process in Timisoara Waterwork, but require further studies concerning their technical, economic, social and environmental impacts.
To compare the coagulation-flocculation process efficiency of water from Bega River, when there is low temperature (1- 4°C) and turbidity (3- 10 NTU), taking into account the alum (widely used) and the polyaluminium chloride solution (PAC - which is provisory used) the raw water samples were treated with alum, PAC and their mixing in different mixing ratios, using the Jar test procedure, according to the water treatments standards.
Lower residual concentrations in aluminium residual and turbidity were achieved while using the combined mixture method by alum and PAC, in order to increase the efficiency and to reduce the cost of coagulation-flocculation process.
The results will be the base for future studies on the Pilot Plant in order to set up mathematical models required for implementation in drinking water treatment plant.

Keywords: *alum, coagulation, drinking water treatment, polyaluminium chloride*

I-P-16. SELECTION OF PRIMARY TREATMENT FOR ADVANCED REMOVAL OF SOLUBLE MANGANESE FROM GROUNDWATER

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Abstract

Manganese is a usual pollutant of natural groundwater mainly the reduced, soluble specie (Mn II) being present in variable concentrations (tens-hundred µg/l) above the specific MAC = 50 µg/l.

The physical-chemical treatment of groundwater containing Mn(II) is most commonly used, the main stage being chemical oxidation followed by

precipitation, flocculation/settling, rapid sand/multi-media filtration. Oxidation can be achieved by aeration or by using strong oxidizing agents, such as: chlorine, sodium hypochlorite, chlorine dioxide, potassium permanganate or ozone.

The selection of suitable oxidation reagent should be done in strict connection with the raw water pollution matrix, in accordance to the presence of competitive oxidizable pollutants (sulfide, nitrite, ammonia, DOC a.s.o.), of metal – organic complexes, which can influence the required dosage, associated chemical costs and also the efficiency of oxidation process.

The results of comparative assays performed for the treatment of a groundwater supply containing Mn(II) in association with Fe(II), NH_4^+ and low organic load (DOC < 1 mg/l) are presented.

The selected technical solution for the advanced Mn(II) removal is based on oxidation by potassium permanganate which can assure a residual concentration of µg Mn/l in the best working condition (low oxidant dose and reaction time, pH value).

Keywords: *groundwater, soluble manganese, water treatment*