

CONTINENTAL AUTOMOTIVE - Mechelen Vacuum evaporation of waste water and reuse of the distillate

CONTINENTAL Chassis & Safety Division in Mechelen produces ABS system components as well as complete finished brake systems for private vehicles. Valves, aggregates and sensors are manufactured in high-tech assembly lines in the fabric and directly delivered to the automotive industry.

Based upon recommendations in a waste water audit the waste water was separated in two flows. On the one hand a minor polluted flow could be discharged directly without any treatment. On the other hand the strongly polluted fraction required an adapted treatment. Evaporation of this flow generates a distillate, suitable to reuse. In this way the legal discharge limits were achieved, besides a significant reduction of the feed water consumption. Trevi executed the waste water

audit and the realization of the selected scenario. After engineering, erection and start-up of the falling film evaporator, also the periodic follow-up of the installation was entrusted to Trevi.

The evaporator has a capacity of 200 l/h (about 1000 m³/y) and reduces the waste volume between 2,5 and 3%. The distillate can partly be reused in the production process.

Measured parameters

parameter	unit	limit	distillate
C.O.D	mg/l	1000	125
nitrogen	mg N/l	100	4
Phosphorus	mg P/l	20	0,7
sulfate	mg/l	250	< 40
chromium	mg/l	0,3	< 0,3
copper	mg/l	0,2	< 0,02
lead	mg/l	0,05	< 0,02
nickel	mg/l	0,5	0,02
zinc	mg/l	1,0	< 0,03



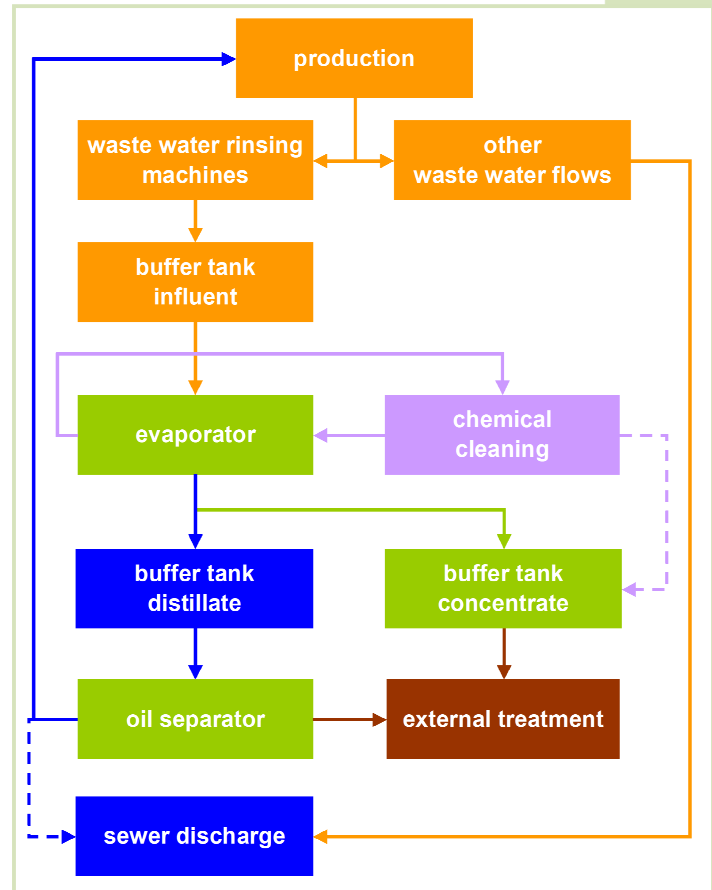
Evaporator

The waste water from the rinsing machines is stored in a 10 m³ buffer tank and is treated by the evaporator in a cycle of 24 hours. After separation of the oil components, which are not held back in the evaporator, about 50% of the distillate returns to the production process. The excess of distillate is discharged in the sewer.

The concentrate (maximal 3% of the treated volume) is treated externally. After every 3 cycles the evaporator is cleaned with alkaline. After 4 cleanings the wash liquid is discharged together with the concentrate. A mechanical cleaning once or twice a year is sufficient to keep the plant brand new.

About 1000 m³ waste water a year is treated and reduced to a waste flow of less than 25 m³/year.

Total investment costs for the evaporation plant treating a part of the flow was about 100 000 EUR less than the formerly planned physico-chemical treatment for the total waste water flow. Which accentuates again the benefit of a waste water audit.



Oil and water separator and flushing tank



Hydrophore



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