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## **Theory of rusting**

### **Type of iron at which rusting occurs**

Heterogeneous

### **Condition of presence of rusting at heterogenous iron**

Present

### **Condition of presence of rusting homogenous iron**

Absent

### **Cause of rusting at homogenous iron**

Potential difference

## **Electrodes at rusting of iron**

- Cathode
- Anode

### **Electrode exhibited by iron in rusting**

Anode

### **Cause of exhibition of anode by iron in rusting**

High electropositivity than impurities

### **Electrode exhibited by impurities in rusting of iron**

Cathode

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### **Cause of exhibition of cathode by impurities in rusting of iron**

Low electropositivity than iron

### **Electrolytes in rusting of iron**

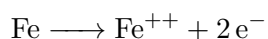
Gases dissolved in water as

- Carbon dioxide
- Oxygen
- Sulphur dioxide

### **Process of formation of rusting of iron**

- Formation of ferrous ions
- Formation of hydroxyl ions
- Formation of ferrous hydroxide
- Formation of ferric hydroxide
- Dissociation of ferric hydroxide
- Formation of rust

### **Expression of initial reaction at anode in rusting of iron**



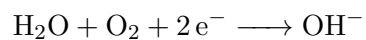
### **Reactants in initial reaction at anode in rusting of iron**

- Iron

### **Products in initial reaction at anode in rusting of iron**

- Ferrous ion
- 2 electron

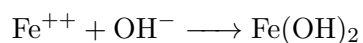
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**Expression of initial reaction at cathode in rusting of iron****Reactants in initial reaction at cathode in rusting of iron**

- Water
- Oxygen
- 2 Electrons

**Products in initial reaction at cathode in rusting of iron**

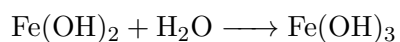
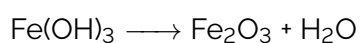
- Hydroxyl ions

**Expression of reaction of formation of ferrous hydroxide in rusting of iron****Reactants of reaction of formation of ferrous hydroxide in rusting of iron**

- Ferrous ions
- Hydroxyl ions

**Reactants in formation of ferric hydroxide in rusting of iron**

- Ferrous hydroxide
- Water

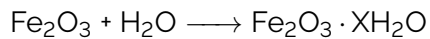
**Expression of reaction of formation of ferric hydroxide in rusting of iron****Expression of reaction of dissassociation of ferric hydroxide in rusting of iron**

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### Products in dissassociation of ferric hydroxide in rusting of iron

- Ferric oxide

### Expression of reaction of rust in rusting of iron



### Reactants in formation of rust in rusting of iron

- Ferric oxide
- Water

### Products in formation of rust in rusting of iron

Rust

### List of methods for prevention of rusting

- Enamel
- Oil
- Soap
- Antirust solution
- Sacrificial anode

### Examples of antirust solutions

- Conc. Nitric acid
- Con. Phosphoric acid
- Potassium dichromate

### Mechanism of working process of antirust solutions

- Covering of iron by insoluble ferrosoferric oxide

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**Term for sacrificial anode in prevention of rusting**

- Cathode protection

**Metals used at sacrificial anode in prevention of rusting**

- Zn
- Al
- Mg

**Type of metal used at sacrificial anode in prevention of rusting**

Metals having high electropositivity than iron

**Electrode exhibited by iron in sacrificial anode in prevention of rusting**

Cathode

**Electrode exhibited by metals other than iron in sacrificial anode in prevention of rusting**

Anode

**Mechanism of sacrificial anode in prevention of rusting**

Absence of formation of ferrous ions

**Scope of application of sacrificial anode in prevention of rusting**

As long as metallic conduction is present