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UNEP

Regional Activity Centre for Cleaner Production

MINISTERIO DE MEDIO AMBIENTE

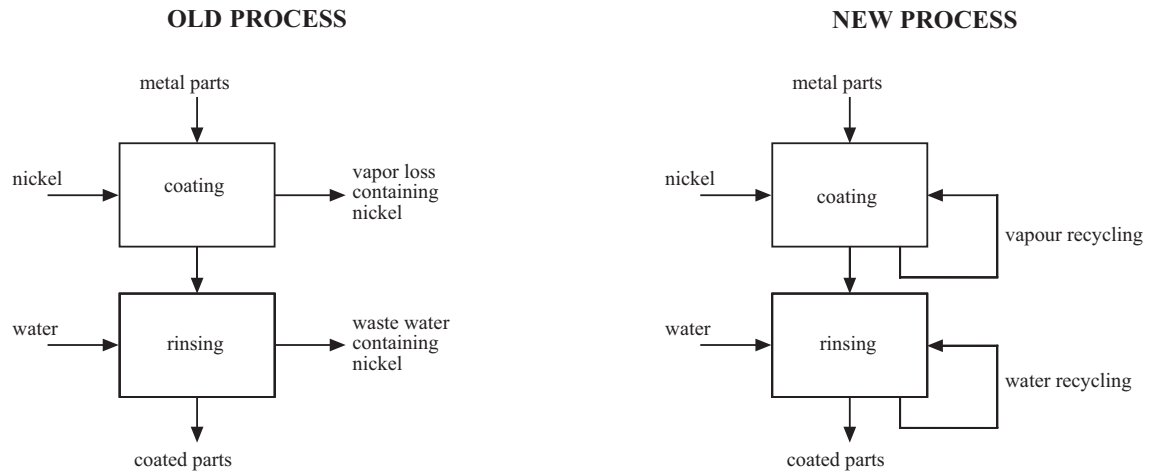
Generalitat de Catalunya
Government of Catalonia
Department of the Environment and Housing

No. 15 Pollution prevention case studies

Cleaner production in an aviation industry

Company background	Israel Aviation Industry is an Aviation (Engine Reconditioning) industry company with 14,000 employees. This company presents three case examples of cleaner production located in the coating division of Bedek Aviation, the electronics group, and the painting-works.
Industrial sector	Aviation industry.
Environmental considerations	The three industry divisions had environmental impacts to consider and improve: 1. In the first place, the coating division uses nickel for coating. Waste containing nickel, which appears in the chemical list EPA 17 ITP (Standards of the Ministry for the Environment) is produced in the rinsing process. 2. In the second place, the electronics division uses material CFC-113 for cleaning electronic circuits, which produces an impact on the quality of the environment. 3. In the third place, the painting works in the various plants of the aircraft industry are using painting guns for the painting of aircraft and other surfaces with an efficiency of 20%-40%.
Background	In order to improve the environmental performance of the enterprise, several cleaner production options were considered: 1. Nickel coating process modification in order to reduce the production of wastewater containing this metal and reduce water consumption. 2. Substitution of CFC-113 material for another product in the process of cleaning electronic circuits. 3. Usage of more efficient painting guns.
Summary of actions	Starting from the considered cleaner production options, the enterprise implemented measures: 1. The company cancelled the rinsing bath after the nickel coating. This process is now done in a closed circuit introducing a standing bath, and returning vapour loss of the coating bath with nickel. 2. The cleaning material was changed, using an ozone compound instead of CFC-113 for cleaning electronic circuits. This way an annual reduction of 28,000 kg of VOC emissions per annum, and savings of 10 tonnes of organic waste production per annum. 3. The enterprise switched the use of normal painting guns to HVLP painting guns, reducing this way the amount of organic exhausted solvent (VOC) emissions by 40%, and reducing the amount of painting waste.

Diagrams



(Coating division)

Balances

Option	Environmental benefits	Investment	Annual savings	Payback period
1	• Reduction in nickel waste production, and water savings	USD12,500	USD33,000	5 months
2	• Reduction of VOC emissions and organic waste production	USD360,000	USD754,000	6 months
3	• Reduction of VOC emissions and paint waste production	USD600 per HVLP gun	USD87,000	

Conclusions

The cleaner production options implemented in the Israel Aviation Industry have brought considerable environmental and economic benefits with a very short payback period. The nickel waste production has been reduced in the coating division, and savings in water inputs have also been achieved. In the electronics division, a reduction of VOC emissions and savings of organic waste have been practised. Finally, in the painting division, the VOC emissions and painting waste have also been reduced.

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