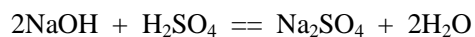
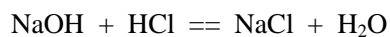
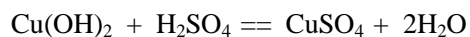
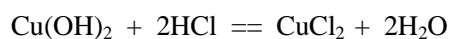
## 四、复分解反应

### 1、碱性氧化物 + 酸 → 盐 + $\text{H}_2\text{O}$

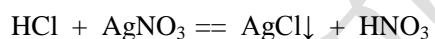
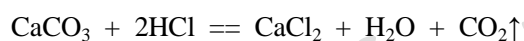




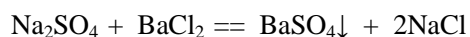
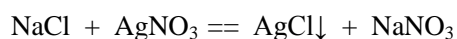
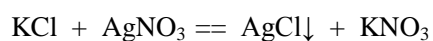
## 2、碱+酸→盐+H<sub>2</sub>O (中和反应)

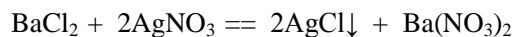


## 3、酸+盐→新盐+新酸

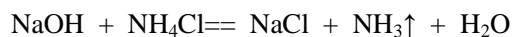
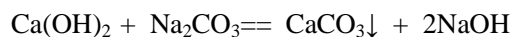
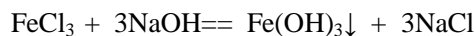
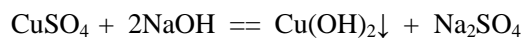


## 4、盐 1+盐 2→新盐 1+新盐 2



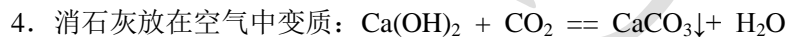
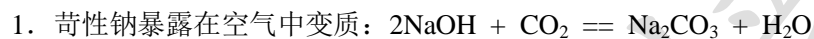


### 5、盐+碱→新盐+新碱

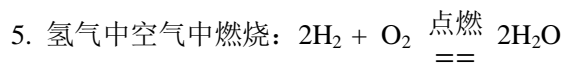
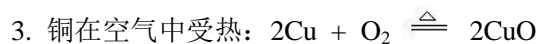
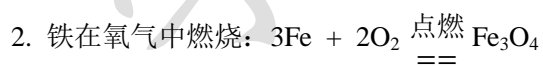


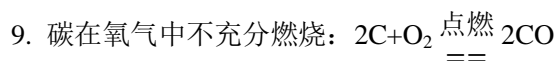
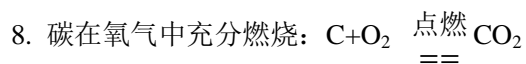
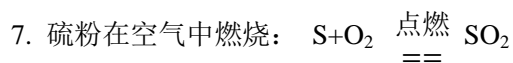
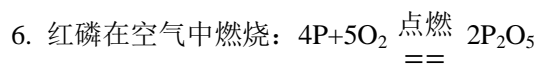
## 五、其他

### I、酸性氧化物+碱→盐+水

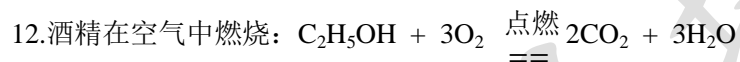
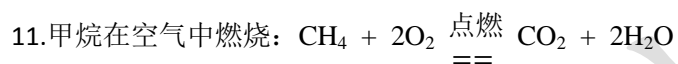
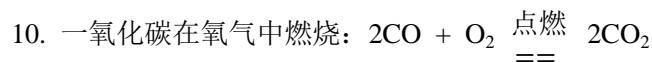


### II、单质与氧气的反应:

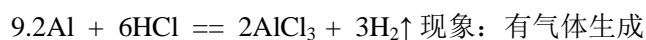
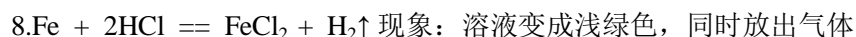
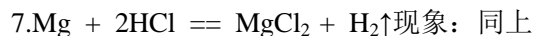
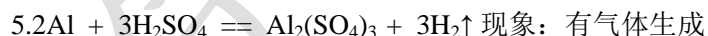
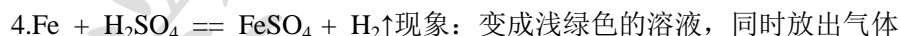
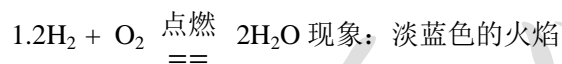


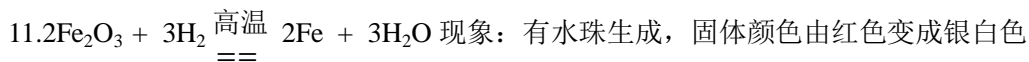
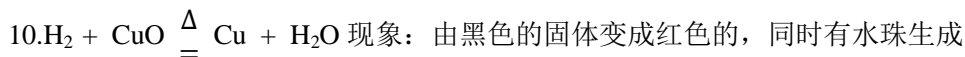


### III、化合物与氧气的反应:

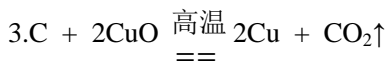
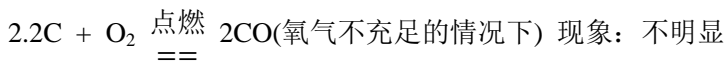


### IV、与氢有关的化学方程式:

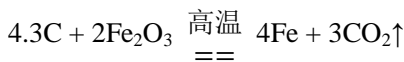




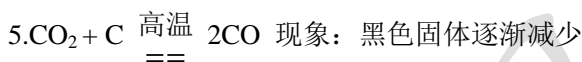
#### V、跟碳有关的化学方程式:



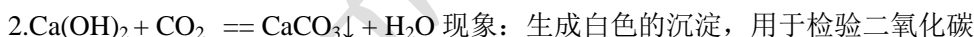
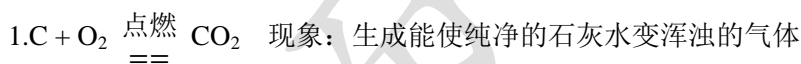
现象: 固体由黑色变成红色并减少, 同时有能使纯净石灰水变浑浊的气体生成



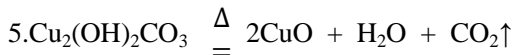
现象: 固体由红色逐渐变成银白色, 同时黑色的固体减少, 有能使纯净的石灰水变浑浊的气体生成



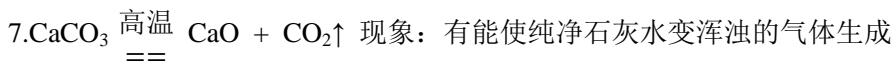
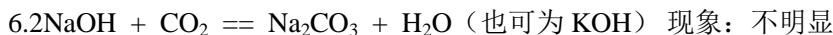
#### VI、与二氧化碳有关的化学方程式:



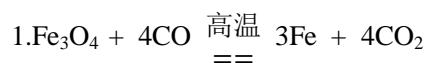
现象: 生成白色的沉淀, 同时有能使纯净的石灰水变浑浊的气体生成



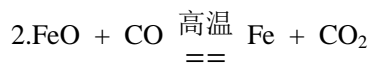
现象: 固体由绿色逐渐变成黑色, 同时有能使纯净石灰水变浑浊的气体生成



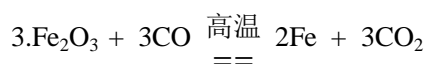
#### VII、与一氧化碳、二氧化碳有关化学方程式:



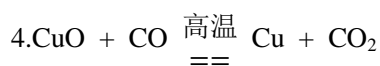
现象: 固体由黑色变成银白色, 同时有能使纯净石灰水变浑浊的气体生成



现象: 固体由黑色逐渐变成银白色, 同时有能使纯净石灰水变浑浊的气体生成

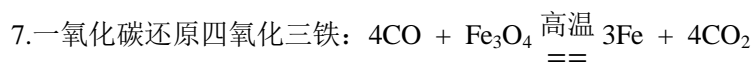
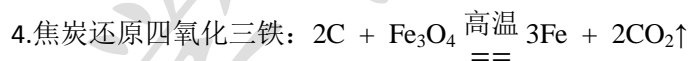
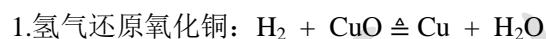


现象: 固体由红色逐渐变成银白色, 同时有能使纯净石灰水变浑浊的气体生成

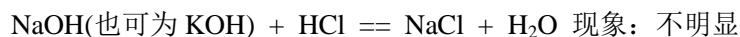


现象: 固体由黑色变成红色, 同时有能使纯净石灰水变浑浊的气体生成

### VIII、氧化还原反应



### IX、与盐酸有关的化学方程式





$\text{HCl} + \text{AgNO}_3 == \text{AgCl}\downarrow + \text{HNO}_3$  现象: 有白色沉淀生成, 这个反应用于检验氯离子

$\text{CaCO}_3 + 2\text{HCl} == \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2\uparrow$  现象: 白色固体溶解, 生成能使纯净石灰水变浑浊的气体

$\text{Na}_2\text{CO}_3 + 2\text{HCl} == 2\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2\uparrow$  现象: 生成能使纯净石灰水变浑浊的气体

$\text{NaHCO}_3 + \text{HCl} == \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2\uparrow$  现象: 生成能使纯净石灰水变浑浊的气体

$\text{Fe}_2\text{O}_3 + 6\text{HCl} == 2\text{FeCl}_3 + 3\text{H}_2\text{O}$  现象: 红色固体逐渐溶解, 形成黄色的溶液

$\text{Fe}(\text{OH})_3 + 3\text{HCl} == \text{FeCl}_3 + 3\text{H}_2\text{O}$  现象: 红棕色絮状沉淀溶解, 形成了黄色的溶液

$\text{Cu}(\text{OH})_2 + 2\text{HCl} == \text{CuCl}_2 + 2\text{H}_2\text{O}$  现象: 蓝色沉淀溶解, 形成黄绿色的溶液

$\text{CuO} + 2\text{HCl} == \text{CuCl}_2 + \text{H}_2\text{O}$  现象: 黑色固体溶解, 生成黄绿色的溶液

$\text{Zn} + 2\text{HCl} == \text{ZnCl}_2 + \text{H}_2\uparrow$  现象: 同上

$\text{Mg} + 2\text{HCl} == \text{MgCl}_2 + \text{H}_2\uparrow$  现象: 同上

$\text{Fe} + 2\text{HCl} == \text{FeCl}_2 + \text{H}_2\uparrow$  现象: 溶液变成浅绿色, 同时放出气体

$2\text{Al} + 6\text{HCl} == 2\text{AlCl}_3 + 3\text{H}_2\uparrow$  现象: 有气体生成

以上四个反应, 盐酸、硫酸都相似, 后面两类就不赘述了, 读者只需写出配平即可; 硝酸一般具有氧化性, 所以产物一般不为  $\text{H}_2$

#### X、跟硫酸有关的化学方程式:

$2\text{NaOH} + \text{H}_2\text{SO}_4 == \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$  现象: 不明显

$\text{Fe}_2\text{O}_3 + 3\text{H}_2\text{SO}_4 == \text{Fe}_2(\text{SO}_4)_3 + 3\text{H}_2\text{O}$  现象: 红色固体溶解, 生成黄色溶液

$\text{CuO} + \text{H}_2\text{SO}_4 == \text{CuSO}_4 + \text{H}_2\text{O}$  现象: 黑色固体溶解, 生成蓝色溶液

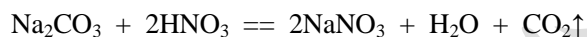
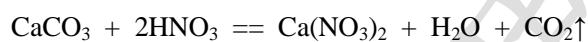
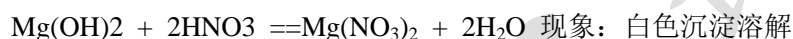
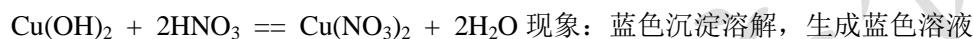
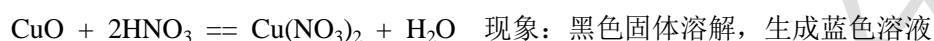
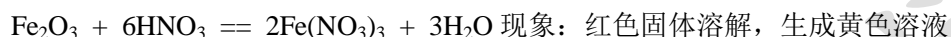
$\text{Cu}(\text{OH})_2 + \text{H}_2\text{SO}_4 == \text{CuSO}_4 + 2\text{H}_2\text{O}$  现象: 蓝色沉淀溶解, 生成蓝色溶液

$\text{H}_2\text{SO}_4 + \text{BaCl}_2 == \text{BaSO}_4\downarrow + 2\text{HCl}$  现象: 生成不溶于强酸的白色沉淀, 用于检验硫酸根离子



$2\text{NaHCO}_3 + \text{H}_2\text{SO}_4 == \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O} + 2\text{CO}_2\uparrow$  现象: 这三个反应现象同与盐酸反应现象一致

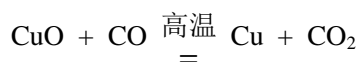
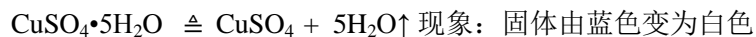
### XI、跟硝酸有关的化学方程式:



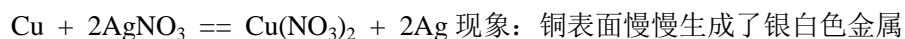
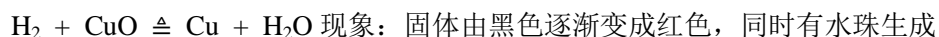
$\text{NaHCO}_3 + \text{HNO}_3 == \text{NaNO}_3 + \text{H}_2\text{O} + \text{CO}_2\uparrow$  现象: 以上三个反应现象同与盐酸反应现象一致

### XII、跟几种金属及其盐有关的化学方程式:

#### (1) 铜:



现象: 固体由黑色逐渐变成红色, 同时有能使纯净的石灰水变浑浊的气体生成



$\text{CuCl}_2 + 2\text{NaOH} == \text{Cu}(\text{OH})_2\downarrow + 2\text{NaCl}$  现象: 生成了蓝色絮状沉淀

$\text{CuO} + \text{H}_2\text{SO}_4 == \text{CuSO}_4 + \text{H}_2\text{O}$  现象: 黑色固体溶解, 生成蓝色溶液

$\text{Cu}(\text{OH})_2 + \text{H}_2\text{SO}_4 == \text{CuSO}_4 + 2\text{H}_2\text{O}$  现象: 蓝色沉淀溶解, 生成蓝色溶液

$\text{Fe} + \text{CuSO}_4 == \text{FeSO}_4 + \text{Cu}$  现象: 有红色金属生成

$\text{Cu}_2(\text{OH})_2\text{CO}_3 \triangleq 2\text{CuO} + \text{H}_2\text{O} + \text{CO}_2\uparrow$

现象: 固体由绿色逐渐变成黑色, 同时有能使纯净石灰水变浑浊的气体生成

## (2) 铁:

$\text{Fe} + 2\text{HCl} == \text{FeCl}_2 + \text{H}_2$  现象: 铁粉慢慢减少, 同时有气体生成, 溶液呈浅绿色

$\text{FeCl}_2 + 2\text{NaOH} == \text{Fe}(\text{OH})_2\downarrow + 2\text{NaCl}$  现象: 有白色絮状沉淀生成

$4\text{Fe}(\text{OH})_2 + \text{O}_2 + 2\text{H}_2\text{O} == 4\text{Fe}(\text{OH})_3$  现象: 氢氧化铁在空气中放置一段时间后, 会变成红棕色

$\text{Fe}(\text{OH})_3 + 3\text{HCl} == \text{FeCl}_3 + 3\text{H}_2\text{O}$  现象: 红棕色絮状沉淀溶解, 溶液呈黄色

$\text{Fe}(\text{OH})_2 + 2\text{HCl} == \text{FeCl}_2 + 2\text{H}_2\text{O}$  现象: 白色絮状沉淀溶解, 溶液呈浅绿色

$\text{Fe} + \text{CuSO}_4 == \text{FeSO}_4 + \text{Cu}$  现象: 铁溶解生成红色金属

$\text{Fe} + \text{AgNO}_3 == \text{Fe}(\text{NO}_3)_2 + \text{Ag}$  现象: 铁溶解生成银白色的金属

$\text{Fe}_2\text{O}_3 + 6\text{HCl} == 2\text{FeCl}_3 + 3\text{H}_2\text{O}$  现象: 红色固体溶解, 生成黄色的溶液

$\text{Zn} + \text{FeCl}_2 == \text{ZnCl}_2 + \text{Fe}$  现象: 锌粉慢慢溶解, 生成铁

## (3) 银:

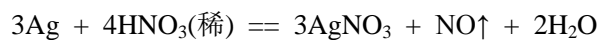
$\text{AgNO}_3 + \text{HCl} == \text{AgCl}\downarrow + \text{HNO}_3$  现象: 有白色沉淀生成, 且不溶于强酸

$\text{AgNO}_3 + \text{NaCl} == \text{AgCl}\downarrow + \text{NaNO}_3$  现象: 有白色沉淀生成, 且不溶于强酸

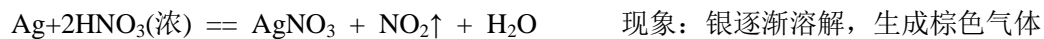
$\text{Cu} + 2\text{AgNO}_3 == \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$  现象: 红色的铜逐渐溶解, 同时有银白色的金属生成

$2\text{AgNO}_3 + \text{Na}_2\text{SO}_4 == \text{Ag}_2\text{SO}_4\downarrow + 2\text{NaNO}_3$  现象: 有白色沉淀生成

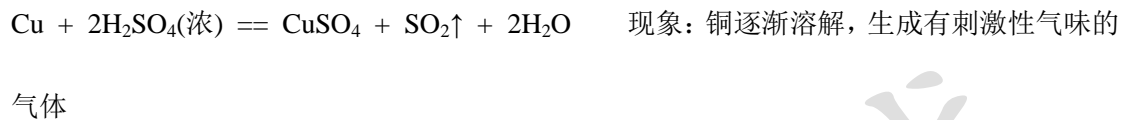
## (4) 补充:



现象: 银逐渐溶解, 生成气体遇空气变棕色

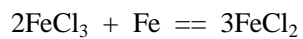


现象: 银逐渐溶解, 生成棕色气体

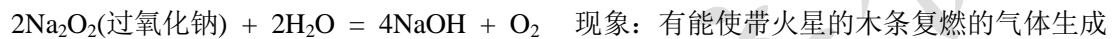


现象: 铜逐渐溶解, 生成有刺激性气味的

气体



现象: 铁粉逐渐溶解, 溶液由黄色变成浅绿色



现象: 有能使带火星的木条复燃的气体生成