

ANALYSIS OF TECHNICAL IMPROVEMENTS IN NITRIC ACID PROCESS

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Over the past 20 years, the solution to the problem of increasing the efficiency of nitric acid process has been considered by many scientists. The author Kunchenko O.P. and colleagues proposed to rearrange the gas and liquid flows in the absorption column, which allows to increase the degree of NO_x processing [1]. Khan P. and Kroll E. developed a method to obtain gas for ammonia synthesis by combining the secondary reforming process with the use of oxygen from the air separation unit and water electrolysis. It allows to reduce the volume of CO_2 [2]. Ponomarev V.V. and colleagues used a hydrodynamic cavitation reactor to mix ammonia and air, which makes it possible to achieve a reduction in energy costs. [3]. The inventor Fuchs Y. developed a method for sealing and a sealing system of a burner basket in a burner for ammonia oxidation, which prevents gas leakage and increases the efficiency of the technological process [4]. The author Zakharov I.I. with colleagues proposed to proceed the oxidation of ammonia in the presence of nitric acid vapor when irradiating the reaction mixture with light together with the absorption of NO_x by a solution of H_2O_2 . This method allows to avoid gas emissions of NO_x . The inventor Tyulpinov O.D. with colleagues developed a method for cleaning gas emissions from ammonia by oxidizing it on a mixture of iron-chromium and nickel-chromium catalysts, which allows to significantly increase the volumetric velocity of the gas flow [6]. The author Stolyarenko G.S. proposed to utilize the tail nitrous gases with an ozonized solution. This leads to the return of NO_x to the process and to increase the yield of the final product [7].

References:

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