



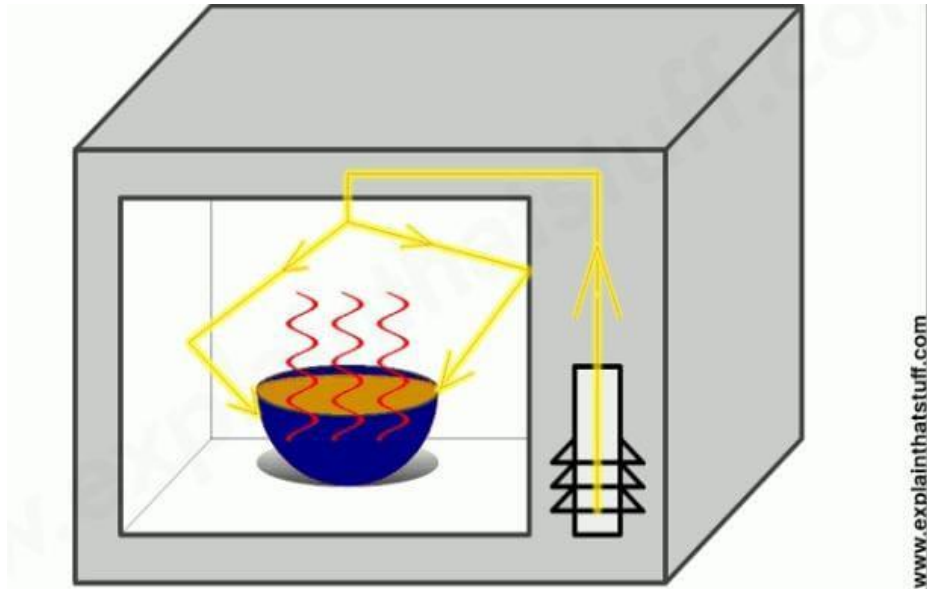
GANDHI SCHOOL OF ENGINEERING, BHABANDHA, BERHAMPUR

**SUBJECT: UEET
SEMESTER: 5TH**

SUBMITTED BY:-

ER. RABINDRA DAS & ER. SUBRAT KUMAR BISOYI

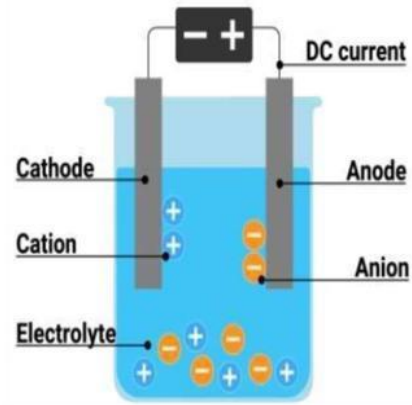
MICROWAVE HEATING



WORKING:

when supply is given, it is observed
That the entire chemical solution
is divided into two categories i.e
Positively charged ions(cation)
and negatively charged
ions(anion).

the electrons flows from the
anode to the power supply
completes the circuit.



- The decomposition of metal at cathode requires an electron so the rate of decomposition depends on the flow of electrons.
- The thickness of the deposit depends on the current and the duration of time the current is applied.
- **This relationship is a result of faraday's law of electrolysis.**

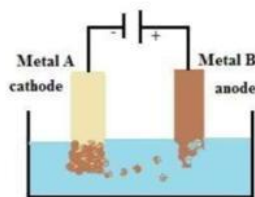
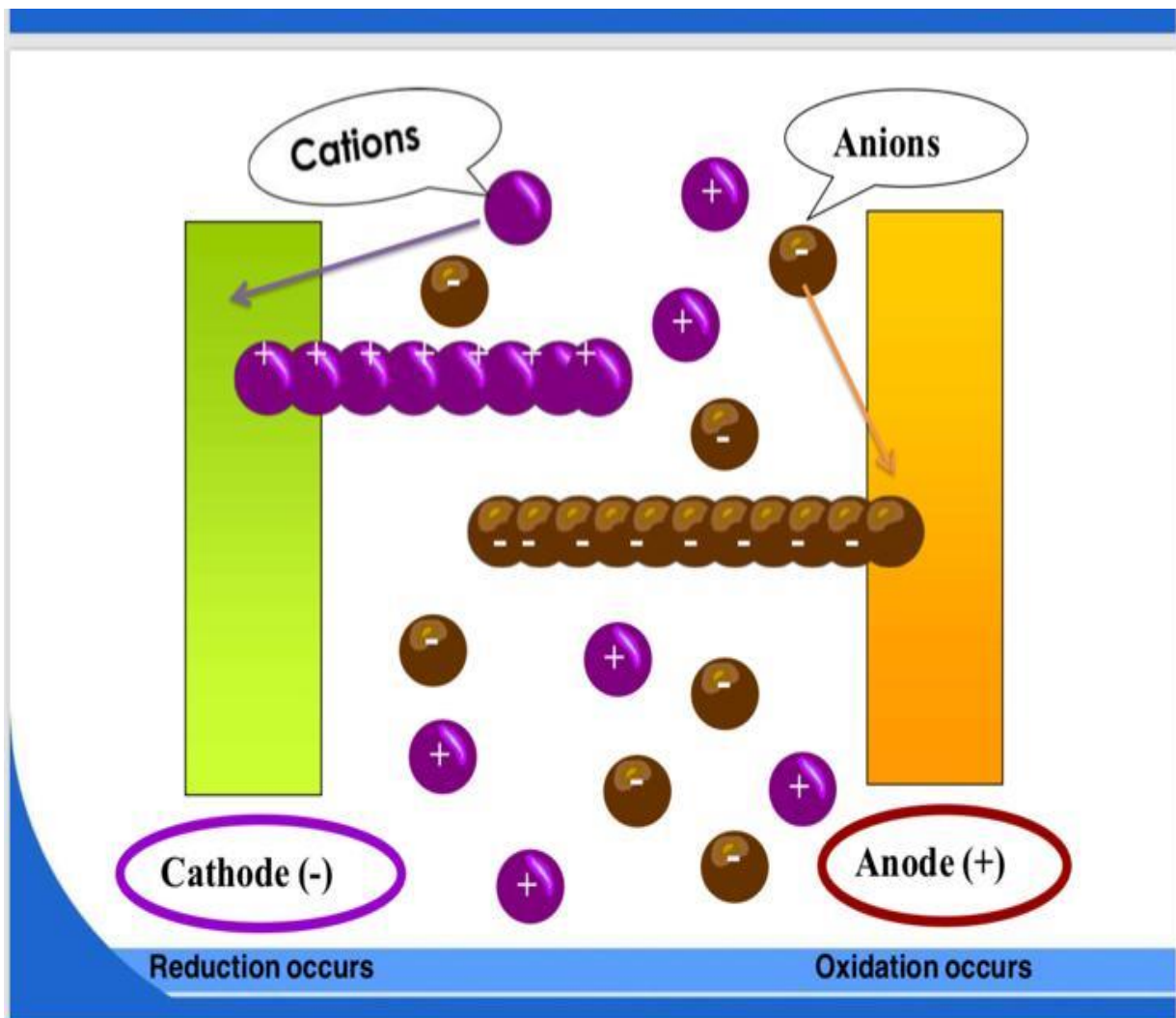


Fig 2. shows electrodeposition process



Electric arc welding



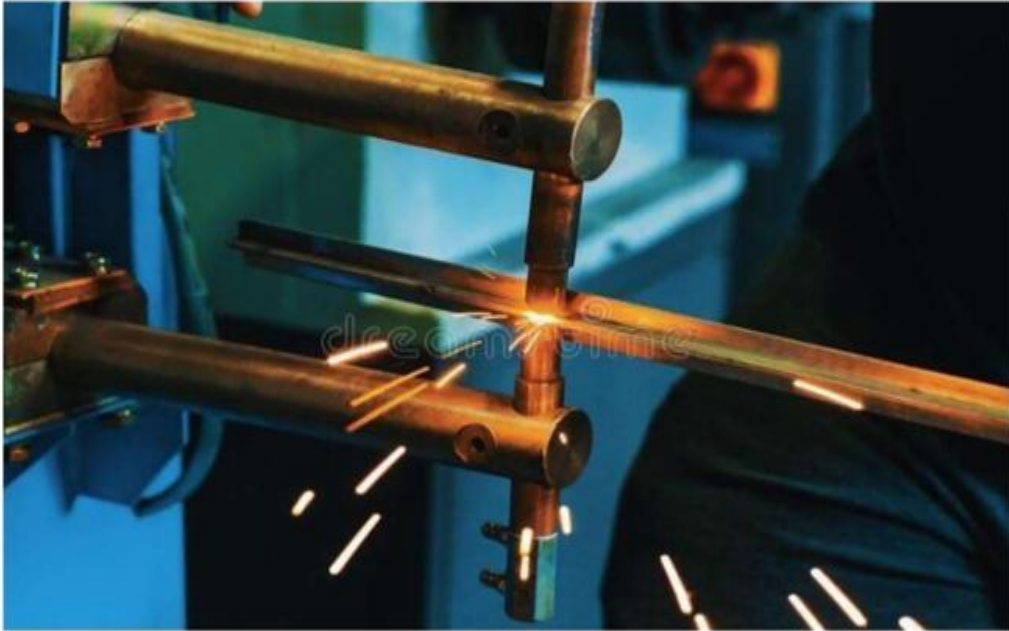
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Electric arc welding



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Electric arc welding



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Electric arc welding



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Electric arc welding

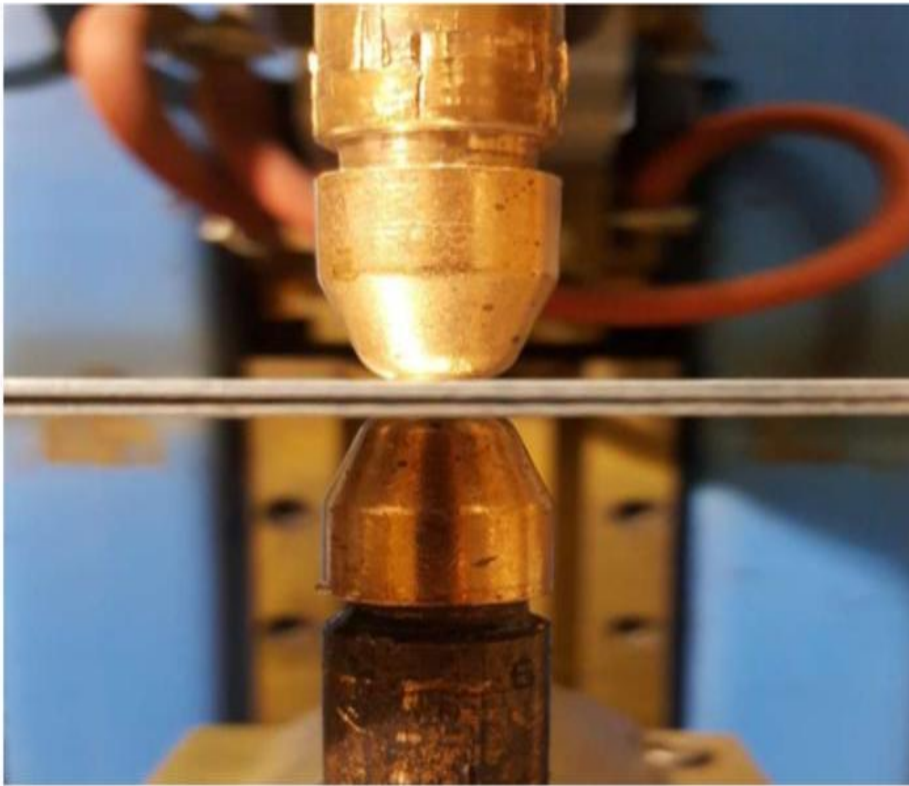


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Electric arc welding

- **PROJECTION WELDING:**
- It is a modified form of spot welding.
- It forms projections on metal sheets.
- These projections are pressed into contact with another sheet by using heat or pressure.
- After the projection is formed the work is held between two copper plate electrodes and pressure is applied by the movable arm.
- Current is then passed and good welds are obtained.

Electric arc welding



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Electric arc welding

- **SEAM WELDING:**
- This welding process is used to make a continuous joint.
- Seam welding can be defined as a series of continuous spot welds.
- In this type of welding wheel or roller type electrodes are used.
- heat generated by the ac electric current flowing through the contact area and pressure provided by the wheels are sufficient to produce a leak tight weld.

Electric arc welding



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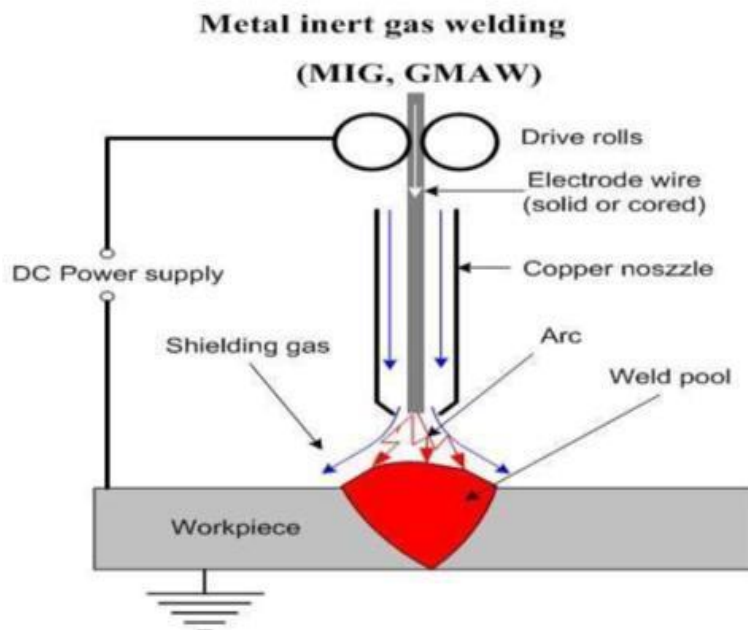
Electric arc welding

•Advantages and disadvantages of arc welding:

Advantages:-

- Most effective way for joining metals.
- Cost effective.
- The process is easily automated.
- Provides design flexibility.
- Very convenient to use.

Electric arc welding



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Electric arc welding

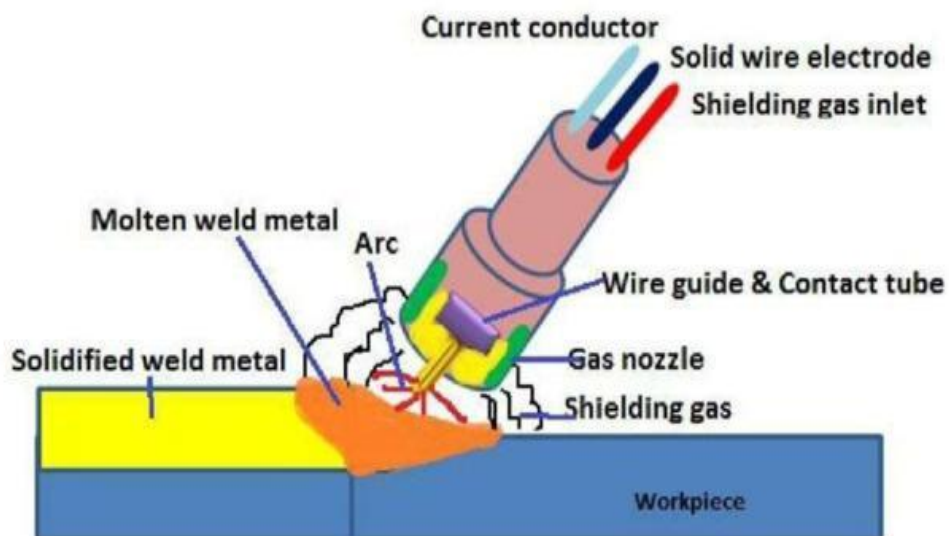
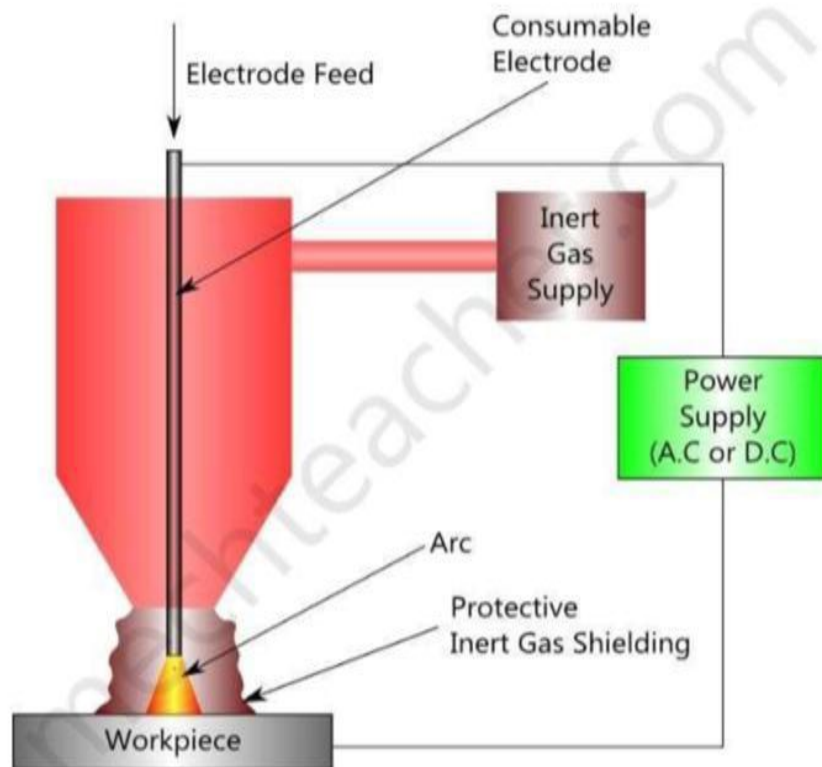


Fig : metal inert gas welding

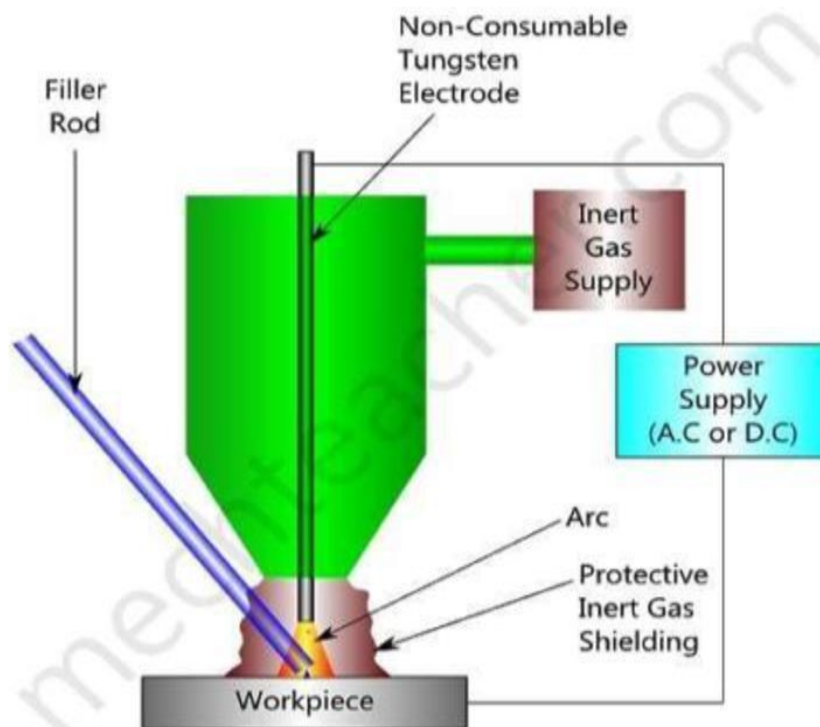
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Electric arc welding



MIG

Electric arc welding



TIG

Electric arc welding

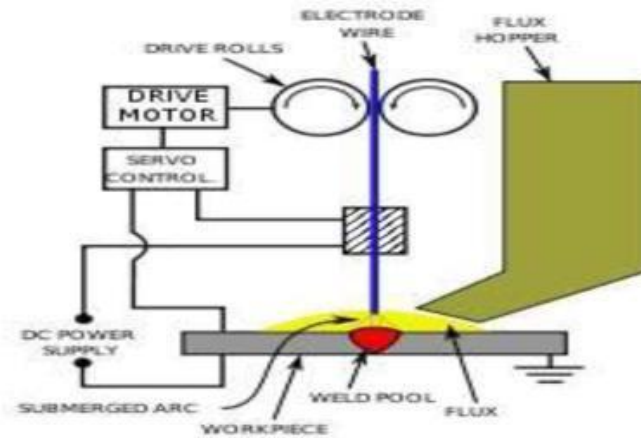
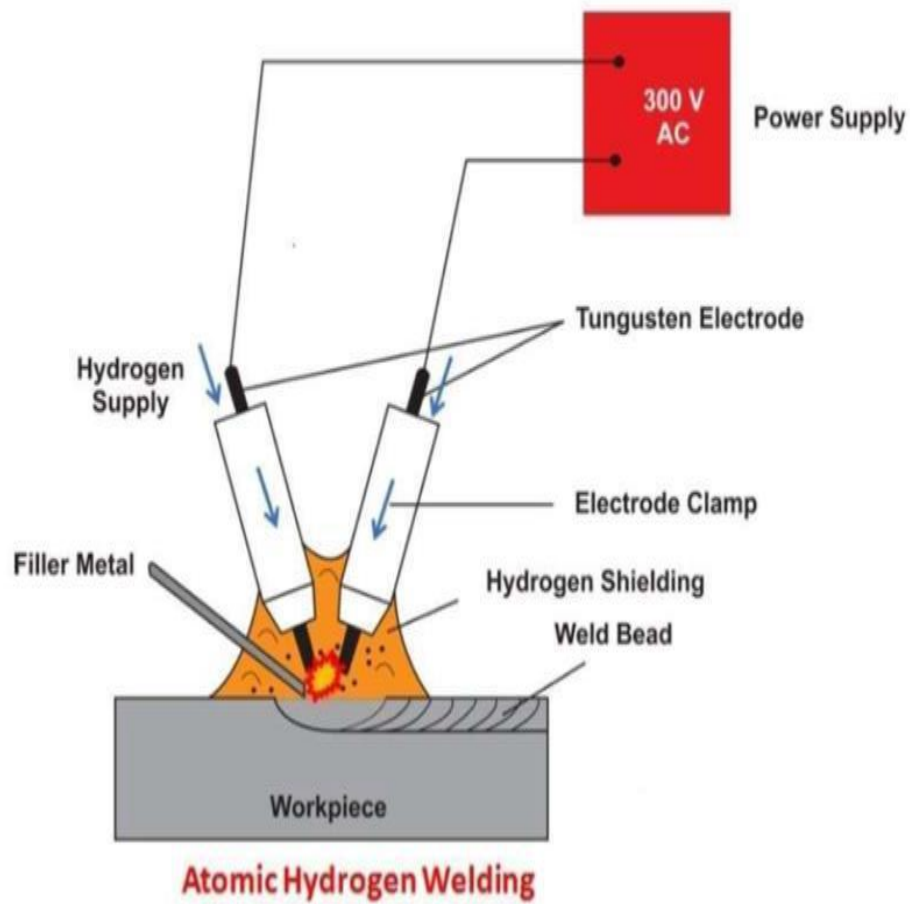


Fig: Submerged arc welding

Electric arc welding



Electric arc welding



Electric arc welding

- **ELECTRODES**

The choice of electrode for arc welding depends on a number of factors including the weld material, welding position, the desired weld properties.

The electrode is coated with a metal mixture called as flux.



Electric arc welding

COMPONENTS OF ARC WELDING:

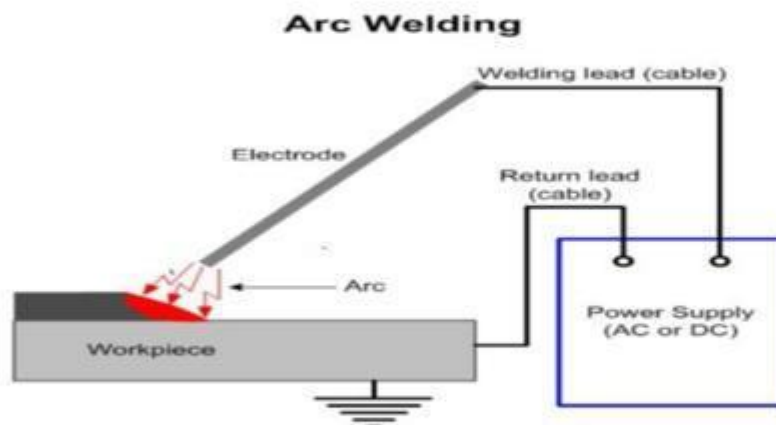
- Power supply(AC or DC)
- Work piece
- Welding electrodes
- Welding leads(electric cables)

Electric arc between the electrode and the work piece closes the electric circuit.

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Electric arc welding

COMPONENETS OF ARC WELDING:



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Electric arc welding

Electric power
for welding:



- The current used for welding may be DC.

Electric Arc Welding

History of Arc Welding:

:The electric arc was discovered by Sir Humphry Davy in 1808

:N.G. Slavianoff and C.L. Coffin developed metal electrodes in the late 1800's

:Around 1900, A.P. Strohmenger stabilized the arc with coated metal electrodes

:In 1919, C.J. Holslag invented AC welding

Sir Humphry Davy

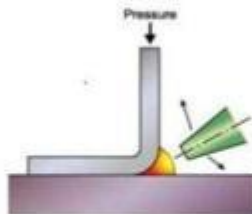


The welding in which the electric arc is used to give heat for the purpose of joining metal surfaces is called electric arc welding.

Welding

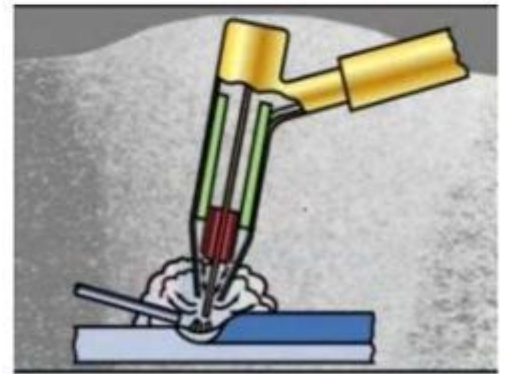
➤ PLASTIC WELDING OR PRESSURE WELDING:

- The piece of metal to be joined are heated to a plastic state and forced together by external pressure
- Example: Resistance welding



➤ FUSION WELDING OR NON-PRESSURE WELDING:

- The material at the joint is heated to a molten state and allowed to solidify
- Example: Gas welding, Arc welding



Welding

Application of welding:

- ❖ Welding is used for making permanent joints.
- ❖ It is used in the manufacture of automobile bodies, aircraft frames, machine frames, railway wagons, ship buildings etc.

- ❖ Fabrication of Steel furniture, gates, doors etc.



- ❖ Welding of tubes and pipes, chains, LPG cylinders and other items.



- ❖ Soldering for joining electronic components to printed circuit boards.



Welding

- What is welding?
- It is the process of joining two or more similar or dissimilar metals by heating them to a suitable temperature, with or without the application of pressure.



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Welding



Welding is a process of joining similar metals by the application of heat with or without application of pressure and addition of filler material. The result is a continuity of homogenous material, of the composition and characteristics of two parts which are being joined together.

Welding may be classified under two broad headings:

1. Plastic Welding



2. Fusion Welding



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SOME IMPORTANT USES OF ELECTROLYSIS

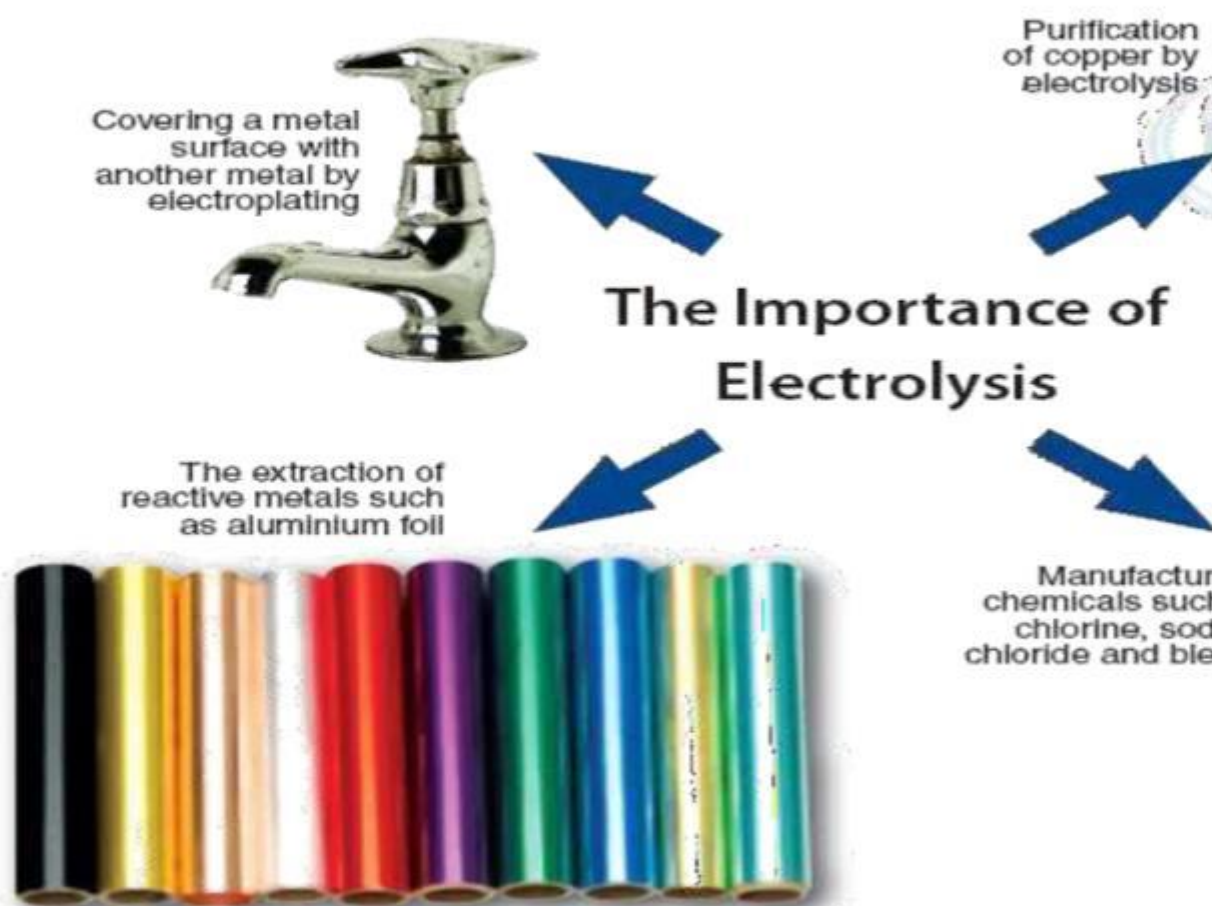
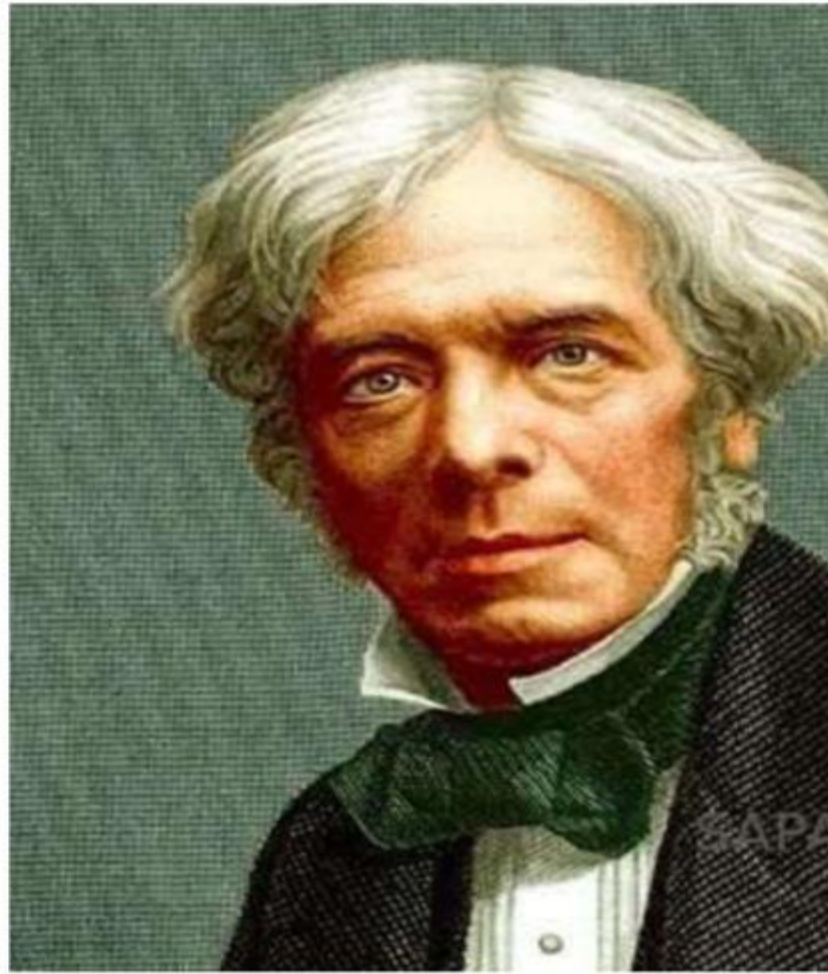
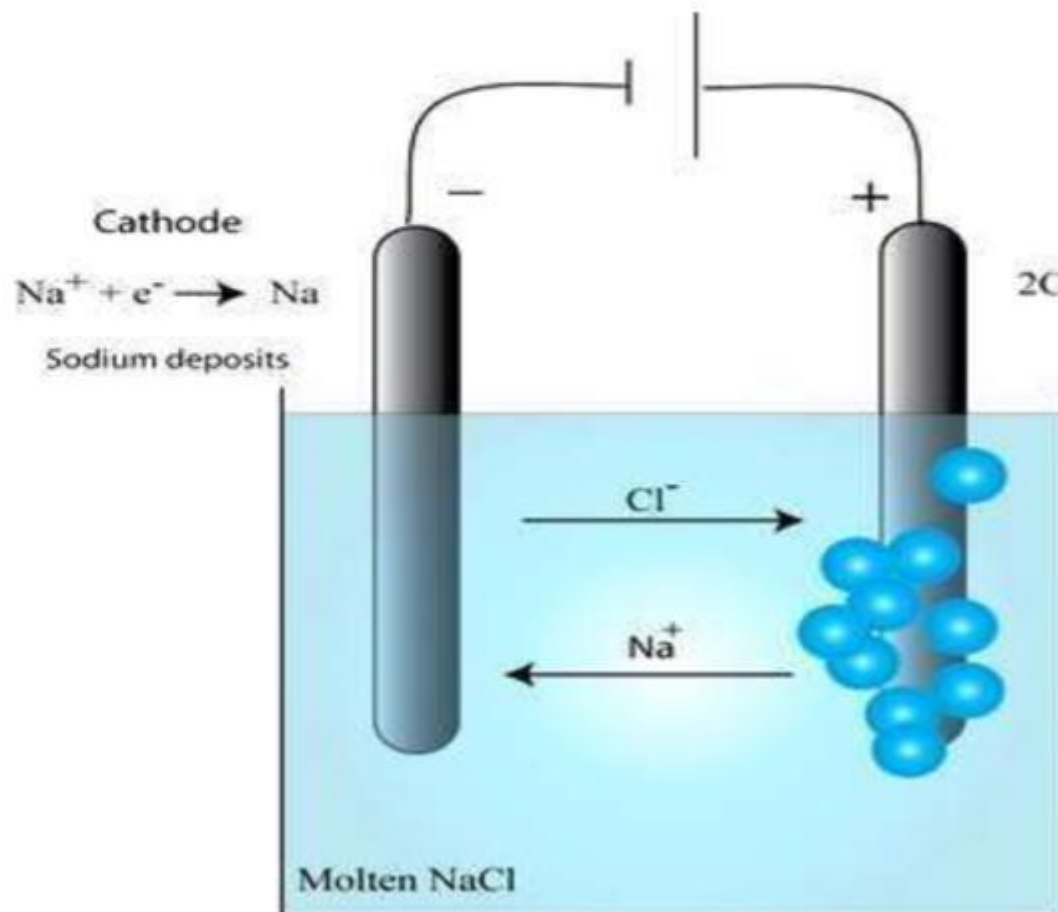


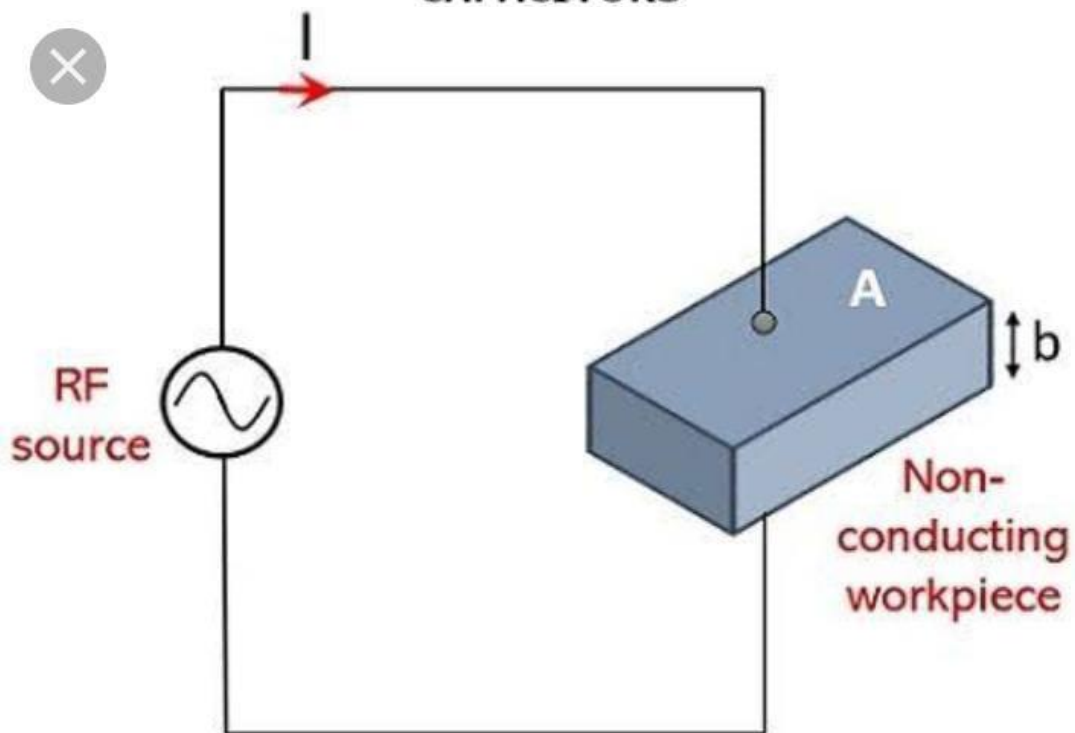
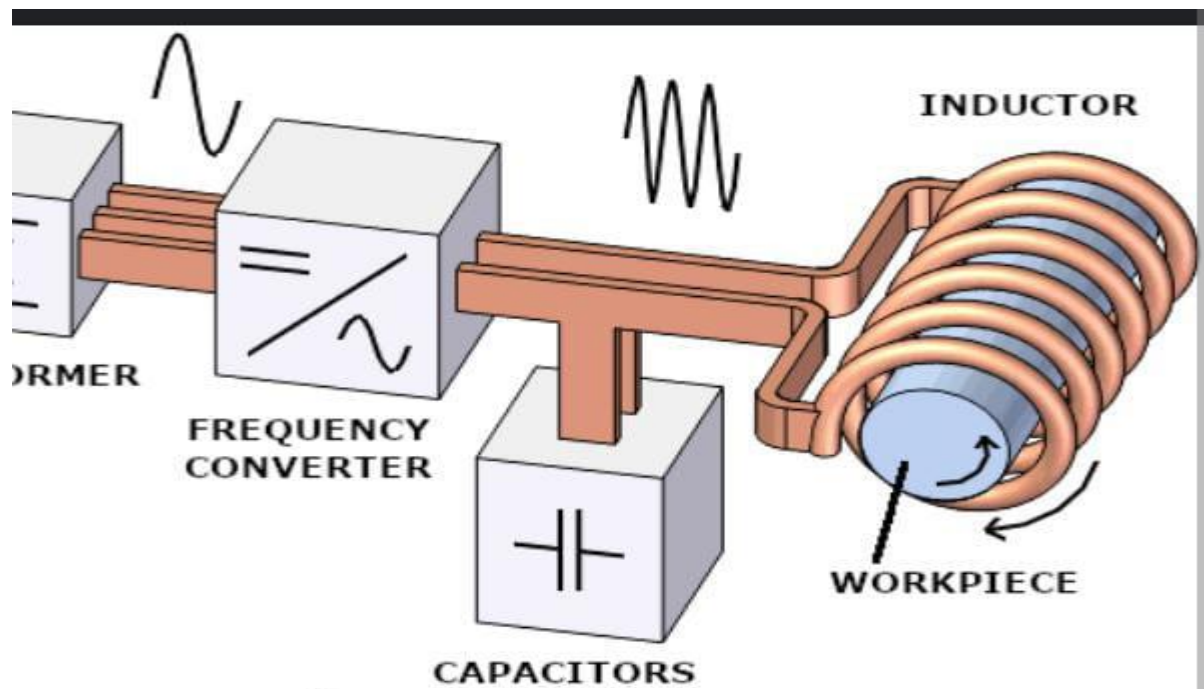
Figure 20.1 Some applications of electrolysis in daily life



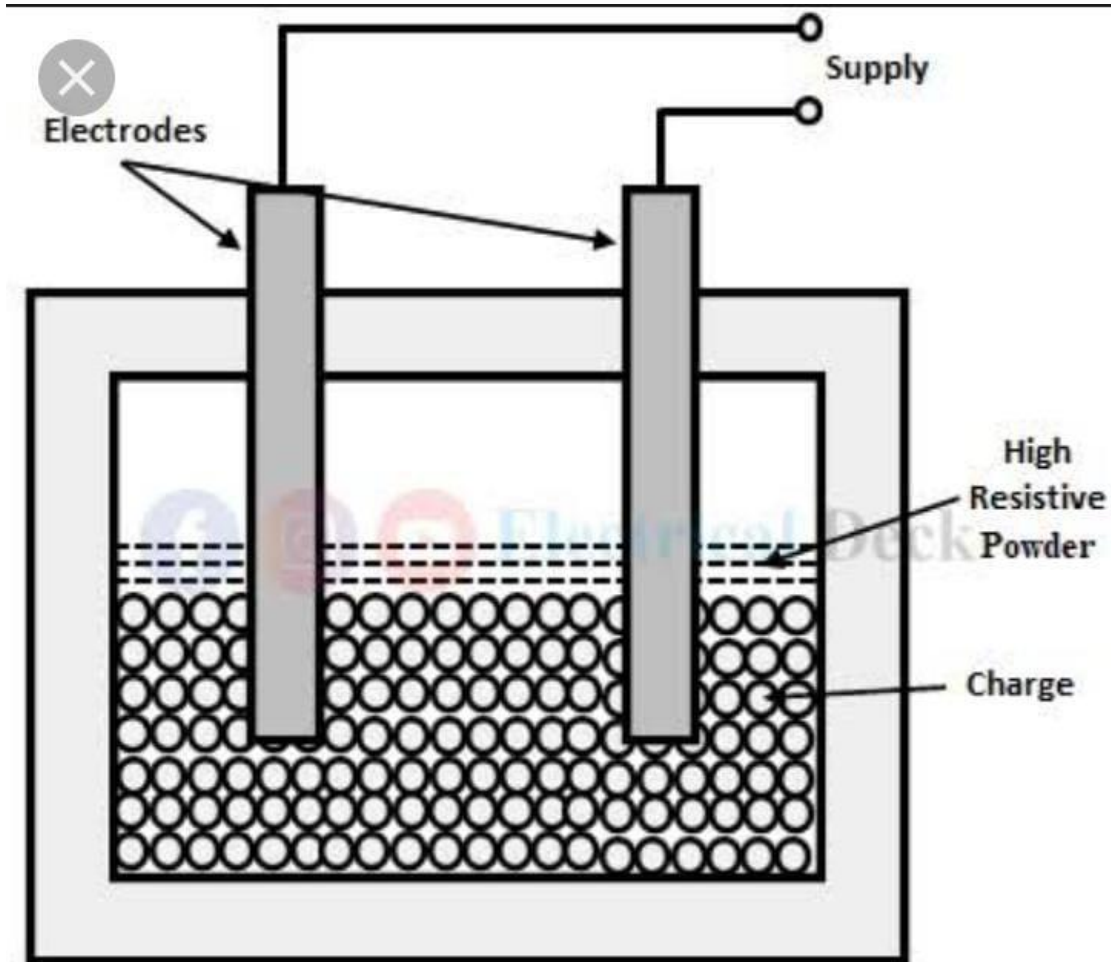
Michael Faraday was an English scientist who contributed to the fields of electromagnetism and electrochemistry.

MOLTEN NaCl



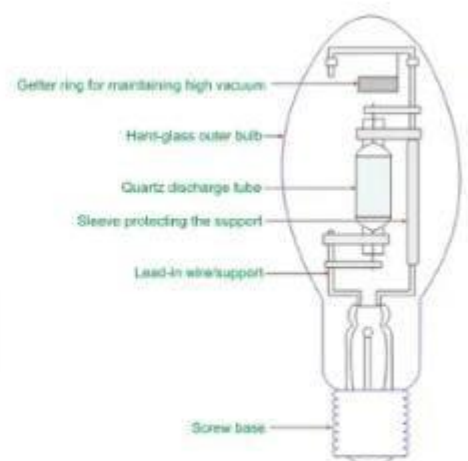


Schematic for Dielectric Heating

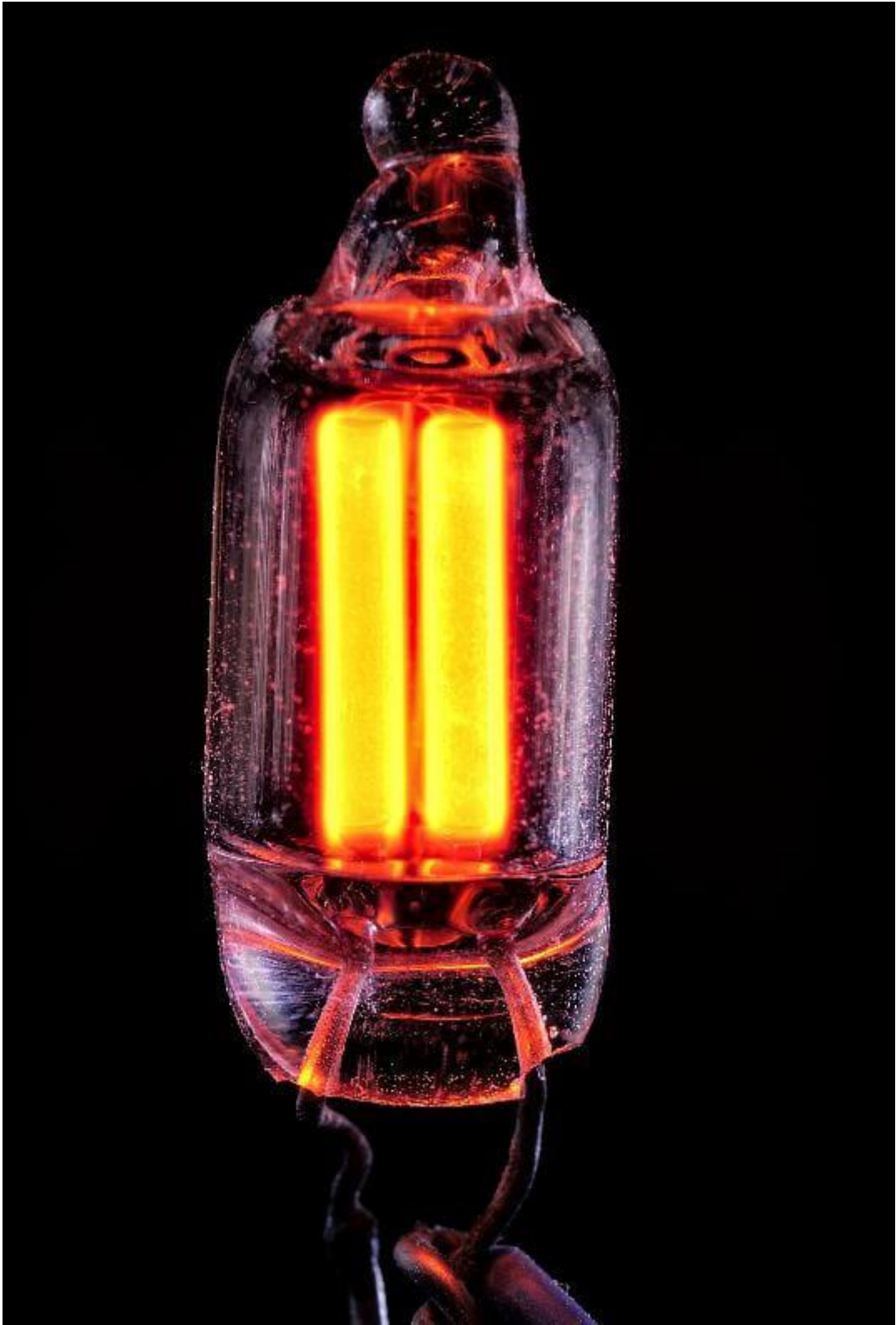


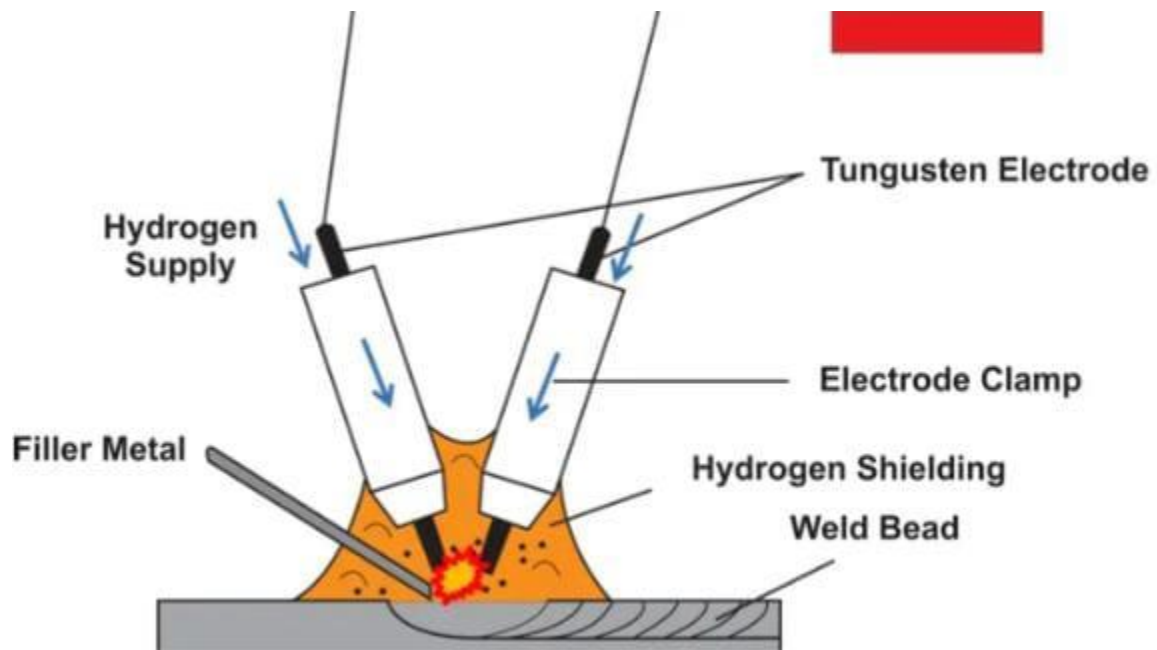
Direct Resistance Heating

Construction of Fluorescent Lamps

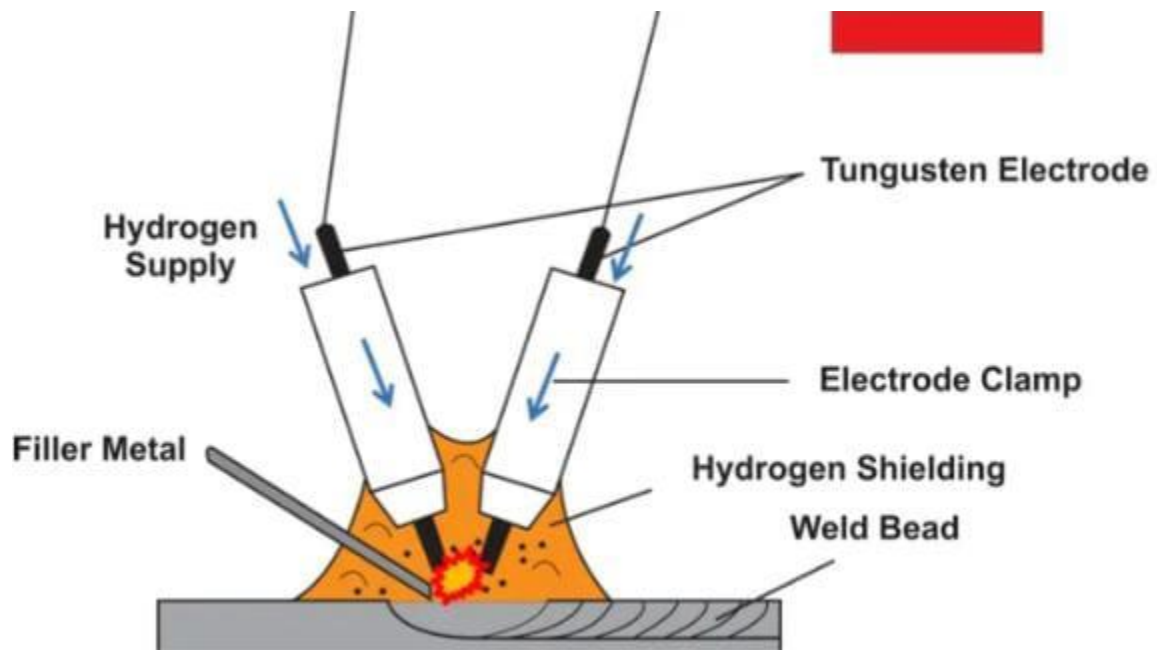


Electrical 4 U

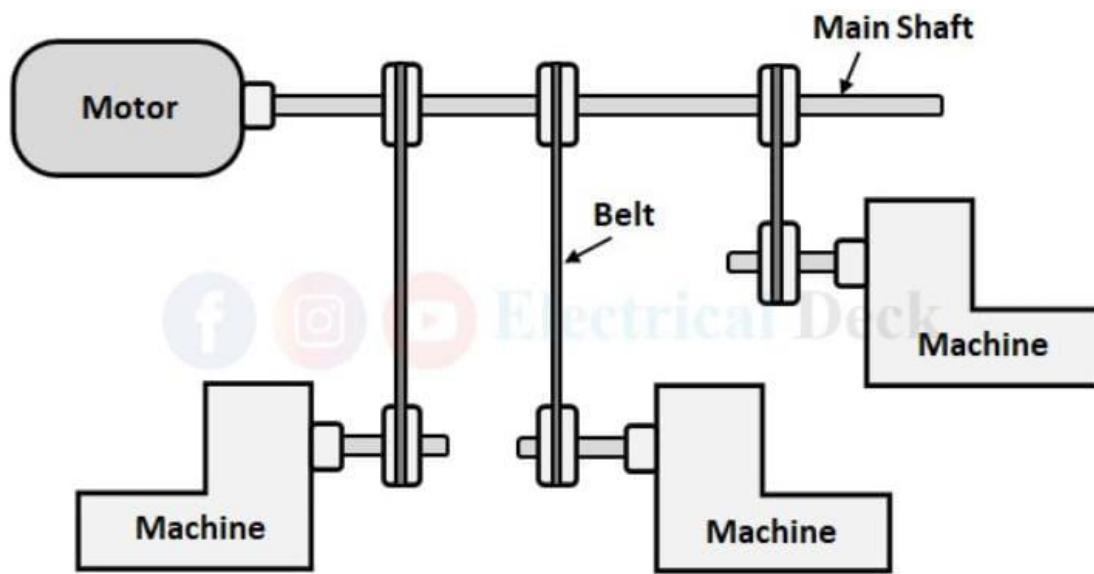




What is Atomic Hydrogen Welding ?



What is Atomic Hydrogen Welding ?



Group Drive



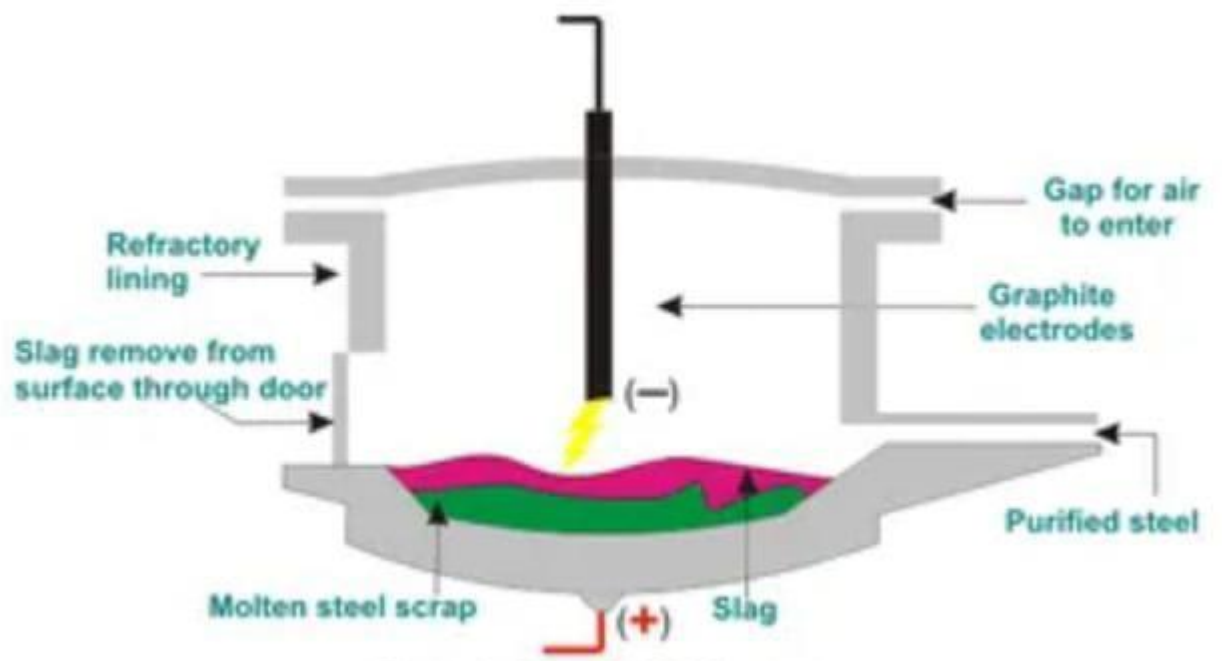


Figure 1. Electric DC Furnace

