



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Innovative Technology for the Environment

Pilot Projects by the Federal Environment Ministry



New Ideas for the Environment -
Innovation for Industry

Environment-friendly finishing of printed products

High-quality packaging and promotional material has so far been produced using an elaborate combination of gravure and offset processes with added film lamination or metal coating. To replace this approach, an innovative process mix of offset and flexographic printing has been developed by a privately owned finishing company in Gelsenkirchen, Thomas Grafische Veredelung GmbH & Co. KG.

The innovative printing method produces high-quality printed surfaces even on recycled paper, and the result is likewise recyclable. It also reduces environmental impact. The process combines offset printing with UV flexo varnishing while permitting applications that have so far been the reserve of gravure processes – like textured and scented inks, and mother-of-pearl, metallic or genuine varnish effects. Using solvent-free UV flexo inks, aqueous offset printing inks and solvent-free hybrid inks rules out volatile organic carbon (VOC) compound emissions from the outset. A flue gas scrubber is no longer necessary.

As all information for mechanically processing (plotting) the printing plate is transferred digitally, the only remaining process waste is rubber. Contaminated water and waste are avoided, being a result of producing the gravure roller which the process does away with. About 30 percent less energy is used than in conventional systems, and cleaning fluid needs are cut by 90 percent through the use of closed-loop washer and integrated regeneration units. The new combination of processes serves as a model and shows that process-integrated measures in the printed packaging sector can gain cross-media reductions in environmental impacts. It also has the potential to qualify as sectoral best practice.



Information on the project

The new Heidelberg DuoPress finishing line has been in use at Gelsenkirchen since July 2002. The innovative combination of printing processes is part-funded by an approximately EUR 400,000 grant from the Federal Environment Ministry.

Technical highlights

- Latest computer-to-plate technology does without fixer and developer solutions
- Offset press featuring system to cut alcohol consumption
- Closed-loop washer units
- Integrated cleaning fluid regeneration

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