

Perspective Offered By Separation Technologies In Downstream Processing Of Waste Streams For Decreasing Operation Cost And Improving CO2 Balance.

Abstract

Waste streams from fermentation and food industry generally have large amounts of valuable organic and inorganic material which are often sent to Wastewater treatment plants or to high energy intensive processes such as evaporation and drying for animal food production. Separation technologies today offer fractionation possibilities for the preparation of valuable product whilst giving an improvement of CO2 balance. Results of the extensive work made in 3 different industries are presented in this paper.

Alcohol production (bio-ethanol and drinkable alcohol) is a fast growing market and the traditional production of DDGS has a limited future due to high evaporation cost and a limited animal food market. Large pilot scale trials based on separation technology for the preparation of bio-fuel and bio-fertiliser were made during a 2 year period and a full scale factory is under planning.

Wastewater from the modified starch industry has specific characteristics which means that traditional extended aerated wastewater plants are difficult to operate due to the presence of special bacteria which make sludge settling more or less impossible. Upfront separation and use of MBR technology was the solution for this customer.

Waste streams from yeast industries have a high COD as well as high calcium sulphate content. Evaporation and wastewater treatment are the traditional methods of treating these streams. Membrane filtration is offering the possibility to decrease investment cost and running cost in the processing of the different waste streams.

Many other industries with fermentation based production processes as well as in general food industry can find it advantageous to investigate the possibilities of recovering valuable product as well as water

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