

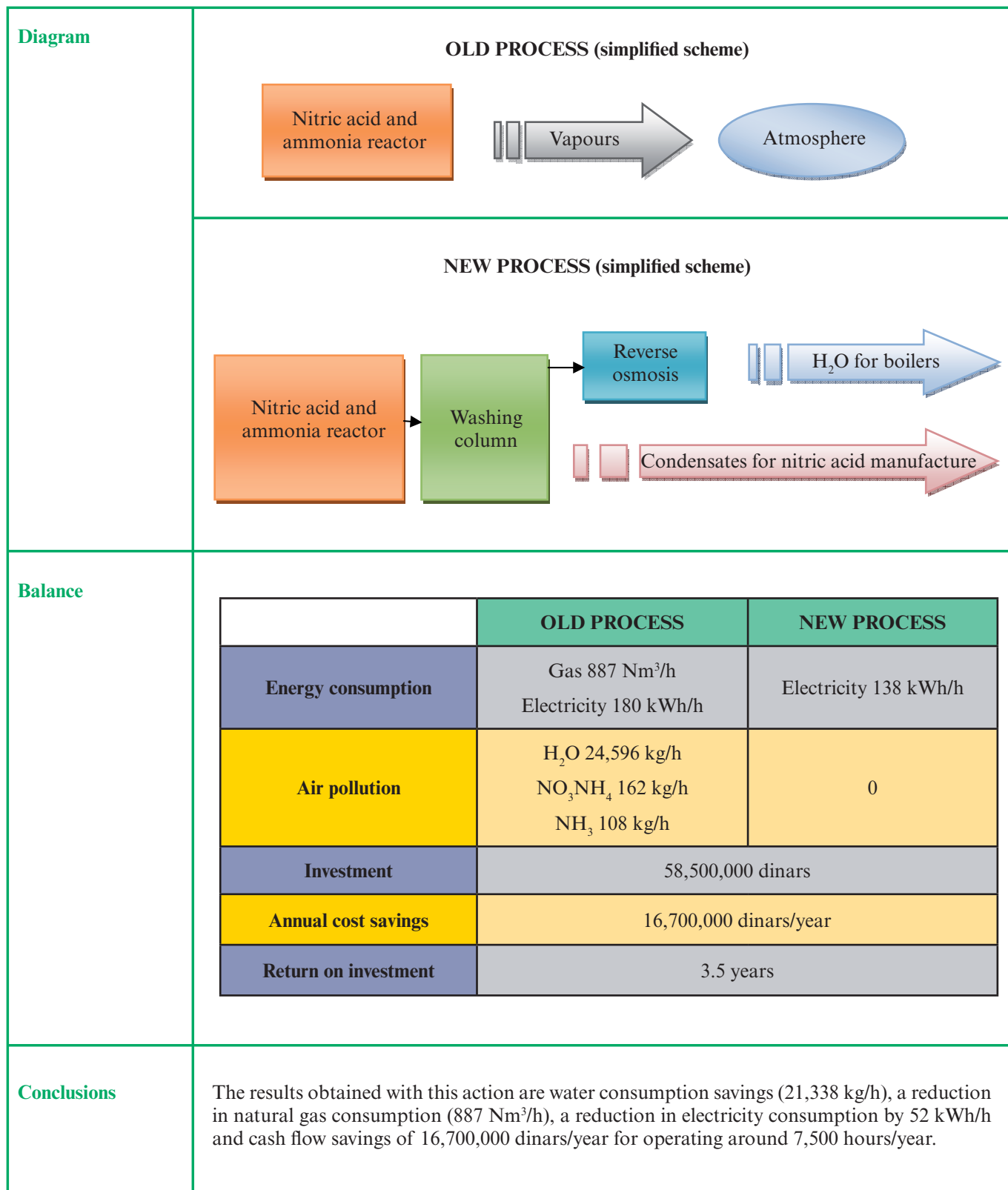
MedClean Propre Limpio


No. 131

Pollution Prevention Case Studies

Energy Efficiency and Air Pollution Abatement

Company	FERTIAL SPA (Arzew, 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 Arzew plant produces ammonia, nitric acid, ammonium nitrate pellets, ammonium nitrate liquid and calcium ammonium nitrate (CAN).</p> <p>The ammonium nitrate synthesis process involves a reaction of nitric acid and ammonia that 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>The method is based on the recovery of process vapours via condensation in a single column and the treatment of condensates via reverse osmosis.</p> <p>The process revamping requires the installation of the following new equipment:</p> <ul style="list-style-type: none"> • Washing column for vapours produced in the nitrate solution unit. • Two new ammonia evaporators. • Two new pre-heaters. • An air condenser. • A reverse osmosis unit. <p>Vapour flow treatment results in:</p> <ul style="list-style-type: none"> • An increase in energy efficiency through the recovery of heat via exchangers (pre-heaters) from the vapour condensate. • Reuse of about 7 m³/h of boiler feedwater. • Reuse of about 15 m³/h of condensate reprocessed for the manufacture of nitric acid.



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



Regional Activity Centre
for Cleaner Production

Dr. Roux, 80
08017 Barcelona (Spain)
Tel. (+34) 93 553 87 90
Fax. (+34) 93 553 87 95
e-mail: cleanpro@cprac.org
<http://www.cprac.org>