

OPTIMIZATION OF CHLORINE DOSING IN DRINKING – WATER STORAGE TANKS

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The quality of the stored water in the drinking water tanks is considered to be proper if:

- 1 – the residence time in storage tanks is under the limit stipulated by standards;
- 2 – the mixing of the existing water with that entered afterwards is complete done;
- 3 - chlorine, with the disinfectant role (the primary disinfection) introduced in the tank assures after the reactions in the tank, the required chlorine in the distribution network.

In the case of an inflow-outflow tank with a single compartment, working with a steady flow, where there is admitted that the disinfection reaction is of order one in comparison with its concentration, and the mixing is complete, the specialized literature offers the relations for following the link between the chlorine concentration at outflow (C_{out}) and inflow (C_{in}) (checked experimentally):

In the case of an inflow-outflow tank with a variable inflow and outflow, where there are the problems of integration, it is suggested, by authors, an iterative procedure based of the existent relations of anterior case.

In addition, for the chlorine dose introduced in the supply pipe it is established a dosing program, realized by a simplex procedure, for the minimizing of chlorine consumption in 24 hours, so that at the outlet from the tank to be assured, hour by hour, the required dose for the necessary secondary disinfection of the water distribution network.

In the end, it is presented an application of the proposed procedure at a tank for which the fluctuant volume develops between the emergency and total capacity of the tank.

