



# Turn waste into value

Industrial water and waste treatment solutions





## Turn waste into value

Most industrial processes consume lots of water and generate waste that needs to be treated to meet tough legislation requirements, to keep the license to operate.

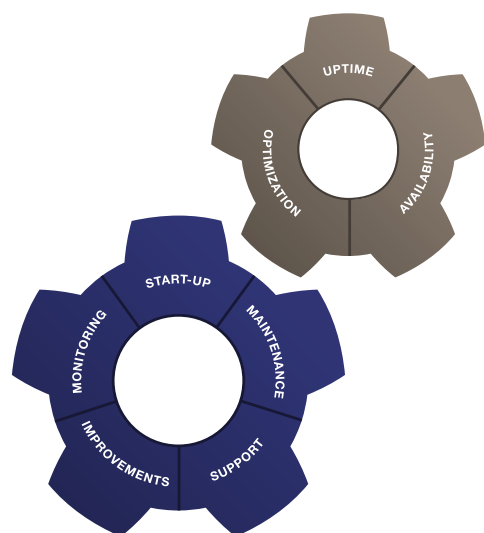
Waste streams often contain valuable resources from the process plus water, which can be recycled.



### **Reduce your environmental footprint**

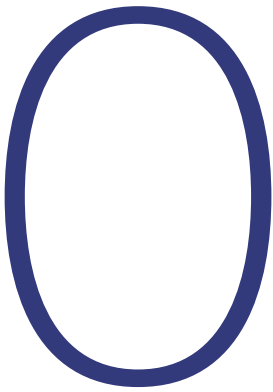
Alfa Laval helps reduce your environmental footprint from water and waste streams, by maximizing reuse of water, by turning waste to value, and by minimizing energy consumption and waste – time and time again!

We offer a complete spectrum of technologies for on-site industrial water and waste treatment plus a 360° Service Portfolio.





## Gain from on-site water and waste treatment



### Zero Liquid Discharge

- Comply with legislation for waste disposal and effluent discharge
- Avoid fees or fines if complex wastewater is not accepted at the municipal wastewater treatment plant
- Wastewater treatment capacity will not be a bottle neck for expanding your business
- Save costs, energy and CO<sub>2</sub> by minimizing waste for disposal for Zero Liquid Discharge
- Recover water and valuable resources from your main process to recycle or sell
- Save water by reusing treated wastewater. Balance your overall water loop
- Recover heat and produce biogas
- Upgrade the raw water quality for your processes
- Reduce your environmental footprint – and your operational costs



*Turn wastewater ...*



*... into clean water that can be reused ...*



*... for cleaning or process water ...*



*... cooling towers, irrigation etc.*

Product recovery  
Waste reduction  
Less disposal costs  
Water reuse  
Less CO<sub>2</sub>



### Evaporation makes Zero Liquid Discharge happen

Devon Energy recycles up to 80% of the flowback wastewater from fracking at the Barnett Shale gas wells with mobile evaporator systems based on Alfa Laval heat exchangers. They convert 2.3 million litres of wastewater per day into highly pure distillate. "We save money by reusing our own water and not having to truck water all over North Texas. Water is a finite resource here." Jay Ewing, Completion Construction Manager.



# 80%

Water reclamation

## Areas where Alfa Laval can support your business



### One stop shopping

At Alfa Laval you can get equipment for both your main industrial processes, on-site water and waste treatment plus resource recovery. You get a high quality, energy efficient process design with guaranteed results based on deep understanding of your industrial process as well as waste treatment.

You can draw on our expertise, global presence and more than 130 years of experience in helping industrial customers tackle tough requirements for waste handling from food and beverage, chemical and pharmaceutical to pulp and paper, oil, gas and other process industries.



### Waste dewatering project paid back in 18 months

Brains Brewery in Wales recovers wort from the whirlpool by dewatering the trub waste with an Alfa Laval decanter. This saves disposal costs and generates revenue as the wort is added to spent grains and sold for cattle feed. "We estimate that 5-7% of wort is saved through the project, that delivered a payback in 18 months." Bill Dobson, Brewmaster.



# 5-7%

Product recovery

## Calculate your savings potential

Every m<sup>3</sup> of water and every kW of energy you recover is one step towards reducing your environmental footprint – and your costs.

<b>Your water consumption.</b> Cost/m <sup>3</sup>	m <sup>3</sup> /year	Costs/year
<b>Wastewater generated.</b> Cost/m <sup>3</sup>	m <sup>3</sup> /year	Discharge fees/year
Saving potential if water is reused	%	Saved costs
<b>Waste stream for disposal.</b> Cost/m <sup>3</sup>	Tons/year or trucks/month	Costs/year (transport + disposal)
Saving potential if waste is	reduced by __ %	Saved costs/year
<b>Valuable by-products</b> that can be recovered?		
Quantity of by-products	t/year	Trucks/month
Quantity you can recycle or sell. Cost or income/m <sup>3</sup>	tons/year or %	Saved raw material costs or income/year



If you want to convert a cost center into a profit center, Alfa Laval is there to support you – from business case to selecting, installing and servicing the right solutions from our complete spectrum (see page 6).



## Wastewater for domestic water reuse and cooling towers

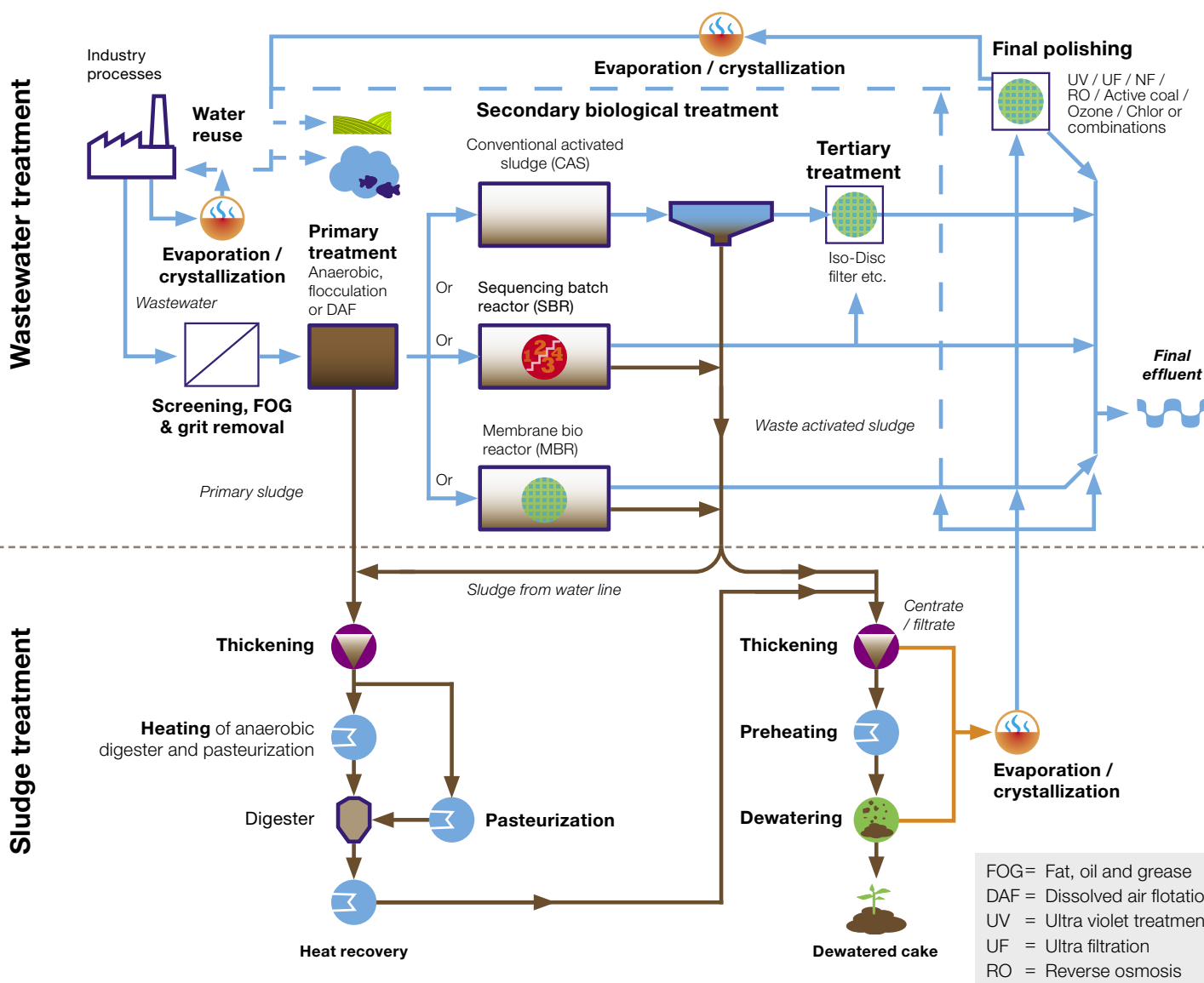
Speciality chemicals producer Galaxy Surfactants uses Alfa Laval MBR for biological wastewater treatment at their plants in India and Egypt to save up to 40% of their water consumption, pursuing their Zero Liquid Discharge strategy. "The membranes required only a small area and provided better service." Mr. Yogesh Sankhe, Sr. Executive SHE.



# 40%

Wastewater – an untapped water resource

## Industrial wastewater treatment processes





**Less waste for disposal with sludge thickening**

Recycled paper producer Dalum Paper, Denmark, uses Alfa Laval drum thickener at their de-inking plant to cut sludge dewatering costs. "We chose ALDRUM because of its simple construction and very efficient design. It enables us to achieve an 80% reduction in the volume of sludge." Engineer John Nielsen.



80%

Waste reduction

Complete spectrum of solutions and services

**Biological wastewater treatment**



MBR membranes



Sequencing batch reactor (SBR) systems



Package wastewater treatment plants

**Tertiary treatment and water intake treatment**



Cloth media filters

**Evaporation and crystallization**



Evaporators/ Crystallizers

**Final polishing/ Ultrafiltration/ Reverse osmosis**



Membrane filtration systems

**Thickening**



Drum thickeners



Belt thickeners



Decanter centrifuges

**Thickening and dewatering**



Belt presses

**Dewatering**



Plate presses

**Thermal sludge treatment and heat recovery**



Spiral heat exchangers



Tube-in-tube heat exchangers



Compabloc heat exchangers

**Product recovery**



High speed separator modules



Membrane filtration systems



Decanters and plate presses

### **One stop shopping and 130 years of experience**

Alfa Laval has more than 130 years of experience in solving industrial customers' challenges in relation to waste handling. You can draw on our expertise, global presence and technologies and services for both your main industrial processes and treatment of your waste streams.

### **Alfa Laval in brief**

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

### **How to contact Alfa Laval**

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

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