

Lyalina N.A., Zhitkov S.A., Tkachuk C.A., Kazantseva T.Yu.

ELECTROLYTE PURIFICATION BY SEDIMENTATION

*Seversk Technological Institute of NRNU MEPhI,
65, Kommunisticheskiy Prospekt, Seversk, Tomsk Region, 636036
e-mail: nadehzali@gmail.com*

Electrolytes are widely used in various industries such as metallurgy, electroplating, battery production and other chemical processes. During operation, the electrolyte accumulates impurities increasing the voltage in the electrolyser and reducing the efficiency and quality of the final product. Therefore, the electrolyte purification is a critical challenge to maintain a sustainable process.

There are several methods to purify electrolytes including filtration, ion exchange chromatography, distillation and sedimentation. Each method has its advantages and disadvantages, but the technique chosen depends on the specific application and melt purity requirements.

The sedimentation method was used for this research. The process is based on gravity: heavy particles settle to the bottom of the tank under the gravity force.

The following advantages of this approach can be highlighted:

- simplicity;
- cost-economy;
- efficiency against large particles;
- no change in the chemical composition of the solution or melt;
- versatility;
- environmentally safety.

Disadvantages include:

- slowly moving process;
- limited efficiency;
- Inability to complete purification.