Mediterraneum Clean Propre Limpio

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GRECO INITIATIVE GREEN COMPETITIVENESS
Regional Activity Centre for Cleaner Production
GOBIERNO DE ESPAÑA MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO
Generalitat de Catalunya Government of Catalonia Department of the Environment and Housing

No. 119 Pollution prevention case studies

Abatement of volatile organic compounds (VOC) by oxidation

Company	Printer Industria Gráfica Newco, S.L. (Sant Vicenç dels Horts, Spain)
Industrial sector	Printing and service activities related to printing ISIC Rev 4 n. 181 (*International Standard Industrial Classification of All Economic Activities*)
Environmental considerations	Printer Industria Gráfica Newco's philosophy is firmly based upon active conservation of the environment. The company is pioneer in the gas emissions treatment process within the field of graphic arts. The process is based on exhaust VOC gas oxidation through thermal regeneration, giving results that meet the most demanding environmental requirements in the European market. Printer has been awarded ISO 14001 certification, a system in which we guarantee the careful treatment of all wastes from our production processes and a strict selection of suppliers that include an environmental philosophy.
Background	The printing process is based on continuous feed paper from one coil to the machine and following different offset bodies where the image is reproduced. The ink is applied in a heat-dry process and therefore, once printed, the paper band passes through a drying furnace. In the stages of printing and drying, organic solvents (from the inks' composition) are evaporated. An extraction system is therefore required to remove these solvents from the interior of the rotary press and the furnace. The original Printer's VOC abatement system was based on filters and wet scrubbers which produced a liquid waste stream which required treatment prior to discharge (generating also a waste stream of decanted solvents). The treatment system was insufficient and the legal compliance was difficult to attain.
Summary of actions	The project consisted on installing a new abatement system from rotary press by incorporating a Regenerative Thermal Oxidizer (RTO) system. The RTO system achieves the almost complete destruction (>99%) of all combustible gases, adapting to changes in flow, concentration and type of effluent. This technology is characterized by the use of regenerative beds to recover the purified gas heat. This allows the use of residual heat.The main characteristics of this facility are:

Summary of actions (cont.)

- Minimum fuel consumption, allowing high efficiency heat recovery.
- Very low operating costs and maintenance.
- High purification efficiency.
- High thermal efficiency.
- High average life.
- High reliability.

Photos

OLD PROCESS

NEW PROCESS

Balances

	OLD PROCESS	NEW PROCESS
Air emissionsVOC	>500 mg/Nm^3	<8 mg/Nm^3
Investment	–	€550,000

Conclusions

The company's main objective in the implementation of this measure was compliance with current regulations. They have achieved the expected results, as the legal limit for VOCs is 50 mg/Nm^3 and the results are <8 mg/Nm^3.

The new facility has reduced the emission of volatile organic compounds by 90%.

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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