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FORMATION OF SULPHIDE AND ITS CHEMICAL EQUILIBRIUM IN SEWAGE PIPES. INFLUENCE OF H_2S TO AEROBIC MICROORGANISMS OF ACTIVATED SLUDGE

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The objective of this work was to study the sulphide, especially the dihydrogen sulphide formation process in sewage pressure pipes and the influence of sulphur rich wastewater on oxygen consumption of activated sludge of Kohtla-Järve wastewater treatment plant (WWTP). In this work the equilibrium distribution between three different forms of sulphide was investigated by changing pH of the wastewater and Na_2S solutions in the closed vessel. At the same time the content of H_2S in the gas phase was measured. To estimate the influence of H_2S on the aerobic microorganisms of activated sludge, the ISO 8192 standard test of inhibition of oxygen consumption by activated sludge has been used. At the same time, other inflows of Kohtla-Järve WWTP have been investigated.

The leachate from semicoke and ash heaps, rich in sulphates and sulphides (pH 10–12) did not cause any significant inhibition of oxygen consumption of activated sludge microorganisms. The wastewater from oil shale chemical industry containing sulphates and sulphides (pH around 6–6.5), and also gross inflow of Kohtla-Järve WWTP, cause inhibition of oxygen consumption of activated sludge.

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