

Which among the following statement(s) is(are) true for the extraction of aluminium from bauxite?

- A. Hydrated Al_2O_3 precipitates when CO_2 is bubbled through a solution of sodium aluminate.
- B. Addition of Na_3AlF_6 lowers the melting point of alumina.
- C. CO_2 is evolved at the anode during electrolysis.
- D. The cathode is a steel vessel with a lining of carbon.

Solution: (A, B, C, D)

A) Extraction of aluminium (Hall's process and Hall Heroult's electrolytic cell):

The process involved in the extraction of aluminium is Hall Heroult's process.

During the process, Al_2O_3 is obtained as a precipitate.

When CO_2 is bubbled through a solution of sodium aluminate.

The reaction is given as:



B) Electrolytic reduction of pure alumina takes place in a steel box with a lining of carbon (cathode) with cryolite (Na_3AlF_6) and fluorspar (CaF_2) which lowers the melting point and increases the conductivity of the electrolyte.

C) Electrolysis process in Hall's process:

Graphite rods acts as anode:

At cathode:



At anode: The oxygen liberated at the anode reacts with the carbon of the anode to produce CO and CO_2 .

