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water technology

LambWeston

Project 215 LambWeston

LambWeston® is a world leading brand in high quality potato products, which are sold in over 100 countries around the world. LambWeston has its headquarters in Kruiningen, The Netherlands. In the manufacturing process of potatoes in Kruiningen, sunflower oil is used. This oil incidentally ends up in the waste water and consequently ends up in the waste water treatment plant (WWTP) of LambWeston. To remove oil from the waste water, LambWeston uses a dissolved air flotation unit (DAF) without coagulation and flocculation. Nevertheless, the effluent of the DAF unit at the Kruiningen plant sometimes contains oil in in high concentrations.

Objective

LambWeston asked CEW to investigate the possibility of using an oil sensor to continuously monitor the oil concentration in the effluent of the DAFunit in Kruiningen.

Method of approach

The method used is a research to find a suitable oil sensor. This sensor must be able to measure the oil concentration in the DAF effluent of the WWTP of the LambWeston location Kruiningen (and in future also the plant in Bergen op Zoom).

The research was performed online and by talking to sensor specialists. Eventually a supplier of sensors will be contacted to discuss whether their sensors are suitable for this assignment. When a positive result has been achieved it will be determined together with LambWeston whether it is possible to proceed to phase 2.

In this research a literature review ofthe availability of simple oil tests for the laboratory of LambWeston (in combination with the automatic sampling of the DAF effluent) was executed as well.
Also, a literature research was done on the effects of oil on the working of the WWTP of LambWeston.

Facts

Project number: 215
Project name: LambWeston
Customer: LambWeston/ Meijer Anouk Fase
Partners: Wetsus Academy
Students: Iosef Boraei (Wetsus Academy student)
Others involved: Janneke Dickhout,CEW; Inge van der Velde, CEW.

Results

The conclusion of the oil sensor study is that it is very difficult to measure sunflower oil in a waste water stream that also contains some starch, because sunflower oil does not have the same specifications as oil from the petrochemical industry. This oil is fluorescent and sunflower oil is not. A lot of sensors are unable to measure the sunflower oil because they work with fluorescence. As a result two sensors can be a potential solution, but both sensors need to be tested to the water of LambWeston to evaluate if the sensor can be used for the purpose of LambWeston. his oil is fluorescent and sunflower oil is not. A lot of sensors are unable to measure the sunflower oil because they work with fluorescence. As a result two sensors can be a potential solution, but both sensors need to be tested to the water of LambWeston to evaluate if the sensor can be used for the purpose of LambWeston.

Testing in the laboratory of LambWeston resulted in the same difficulty with the sunflower oil. For the laboratory more tests are available but for the testing more experience in the laboratory is needed. A quick and simple measurement is not available.

An overview was made in the report about the consequences of sunflower oil entering the different processes of the waste water treatment plant of LambWeston. In a few processes precautions will have to be made when sunflower oil enters those processes.

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