

MedClean Propre Limpio

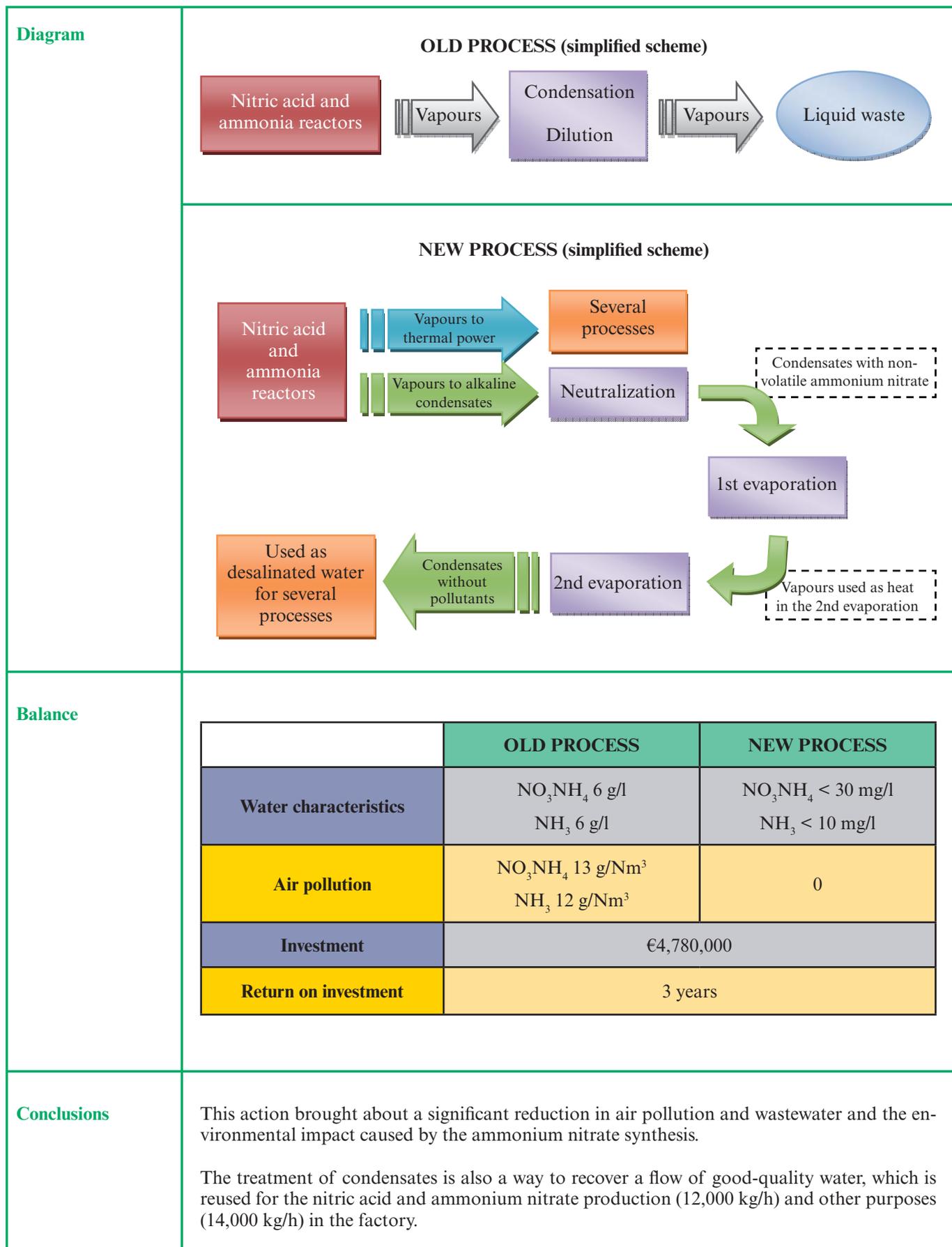


No. 130

Pollution Prevention Case Studies

Nitrate Condensates Treatment

Company	FERTIAL SPA (Annaba, Algeria)
Industrial sector	Manufacture of basic chemicals. Manufacture of fertilizers and nitrogen compounds ISIC Rev. 4 no. 2011 & 2012 (International Standard Industrial Classification of All Economic Activities)
Environmental considerations	Protecting the environment is one of the priorities of Fertial. The company decided to implement and certify an environmental management system (Standard ISO 14001:2004). As a result, many actions and investments have been made in order to preserve the environment and minimize impacts, such as revamping certain production units, disposing of hazardous waste and wasted catalysts, recovering condensates, installing automatic monitoring systems and probes for the accurate analysis of waste flows, etc.
Background	<p>The Annaba site produces ammonia, nitric acid, ammonium nitrate, ammonium urea, calcium ammonium nitrate, phosphate fertilizers and Sulfazot (ammonium nitrate + ammonium sulphate).</p> <p>The ammonium nitrate synthesis process involves a reaction of nitric acid and ammonia which generates vapour condensates. Fertial has implemented a process to treat and reuse these condensates.</p> <p>This action has reduced air and water pollution, improved the visual impact of the production site and reduced water consumption.</p>
Summary of actions	<p>In order to treat the condensates generated by the ammonium nitrate synthesis process, some technical actions were implemented.</p> <p>These condensates originate from vapour condensation produced during the nitric acid and ammonia reaction that takes place in the two existing reactors. The effluent from the condensate processing plant contains less than 40 ppm of ammonium nitrate, equivalent to 14 ppm of nitrogen.</p> <p>This new method is based on the re-evaporation of condensates in 2 double-effect evaporators and has a very low operating cost. It takes place in two different stages.</p> <p>The condensate produced can be used as desalinated water for various uses, as its quality after two washes favourably meets current standards.</p> <p>The main pieces of equipment installed are:</p> <ul style="list-style-type: none"> • 2 evaporators • 2 separators • 3 air condensers



NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.



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