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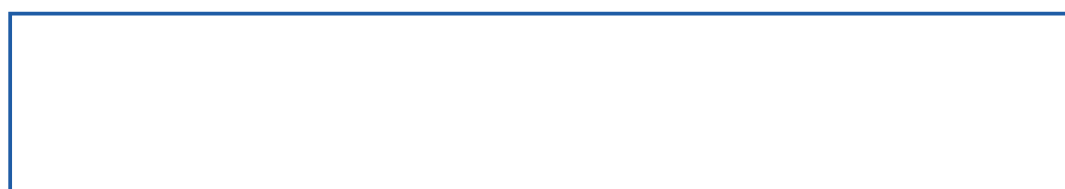
Pollution Prevention Case Studies

Vapour Extraction and Collection System in a Battery Production Facility

Company	<p>Chloride Egypt (Information provided by Eng. Ahmed Kamal & Eng. Adel Taha from the Environmental Compliance Office and Sustainable Development, ECO-SD)</p>
Industrial sector	<p>Manufacture of batteries and accumulators ISIC Rev. 4 no. 2720 (International Standard Industrial Classification of All Economic Activities)</p>
Environmental considerations	<p>The manufacture of batteries implies the use of several products that can be hazardous to workers and the environment, such as heavy metals, acids and other chemical products.</p> <p>The main factory gas emissions are acid vapours, lead or lead-oxide emissions, and CO₂ emissions from fuel combustion. In addition, the generation of potentially toxic solid waste includes: lead and lead alloy scrap, lead oxide dust, and packaging materials.</p> <p>For this reason, it is important to implement clean production measures to reduce and control the exposure limits both for workers and the surrounding environment.</p>
Background	<p>Chloride Egypt is an Egyptian joint-stock company established in 1982 and is a leading company in manufacturing several types and models of batteries, such as car batteries, solar batteries, industrial batteries—both acidic and alkaline, standby batteries and UPS.</p>
Summary of actions	<p>Prior to the development of this project, workers in the tank formation area were exposed to the uncontrolled emission of acid vapours, leading to a severe health hazard. In addition, the acid spillage from the tanks increased the pollutant load in the wastewater and also affected the infrastructure.</p> <p>The actions carried out consisted in:</p> <ul style="list-style-type: none"> - Installation of an acid vapour extraction system. - Installation of a collection system for accidental spills. <p>The collection system led to a reduced consumption of sulphuric acid due to the reuse of the collected acid.</p>

<p>Photo</p>	<p>OLD PROCESS</p> 	<p>NEW PROCESS</p> 																
<p>Balances</p>	<table border="1"> <tr> <th colspan="2" style="background-color: #f00000; color: white;">INVESTMENT</th> </tr> <tr> <td>Vapour extraction and collection systems</td> <td style="text-align: right;">€131,859.61¹</td> </tr> <tr> <th colspan="2" style="background-color: #00b050; color: white;">SAVINGS</th> </tr> <tr> <td>Reduction in H₂SO₄ consumption</td> <td style="text-align: right;">51.2 t/year</td> </tr> <tr> <td>Regenerated lead from collected dust</td> <td style="text-align: right;">3,210 m³/year</td> </tr> <tr> <td>Total savings (monetary)</td> <td style="text-align: right;">€35,592.09/year²</td> </tr> <tr> <th colspan="2" style="background-color: #003366; color: white;">RETURN ON INVESTMENT</th> </tr> <tr> <td>The return-on-investment period is calculated as</td> <td style="text-align: right;">3.7 years</td> </tr> </table> <p>¹ Feb. 2011 exchange rate. Original amount: EGP1,050,000 ² Feb. 2011 exchange rate. Original amount: EGP283,327</p>		INVESTMENT		Vapour extraction and collection systems	€131,859.61 ¹	SAVINGS		Reduction in H ₂ SO ₄ consumption	51.2 t/year	Regenerated lead from collected dust	3,210 m ³ /year	Total savings (monetary)	€35,592.09/year²	RETURN ON INVESTMENT		The return-on-investment period is calculated as	3.7 years
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<p>Conclusions</p>	<p>An investment initially oriented towards health safety has become an important source of economic savings for the company, achieving a reduction in raw material consumption due to the reuse of previously discarded chemicals and allowing the company to reduce the pollutant load of the wastewater.</p>																	

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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