SOLID - LIQUID STATE WELDING

HETEROGENEOUS WELDING: The process of joining dis-similar metals using filler rod is called heterogenous welding.

BRAZING:

Brazing is a process of joining two pieces of metal in which a non-ferrous alloy is introduced in a liquid state b/w the workpieces to be joined and allowed to solidify. The melting point of the filler metal is above 450°C but lower than the melting temp. of the parent metal.

- filler material is an alloy of Cu + Zn, Cu + Al, Cu + Ag is known as "Spelter".

Application:

- Brazing is used for fastening of pipe fittings, tanks, carbide tips on tools, radiators, heat exchangers, electrical parts etc.
- Used to join Band saws, part of bicycle such as frame and rim.

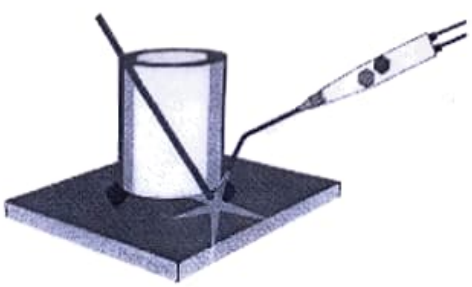
BRAZE (or BRONZE) WELDING:

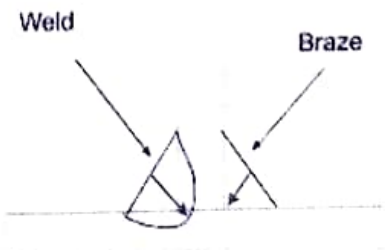
Braze welding is the process of joining the metals like brazing using a filler metal [contains 60% Cu + 40% Zn (Bronze)]

Applications:

- Used in Automobiles industries, bicycles industries, refrigerators and household appliances.
- for metals like steel, cast iron, copper, brass and bronze.

BRAZE WELDING / BRONZE WELDING





SOLDERING :

Soldering is a process of joining two pieces of metals (180°-250°C) inwhich a fusible alloy or metal is introduced in a liquid state b/w the s/p to be joined and allowed to solidify. The melting point of the filler metal is below 450°C. The filler metal is called the solder [Lead + tin]

flux metal used in "Zinc Chloride" ($ZnCl_2$) and "Ammonium Chloride" (NH_4Cl).

Application :

- fabrication of electrical & electronic circuits and PCB [Printed Circuit Boards]
- Radiator brass tubes for motor car.
- Copper tubing carrying liquid fuel, gas or air used in engines.

Composition of some of the solders :

	Lead	tin
Soft Solder	37 %. (40%)	63 %. (60%)
Medium →	50 %.	50 %.
Electrician →	58 %. (60%)	42 %. (40%)
plumber's →	70 %.	30 %.