

# Med *Clean* *Propre* *Limpio*iterranean



Regional Activity Centre  
for Cleaner Production



Generalitat de Catalunya  
Government of Catalonia  
Department of the Environment  
and Housing

No. 100

Pollution prevention case studies

## Installation of a concentrator evaporator with mechanical vapour compression

<b>Company</b>	Alcatel - printed circuit boards division.
<b>Industrial sector</b>	Production of multilayer printed circuit boards.
<b>Environmental considerations</b>	The effluent produced in the etching phase of printed circuit board manufacture can be difficult to treat on account of its high synthetic resin content.
<b>Background</b>	<p>Previously, effluent from printed circuit board etching was:</p> <ul style="list-style-type: none"> <li>- Treated inside the factory via chemical processing.</li> <li>- Partly sent to the waste processing plant of the town of Coutances.</li> </ul> <p>Following an increase in production—and consequently of the volume of effluent produced—the company decided to look into way of internalising the treatment of its effluents.</p>
<b>Summary of actions</b>	<p>Two internal treatment scenarios were examined:</p> <ul style="list-style-type: none"> <li>- Installation of a triple-effect evaporator.</li> <li>- Installation of a mechanical vapour compression evaporator.</li> </ul> <p>It was decided to install a mechanical vapour compression evaporator, since it was the cheaper option in terms of operating costs (thanks to its lower energy consumption) despite entailing a larger initial investment.</p>

## Photo

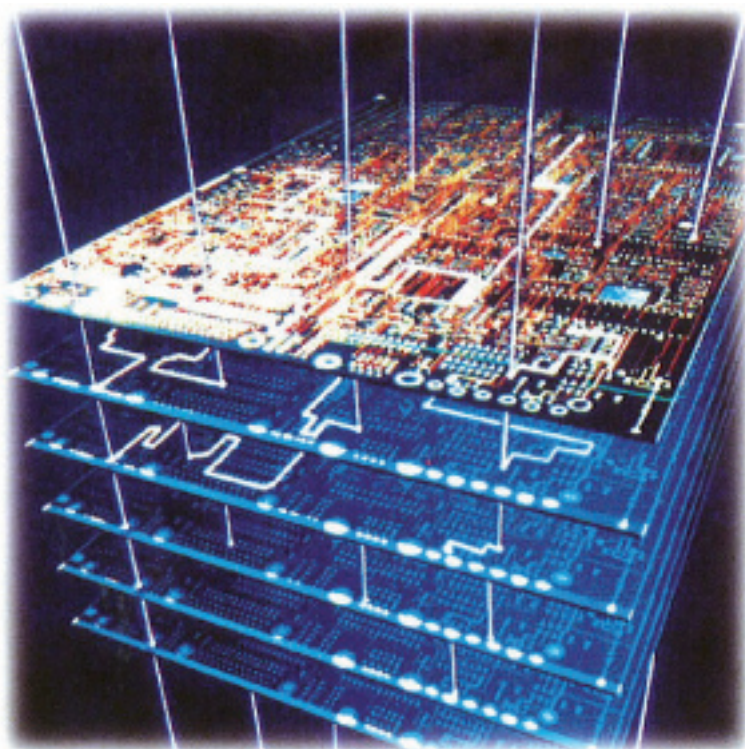


PHOTO: ALCATEL

## Balances

	Electricity consumed in the treatment of effluent: <b>Before: 1,890 MWh/year (420 toe)</b> <b>After: 315 MWh/year (70 toe)</b>
<b>Energy balance</b>	<b>Energy savings: 1,575 MWh/year (350 toe)</b> (savings of 83% relative to the triple-effect evaporator initially envisaged).
<b>Economic balance</b>	- Financial gain from energy savings: 64,791 €/year - Indirect financial gain: 1,829 €/year (since the compressor requires no coolant water) <b>Total savings: 66,620 €/year</b>
<b>Total investment</b>	<b>€45,735</b>
<b>Payback period</b>	<b>8 months</b>

## Conclusions

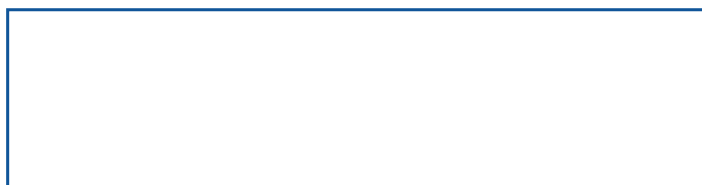
The installation of a mechanical vapour compression evaporator has improved conditions of security and hygiene, as no chemical products need be handled in the new procedure.

Before making this investment, Alcatel took the time to examine the different possibilities available for treating effluents at reduced energy costs.

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

Case study presented by:  
**ADEME - Midi-Pyrénées regional branch**

Technoparc bât. 9  
Voie Occitane  
31319 Labège Cedex  
Tel.: +33 (0)5 62 24 35 36  
Fax: +33 (0)5 62 24 34 61  
Website: <http://www.ademe.fr>



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](mailto:cleanpro@cprac.org)  
<http://www.cprac.org>