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**APPLICATION OF OF ZEOLITES
FOR WATER CONDITIONING
BY THE EXAMPLE OF
SHEPETIVKA DISTRICT IN
KHMELNYTSK REGION**

The issue of Ukraine's population of high quality and safe for human health drinking water is one of the priorities of the State Sanitary Epidemiological Service of Ukraine, because water has a direct impact on the health of citizens and fundamentally determines the degree of ecological and epidemiological safety areas.

One of the major drawbacks of the water quality of groundwater sources can be high content of iron, whose concentration varies from tenths to several tens dm³. Iron in natural waters occurs mainly in the form of hydrocarbons that can be converted into carbonates that hydrolysed and in contact with air forming iron hydroxide oxide in the transition, which provides water turbidity and color, which adversely affects on aesthetic and everyday reasoning. It provides drinking water turbidity, yellow-brown color, bitter metallic taste. When used in the home rust stains formed on household appliances, laundry. Iron

promotes zalizobakteriy, the withering away of water pipes in the middle of a dense sediment accumulates, which particularly occurs when iron concentrations exceeding 0.2 - 0.3 dm³. In this connection the iron content according to new health standards and standardized not more than 0.2 dm³ for water supply without special water treatment in coordination with the state sanitary supervision allowed iron to 1mh/dm³.

Drinking water the majority of Shepetovka Khmelnytsky region at the expense of groundwater intakes by exploiting "Oak Grove", "heater" and "Forest Glade".

For geographically located Shepetovsky area are within joints southwestern margin of the Volyn-Podolsk Plateau and the Ukrainian Shield. The hydrographic network of the area belongs to the basin r.Horyn. The geological structure of intake participating platform sedimentary rocks cover a wide stratigraphic range: ryfeyskoho, Paleozoic, Mesozoic and Cenozoic age.Under the scheme hydrogeological zoning Shepetovsky intake is located within the Volyn-Podolsk Artesian Basin.

The aim is to study the effectiveness of domestic zeolite for water iron removal Comparative using for this purpose rubble and penopolistiroly.

We analyzed the water quality of the concentration of iron before entering the WWTP for the period from 2002. in 2009., the comparative analysis of the effectiveness obezzalizuvannya using zeolite and penopolistyrolnyh filters. Water from Shepetovskogo intake to

flow of water in the distribution system necessary to znezalizuvaty.

Among the known methods for purification of drinking water are aeration followed by purification using natural particulate sorbents, which are abundantly present in Ukraine in the form of natural minerals and construction materials intermediates. Towards a new generation of modern filter materials include zeolites and penopolistyrolni filters have been successfully used to znezalizuvannya water treatment facilities Shepetovskogo water utility.

Zeolites - a natural mineral consisting of hydrated alyuminesylikativ, which are based tetrahedrons silytsiyu dioxide (SiO_2). As a result of a special arrangement of tetrahedra in the structure of zeolite formed special channels and cavities, which are combined with each other by means of so-called "windows" a certain size. Porous crystalline structure of zeolites is easily absorbed molecules that are smaller than the diameter of the front "windows" and does not pass through the larger size molecules.

For the purification of drinking water Shepetivsky vodokanalizatsiynoho enterprise management to the flow of water in the distribution system in the period 2002 to 2003 organized water purification plants obezzalizuvannya, where the degassing, obezzalizuvannya (with filter gravel layer) since 2004 as filtering downloading using zeolite, and 2006 completed additional POPs with polystyrene Processing. After disinfection of air conditioning water produced by electrolysis unit "Siwash 1000". Currently operates 5 zeolite

loading of POPs and POPs 3 of polystyrene Processing.

We evaluated the effectiveness of air conditioning water stations obezzalizuvannya through the use of POPs with different filtering materials: gravel, zeolite, foamed polystyrene.

According to the data found that the effectiveness of treatment on POPs with zeolite loading is much higher than the pops of macadam Processing; Comparing the quality of water treatment on zeolite loading of POPs and POPs foam can be concluded that the cleaning using zeolite is more effective.

As a result of studies found that after water conditioning plants obezzalizuvannya water when applying filtering materials - polystyrene and zeolite filter iron content decreased from 0.94 to 0.24 $\text{dm}^3 \text{dm}^{-3}$.

A comparative analysis of performance cleaning at stations obezzalizuvannya of zeolite loading and loading of polystyrene found that the effectiveness of treatment for Convening the zeolite statistically higher than the purification of POPs in the foam filters. Thus, it is proved that the use of zeolites for domestic water treatment plants for water management is efficient, effective and promising method. In connection with the above, we consider it necessary to widely promote the use of zeolites in domestic practice znezalizuvannya drinking water at water supply of cities.