

## ABSTRACT

The Centre for Best Available Techniques (BAT) is founded by the Flemish Government, and is hosted by the Flemish Institute for Technological Research (VITO). The BAT center collects, evaluates and distributes information on techniques that minimise the impact on the environment as a whole. Moreover, it advises the Flemish authorities on how to translate this information into their environmental policy. Central in this translation is the concept “BAT”. Best Available Techniques corresponds to the techniques with the best environmental performance that can be introduced at a reasonable cost.

This report discusses the BAT for the drink industry in Flanders, in particular the production of malt, beer, alcoholic beverages (distillation), wine and non-alcoholic drinks.

The first aim of the study was to propose new wastewater discharge limits for the drink industry in Flanders, taking into account the BAT for minimising the amount and the pollution of wastewater. Another main objective was to recommend an emission limit value for dry dust, taking into account the BAT to reduce dust emissions into the air. Further, it was the aim to select the BAT to prevent or minimise the use of water, the use of energy and the amount of waste or by-products. An additional objective was to test the conclusions of the BAT Reference Document for Food, Drink and Milk Industries (BREF FDM, EIPPCB, 2006a) against the Flemish situation.

In this BAT study more than 60 techniques are selected as BAT for the drink industry in Flanders. The BAT selection is based on a technical and socio-economic analysis of the drink industry, plant visits, discussions with sector experts and other related studies e.g. the BREF FDM. The formal consultation was organised by means of an advisory committee of which the composition is given in annex 1.

One of the BAT is to apply a suitable wastewater treatment installation, existing of primary and/or secondary and/or tertiary wastewater treatment techniques.

For malting plants that uses less than 3 m<sup>3</sup> water per ton processed barley, the BAT center proposes a COD wastewater discharge limit value of 200 mg/l. This proposal takes into account the concentration of recalcitrant COD in case of applying far-reaching water saving measures for malt production. A COD waste water discharge limit of 125 mg/l is proposed for the other drink manufactories. For total nitrogen, the BAT center proposes a wastewater discharge limit value of 15 mg/l. For total phosphorus, the BAT center proposes wastewater discharge limit values for breweries and other beverage plants of respectively 2,5 mg/l and 2 mg/l.

Dust emissions (dry dust) are relevant for plants producing malt and beer. As far as it is known all malt plants and most of the beer plants in Flanders apply fabric filters. Based on the conclusions of the BREF FDM and the expected modification of the Flemish environmental legislation, the BAT center proposes a new emission limit value for dry dust, 20 mg/Nm<sup>3</sup> at a mass flow of >200g/h for the drink industry. To unload dust sensitive products from trucks in breweries and other drink manufactories, it is proposed to establish the following permit condition: use a bag filter or an equivalent dedusting technique to treat outgoing air from silos.

Some examples of BAT to reduce water consumption in drink manufactories are: using and optimizing CIP systems, optimizing water consumption of the rinsing zone in the bottle cleaning machine and reusing bottle pasteurising overflow water. Preventing excessive use of energy

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in heating and cooling processes, using and optimizing heat recovery, and valorising biogas, are examples of BAT to reduce energy consumption. To prevent or minimise the amount of waste or by-products, it is for example BAT to optimize the filling process and to separate outgoing streams to optimize use, reuse, recovery, recycling and disposal.

