

SONIC TREATMENT EFFECT ON INDUSTRIAL AMMONIA WATER DECONTAMINATION

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ABSTRACT

The paper presents an acoustical technique used in the cleaning process of industrial ammonia waters. The sonic effect was applied in order to eliminate the ammonia from water with a concentration of 5%. Because of this high concentration which prevented a conventional laboratory analysis, the sample was diluted 1:1000. The influence of the treatment time and the influence of the acoustical parameters of the air-jet generator (pressure, frequency and sound intensity level) on the variation of the ammonia content were studied. The treatment time was set in the range of 5–60 seconds and two working pressures were used, namely 0.05 MPa and 0.1 MPa. The research was conducted for three possibilities of ammonia elimination: sonic treatment, sonic treatment with aspiration and sonic treatment with heating. The experiments revealed that the concentration of ammonia in the analyzed water decreased under the influence of cavitation, which causes ammonia water degassing. Ammonia was removed most effectively at a lower working pressure and 15 seconds of treatment for all three possibilities of ammonia removal.

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