## 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.

To process potatoes, vegetables and fruit, large amounts of water and energy are used. By processing the potatoes, vegatables and fruit organic materials will migrate to the process water and cause waste water. The processes themselves and the storage of the processed fruit and vegetables use energy. These issues can cause a possible environmental impact.

In the study, a distinction is made between companies that produce potatoes, vegetables or fruit.

Vegetables and fruit should be processed as soon as possible after harvesting. The harvest periods of the different vegetables and fruits follow one another during the year. Each type of fruit or vegetable has its own (pre)processing steps with a different impact on water use and waste water contamination. The environmental impact therefore, varies during the year.

Companies that process potatoes have a continuous process, as potatoes can be stored for a year. The environmental impact of these companies will therefore show less variation.

Fruit processing into juices is limited in Flanders. Therefore, these activities are only described in chapters two, three and four. No specific BAT conclusions were developed for these companies.

This study also distinguishes different preservation methods of potatoes, vegetables and fruit. Each preservation method has its own environmental impact. For canning, larger amounts of water and energy are needed than for the production of frozen or fresh products. The storage of canned vegetables or fruit is done at room temperature, allowing lower energy consumption in this phase than for frozen products ( -18 °C) or fresh products ( 4 to 6 ° C).

The objective of this study was to determine the best available techniques to reduce water and energy consumption and emissions to wastewater and air (odor). An additional point of interest in this study is how the sector can efficiently handle its raw materials to maximize the use as food. In addition, we examined how the side streams can be become feed for livestock, soil improver or source for renewable energy.

Based on the BAT conclusions, BAT associated emission levels for the fruit and vegetable sector were derived by the method of Polders et al. (2012). To come to this, emission data of VMM were used. Since the industrial waste water of various types potatoes, vegetables and fruit companies varies and not all proposed BAT are applicable in these companies, a proposal for differentiated BAT associated emission levels (BAT-AEL) was developed. This has been done for potato processing companies and vegetable processors and for larger companies (type frozen and canned products) and smaller companies (type processors of fresh potato and vegetables).

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