

## ABSTRACT

The centre for Best Available Techniques (BAT) is founded by the Flemish Government, and is hosted by VITO. The BAT knowledge 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 report, the BAT to prevent yard runoff and subsequent emissions to surface water and soil on Flemish farms and co-digestion installations are identified. This new study in the series of BAT studies is drawn up by VITO's BAT knowledge centre and published via the EMIS website.

The aim of the study is to evaluate the measures to prevent or limit as much as possible direct yard runoff and pollution of rainwater, and through this minimizing the risk of environmental pollution of water and soil.

The BAT selection in this study was based on a literature survey, plant visits and discussions with industry experts and authorities. The formal consultation was organized by means of an advisory committee with representatives of the sector and Flemish Government. The study was also submitted to an external lecturer for review.

29 environmentally friendly techniques were selected as BAT. 14 of them are generic BAT (always BAT) and they are applicable to all companies that are within the scope of this study. The other 15 are additional BAT (BAT case-by-case), provided the applicable preconditions are met (e.g. in the case of new yard/company site) and/or which apply only for specific sub-sectors (e.g. livestock farms or co-digestion installations). In the context of the circular economy, the BAT on water reuse were also brought to the attention.

The proposed approach mainly focuses on the preventive and process-integrated measures that can be applied in farms or co-digestion installations to prevent or limit environmental pollution. Firstly, attention should be paid to a good choice of a technology, an optimal design and correct coordination in function of the specific business situation. Secondly, good operational management with regard to follow-up, control and possible adjustment of the measures are also crucial for proper operation in practice.

In some situations, applying these preventive and process-integrated measures will be insufficient to prevent environmental pollution. In these situations, it is recommended to apply additional end-of-pipe treatment or purification techniques, either on the entire industrial wastewater or on specific wastewater fractions depending on the company-specific situation.

In addition, the study also contains an overview of the options for valorisation, treatment and/or disposal of the (specific) waste water (fractions) with potential preconditions, as well as the order of priority options for the relevant wastewater fraction(s).

In this study, recommendations are formulated for additional definitions and environmental conditions in VLAREM. In addition to proposals for adjustment/addition of the sectoral conditions in VLAREM II, these recommendations also consist of suggestions in the context of individual environmental permits (special environmental conditions). Furthermore, recommendations for further research and technological development are formulated within this study.

Finally, the innovations in this sector were examined. In particular, improving existing systems for separating (highly) contaminated and diluted runoff, and preventing or limiting emissions to the environment from human factors through automation was identified as an emerging technique.