

UNIT III
ELECTRICAL ENERGY
STORAGE

Lithium ion batteries

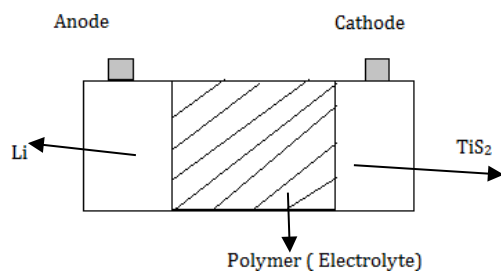
- ❖ It is solid state battery.
- ❖ It can be recharged.
- ❖ The electrolyte is in solid state
- ❖ Produces a voltage of 3v.

Description

Anode: Lithium

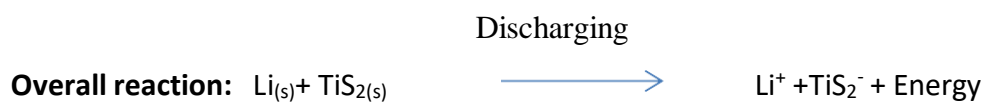
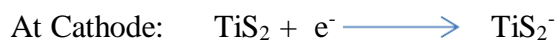
Cathode: TiS₂

Electrolyte: Polymer packed between two electrodes.



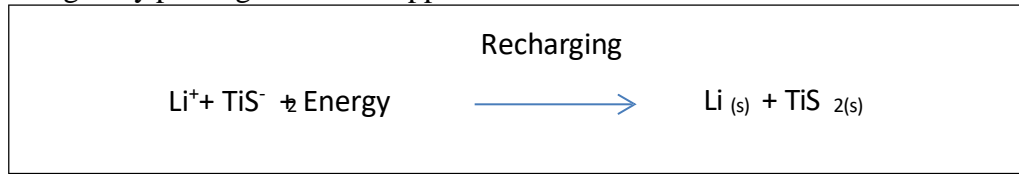
Working

a) Discharging

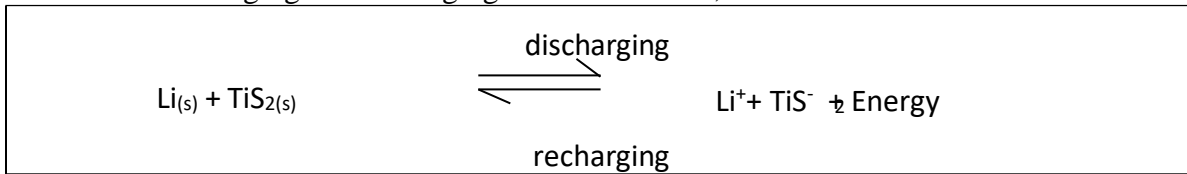


b) Recharging

Recharged by passing current in opposite direction



Both Discharging and recharging can be shown as,



Advantages (or) Reason for Lithium battery Called as Cell of future

- a) High voltage of 3v is got.
- b) No leakage, as all constituents are solids.
- c) light weight
- d) fast charging capacity
- e) rechargeable

Disadvantages

- a) high cost
- b) recycling is complex
- c) limited lifecycle

Applications

- a) smartphones
- b) laptops,
- c) electric vehicles
- d) energy storage systems
- e) backup power systems