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Best available techniques in the textile industry

Dr. Harald Schönberger
Gottenheim

Dr. Thomas Schäfer
EnviroTex GmbH, Augsburg

Short version

Report documents environmentally sound textile finishing techniques

Under Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (IPPC Directive), the Commission is currently preparing “Best Available Techniques Reference Documents (BREFs)” for a multitude of industrial sectors. In future, these BREFs are to be used uniformly throughout Europe as an information base in permitting processes for industrial installations. In preparing these documents, the Commission draws upon information provided by Member States. Because of the high environmental relevance of the textile finishing industry, it is among the sectors which are covered by the scope of the IPPC Directive.

Germany has achieved a relatively high level of environmental protection for this sector of industry, in comparison with other countries, through legal regulations such as Appendix 38 of the Waste Water Framework Ordinance and the Technical Instructions on Air Quality Control. Moreover, various techniques are currently under development in Germany which open up possibilities for further reducing the environmental impacts caused by this sector. In order to provide the Commission with as comprehensive an account as possible of the experience and knowledge gained, a report documenting best available techniques (BAT) in the textile finishing industry was prepared on behalf of the Federal Environmental Agency.

The report's content and structure largely follow the instructions given for writing the BREFs. As well as presenting economic data, it gives a comprehensive overview of the techniques applied in the various stages of textile manufacture, starting with fibre production and processing, through fabric formation (knit fabrics/woven fabrics), to finishing (pre-treatment, dyeing/printing, finishing). This is supplemented by a short description of textile materials and a list of basic chemicals, textile auxiliaries and groups of dyestuff along with their applications.

The centrepiece of the report is a compilation and detailed description of the techniques applied in the textile finishing industry and a shortlist of techniques (BAT candidates). The description takes into account the considerable diversity of textile substrates (cotton, man-made fibres, wool) and finishing treatments (floc, yarn, knit fabric, woven fabric) as well as the different objectives connected with different treatment and application techniques. Where available, data on consumption of chemicals, water and energy and on wastewater generation are provided for the various processes. In addition, operational data for individual plants are provided, as are data on waste and emissions to air for the sector as a whole.

BAT candidates were selected on the basis of a critical assessment of the environmental impacts of the various finishing techniques. Some fifty different techniques and processes, divided into the categories "management methods", "process- and production-integrated techniques" and "end-of-pipe techniques", were selected and characterised through technical descriptions and information on their environmental benefit (in quantitative or qualitative terms), their applicability and, where available, their costs. Reference plants are also identified.

Particularly suitable techniques for the areas "management methods", "raw material selection", "finishing of floc and yarn", "finishing of knit fabric" and "finishing of woven fabric" were then identified as BAT, taking into account the criteria defined in the IPPC Directive (including economic aspects and broad applicability in the textile finishing industry).

A description of emerging techniques that have large pollution abatement potential completes the comprehensive overview of the textile finishing industry in Germany.

The report was devised and drawn up in extensive consultation with a national IPPC working group composed of representatives of relevant authorities, companies of the textile finishing industry and various associations to serve as a German contribution pursuant to Article 16 (1) of the IPPC Directive for use by the Commission as a source of information and a basis for its work. Its comprehensive nature and the multitude of data it contains also make the report valuable in its own right, as it is a generally accepted compendium which all interested parties can use to obtain information on best available techniques and environmentally sound processes in the textile finishing industry.

The final report titled "Best Available Techniques in Textile Industry" has been published in German and English in the Federal Environmental Agency's "Texte" series (Texte 13-03 and Texte 14/03 respectively) and can be obtained against payment of € 10. It can also be hired free of charge from the library of the Federal Environmental Agency, P.O. Box 33 00 22, 14191 Berlin, fax: ++49-30/8903-2154 (please cite report number when ordering: UBA-FB-000325).