

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 environment-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.

The aim of this study is to identify BAT for the surface treatment of metals and plastics. On the basis of the techniques selected as Best Available Techniques, recommendations are formulated with respect to the environmental permit legislation and the eco-investment support policy.

The study is a review of the existing BAT studies “Electrolytic and chemical treatment and solvent degreasing of metal surfaces” and “Hot dip galvanizing”. Special attention is given to the wastewater issue in this sector and to the legislative approach of the thermal cleaning installations. The conclusions of the BREF Surface Treatment of Metals and Plastics are included.

Different pre-treatment processes are discussed in this study, such as water and solvent degreasing, chemical/physical cleaning, electrolytic polishing, pickling, etc. The thermal cleaning in a pyrolysis furnace or a fluidized bed is also considered as a pre-treatment process.

Wet surface treatment processes discussed in this study are electroplating, anodising, conversion coatings, etc. as well as hot dip galvanizing and thermal treatments. Furthermore generic processes such as rinsing, drying and heating are described separately.

In order to reduce the environmental impact of the sector, 183 environmental friendly techniques are suggested in this study. After evaluation, 163 of them are selected as BAT. Especially the measures that reduce the use and the pollution of water are stressed. These include regular monitoring of the process solutions, increasing the process solution life, using less hazardous substances such as cyanide, Cr(VI), EDTA and NTA and an adequate wastewater treatment. Special attention is paid to the prevention, reduction and reuse of drag-out.

The BAT selection in this study was based on plant visits, a literature survey, a technical and socio-economic study, cost calculations, and discussions with industry experts and authorities, and collaboration with Ecolas. The formal consultation was organised by means of an advisory committee.