

Features and Disadvantages of Drinking Water Treatment in Ukraine

The goal of water treatment process is to remove existing contaminants from water, or reduce the concentration of such contaminants when water becomes fit for its desired end-use. The processes involved in treating water for drinking purposes may be solids separation using physical processes such as settling and filtration, and chemical processes such as disinfection and coagulation. Biological processes are employed in the treatment of waste water and these processes may include aerated lagoons, activated sludge, or slow sand filters.

A combination selected from the following processes is used for municipal drinking water treatment worldwide:

- pre-chlorination;
- aeration;
- coagulation;
- coagulant aids, also known as polyelectrolytes;
- sedimentation;
- filtration;
- desalination;
- disinfection.

The problem of drinking water in Ukraine, the quantity and quality of tap water must be urgently researched and solved. Poor condition of water system is one of the main reasons for poor quality of tap water. According to the Ministry of Health of Ukraine the percentage of samples of water that does not meet sanitary-chemical and bacteriological parameters is as following: 8-11.4% in Donetsk region ; 20-27% in Luhansk region; 11,4-15% in Kharkov region; 11,4-15% in Zaporozhe region; 5,4-12,2% in Dnipropetrovsk region.

In Europe, the process of water purification includes the use of multilayer filters, ozone and ultraviolet light. Iron, manganese and other harmful substances and compounds are filtered, the pH level and water hardness are strongly controlled. To keep the received water quality, the water pipes are made from non-corrosive materials (ceramics, copper or plastic).

In Ukraine, chlorination is the best option of water disinfection. However chlorination of water containing large amounts of organic matters leads to the formation of organochlorine compounds (OCCs). They are hazardous to human health. Therefore, an alternative to tap water in Ukraine may be the use of the bottled purified water.