DIAL-5 ELECTRODIALYSIS PLANT FOR PRODUCING DEMINERALIZED WATER FROM MINERALIZED WATER

Description
The plant reduces the content of chemical elements in water to the requirements of the State Standard GOST 2874-94 “Potable water” and below. In the plant, electrodialysis is combined with filtering, removal of heavy metals, conditioning or aeration, and ultraviolet irradiation. The plant is equipped with a reverse power supply and an automatic reversal system for the dialysis and concentrating tracts. This, in aggregate, prevents the formation of dense sediments of difficultly soluble salts on membranes and increases the reliability of plant operation. The plant operates in a flow-circulation mode.

Technical specifications
- Admissible salt content of initial water: 1-10 g/dm³
- Demineralized water output: 0.3-1.0 m³/h
- Power consumption: 2-4 kW
- Operation mode: continuous
- Holding tank for pure water: 1.5 m³
- Occupied area: 10 m²
- Operating personnel: 1 person per shift

Technical appraisal and economic benefits
- Electrodialysis is well combined with other water treatment methods;
- The treatment technology does not use chemical reagents;
- Formation of toxic wastes is eliminated;
- According to technical-and-economic studies performed at the VODGEO Research Institute using the results of testing conversion plants of various types in demineralization of water with a salt content of 1-6 kg/m³, the electrodialysis plant exhibits the best performance.

Application areas
The plant can be used to produce
- Potable water, including the production of beer, liquors, and drinks (spirits and soft drinks);
- Process water: for steam generators, water heaters, recycling water;
- Plug brines (in the two-stage version).

Development stage
The Dial-3 plant operates successfully in the living cottage of the Savor JSC. The Dial-4 plant operates at the Neorganicheskaya Khimiya enterprise (Baryshevo).
At present, it is possible to manufacture 20-30 Dial-5 plants per year.

Patent situation
Patents can be granted but have not been applied for.

Commercial offers
Sale of plants on order. Calculations show that it is profitable to direct the sales distribution to small-scale and medium-scale business and private and collective developers.

Estimated cost
The price of the plant is US$ 18 000 or more, depending on the initial salt content and the required degree of water demineralization.
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