*Environmental Engineering and Management Journal* *March 2016, Vol.15, No. 3, 573-578*
*http://omicron.ch.tuiasi.ro/EEMJ/*

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# STUDY ON THE SEPARATION OF PURGE GASES FROM AMMONIA PLANT

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**Abstract**

One way to reduce the level of pollution resulting from industrial activities is the implementation of methods for purifying gases from production processes. A process step in the production of ammonia is the recovery of ammonia in the form of ammonia solution (or ammonia water, a product which can be marketed). This process also allows the recovery of hydrogen. This paper shows the effectiveness of the purge gas separation system in the production of ammonia by: the recovery of ammonia as ammonia solution, separation and re-introduction of hydrogen into the synthesis gas, as well as the re-introduction other waste gases into the re-combustion process. The selectivity for hydrogen allows its retention in the pores of wood fiber membranes and its exit through the hydrogen nozzle set at the base of the hydrogen separator. The unabsorbed gas is fed back to the installation into the combustion system. The almost full recovery of the ammonia can take place by washing the purge gas in a scrubber with demineralized water resulting in a 6-7000 L/h amount of ammonia solution with variable concentration. The hydrogen recovery from the purge gas and the recycling in the synthesis and combustion system with a 93% percentage results in 40 to 50 tons/day plus in the ammonia production.

*Key words:* ammonia, ammonia water, hydrogen, purge, recovery

*Received: August, 2015; Revised final: February, 2016; Accepted: February, 2016*

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