

ABSTRACT

The Centre for Best Available Techniques (BAT) is founded by the Flemish Government, and is hosted by VITO. The BAT centre collects, evaluates and distributes information on environmentally friendly techniques. Moreover, it advises the Flemish authorities on how to translate this information into its environmental policy. Central in this translation is the concept "BAT" (Best Available Techniques). BAT corresponds to the techniques with the best environmental performance that can be introduced at a reasonable cost. In this study, the BAT for the printing industry are analysed.

This BAT-study is a revision of the BAT-study for the printing industry published in 1998 (Derden et al., 1998). The data from the 1998 BAT-study are now updated and additional relevant information is added in this revision. The technologies which were originally evaluated as BAT are now re-evaluated and new available technologies are added to the BAT-analysis. This updated BAT-analysis is performed in the light of the actual economic situation of the printing industry in Flanders.

The printing industry comprises all the companies performing one or more activities related to the creation of text and images, printing on any type of material and the finishing of these printing products. Although this BAT-study is dealing with the printing industry, the focus of the study is mainly on the different printing techniques and more specifically printing on paper and cardboard. Some of these printing techniques are also applied for printing on other types of materials and therefore, these techniques can also be treated in other BAT-studies, e.g. BAT for the textile industry and for the surface treatment of metals and plastics. The printing techniques analysed in this BAT-study for the printing industry are offset (sheetfed, coldset en heatset), helio, flexo, screen printing and digital printing.

In the last decade, a lot of efforts have been taken in the printing industry in order to reduce emissions and waste streams and to reuse or recycle waste products. New technologies lead to a reduction of waste water or can even completely avoid the production of waste water in printing companies. By using new types of cleaning products and inks, the emission of volatile organic compounds (VOC's) is significantly reduced. The most important waste streams and emissions in the printing industry nowadays are waste of paper and inks, emissions of VOC's and waste water produced by e.g. cleaning and rinsing ink reservoirs or printing cylinders.

In order to reduce the environmental impact, 50 environmentally-friendly techniques have been analysed in this BAT-study. In total, 27 techniques are evaluated as BAT, and 22 as BAT under specific conditions. Waterless printing was the only technology not evaluated as BAT.

Based on this BAT-analysis, several recommendations are formulated, related to the environmental regulations, ecological investment support and to further research and development. Furthermore, based on data from the VMM and measurements performed by Febelgra and Fetra, new emission levels for waste water are proposed in this study (for the parameters cadmium, chrome, copper, lead, selenium, silver and zinc). The analysis of the environmental technologies for the printing industry also made it possible to adjust the LTL of the ecologiepremie and propose new technologies to be added to this LTL: spectrofotometer, inline-color measurement, ceramic or hydrophilic distributing rollers and a UV-dryer.