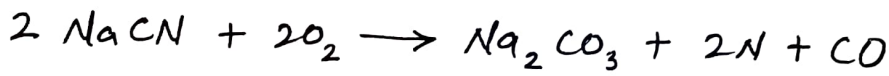


## Liquid Carburizing

- Carburizing in liquid baths is an outgrowth of cyaniding
- Employed for relatively shallow cases (0.10 - 0.25 mm)
- bath contains (20-50% sodium cyanide, 40% sodium carbonate + sodium & barium chloride)
- Heated upto 870 - 950°C
- Work pieces contained in wire baskets are immersed into the liquid bath for periods 5 min to one hour, depending upon the depth of case required.

- Chemical reaction



- Dissociation of CO at the steel surface takes place with the same result as in pack carburizing.
- Nitrogen in atomic form, also dissolves in the surface & produces an increase in hardness by the formation of nitrides.

### Advantages of liquid carburizing -

- Rapid heat transfer
- Low distortion
- Negligible surface oxidation or decarburization
- Rapid absorption of carbon & nitrogen
- Uniform case depth & carbon content
- Reduced time for steel to reach the carburizing temp
- Flexibility to handle a wide range of parts of varied design & varied case depths

### Disadvantages of liquid carburizing

- Cyanide salts are highly poisonous
- Molten cyanide explodes on contact with water
- Parts need thorough washing after treatment to prevent rusting,