Spent Pot Lining

- Recently, the **National Green Tribunal (NGT)** held a hearing regarding scientific disposal of **spent pot lining(SPL)** from the aluminium industries.
- It has also been classified as a **hazardous waste** under the **Hazardous Waste Management Rules, 2016.**
- Most SPL is currently stored at the aluminium smelter sites or placed in landfills. Dissolved fluorides and cyanides from SPL **landfill leachate** may have environmental impacts.

Spent Pot Lining

- **Spent Pot Lining** is produced by the smelting plants and contains a high level of **cyanide and fluoride** and is **carcinogenic** in nature and must be scientifically utilised or detoxified. Spent Potlining is also known as spent pot liner and spent cell liner.
- The process of extracting aluminium metal from aluminium oxide takes place in electrolytic cells that are known as pots. The pots are made up of steel shells with two linings, an outer insulating or refractory lining and an inner carbon lining that acts as the cathode of the electrolytic cell.
- During the operation of the cell, substances, including aluminium and fluorides, are absorbed into the cell lining. After some years of operation, the pot lining fails and is removed. The removed material is spent pot lining.
- Hazardous properties of SPL are:
    - Toxic fluoride and cyanide compounds that are leachable in water and are carcinogenic.
    - Corrosive - exhibiting high pH due to alkali metals and oxides.
    - Reactive with water - producing inflammable, toxic and explosive gases.
- The toxic, corrosive and reactive nature of SPL means that particular care must be taken in its handling, transportation and storage.

pH Scale

- The pH is a scale used to specify how acidic or basic a water-based solution is.
- Acidic solutions have a lower pH, while basic solutions have a higher pH.
- The neutral value of the pH depends on the temperature.
- The usual range of pH values runs from 0 to 14, At room temperature (25 °C), pure water is neither acidic nor basic and has a pH of 7.