

cleaning  
systems  
for liquids

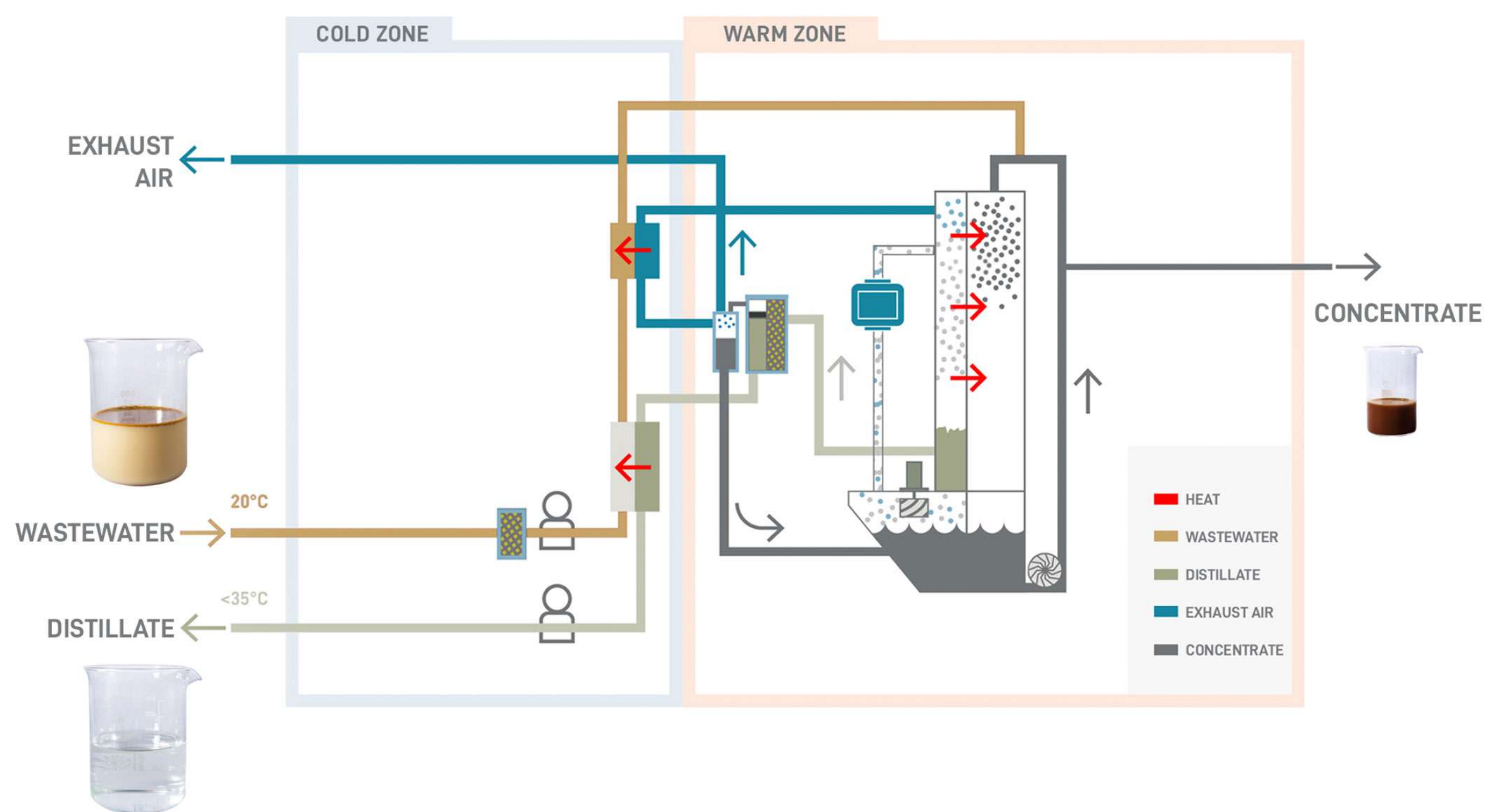


**Treatment of wastewater  
from paint pretreatment**

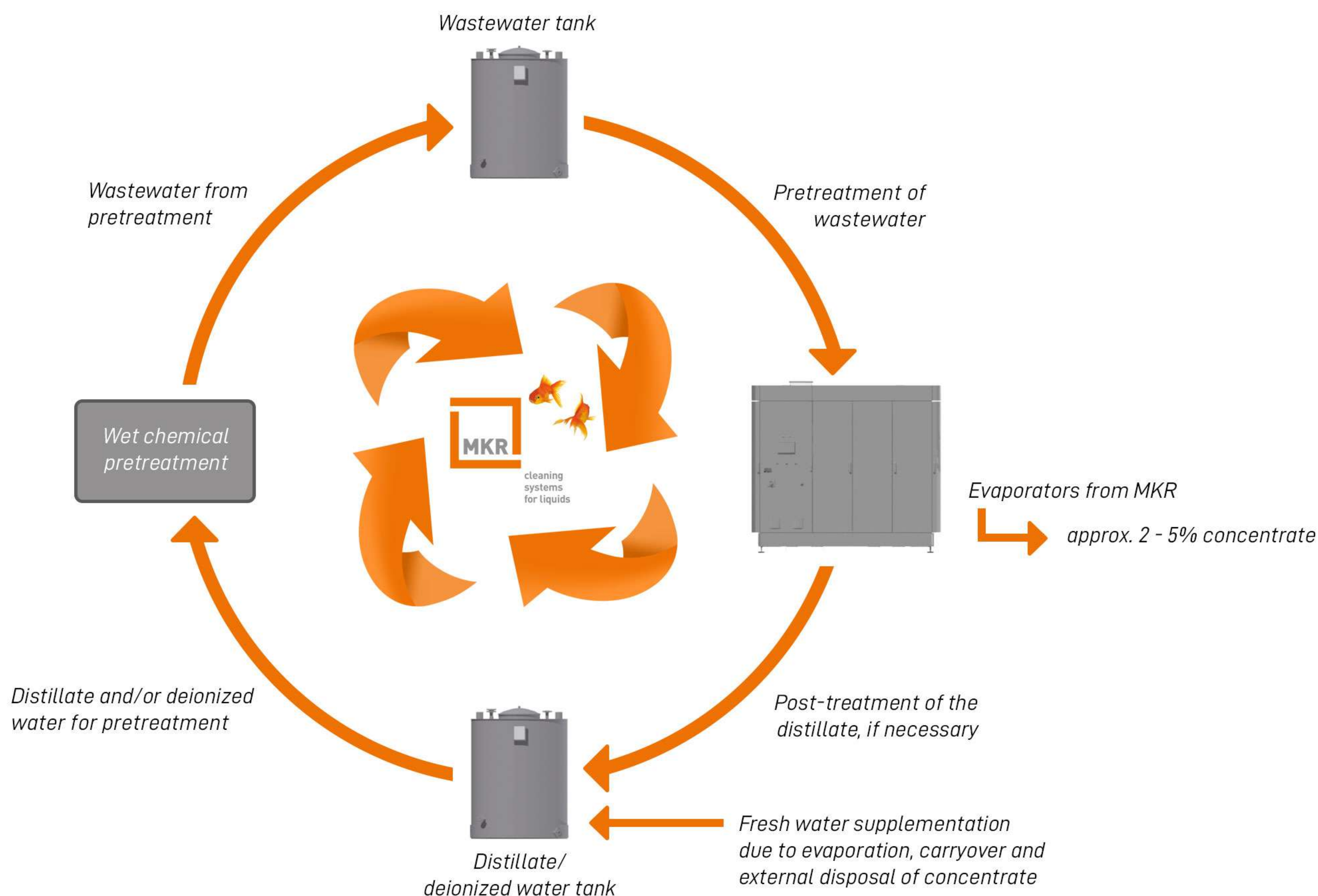
# Energy savings in the preparation of active and rinsing baths

## Atmospheric evaporator

Our wastewater recycling minimizes disposal volumes and freshwater requirements compared to chemical/physical treatment. Our fully automated and variable evaporator system redefines efficiency. MKR evaporators increase the sustainability of your process through low energy consumption.



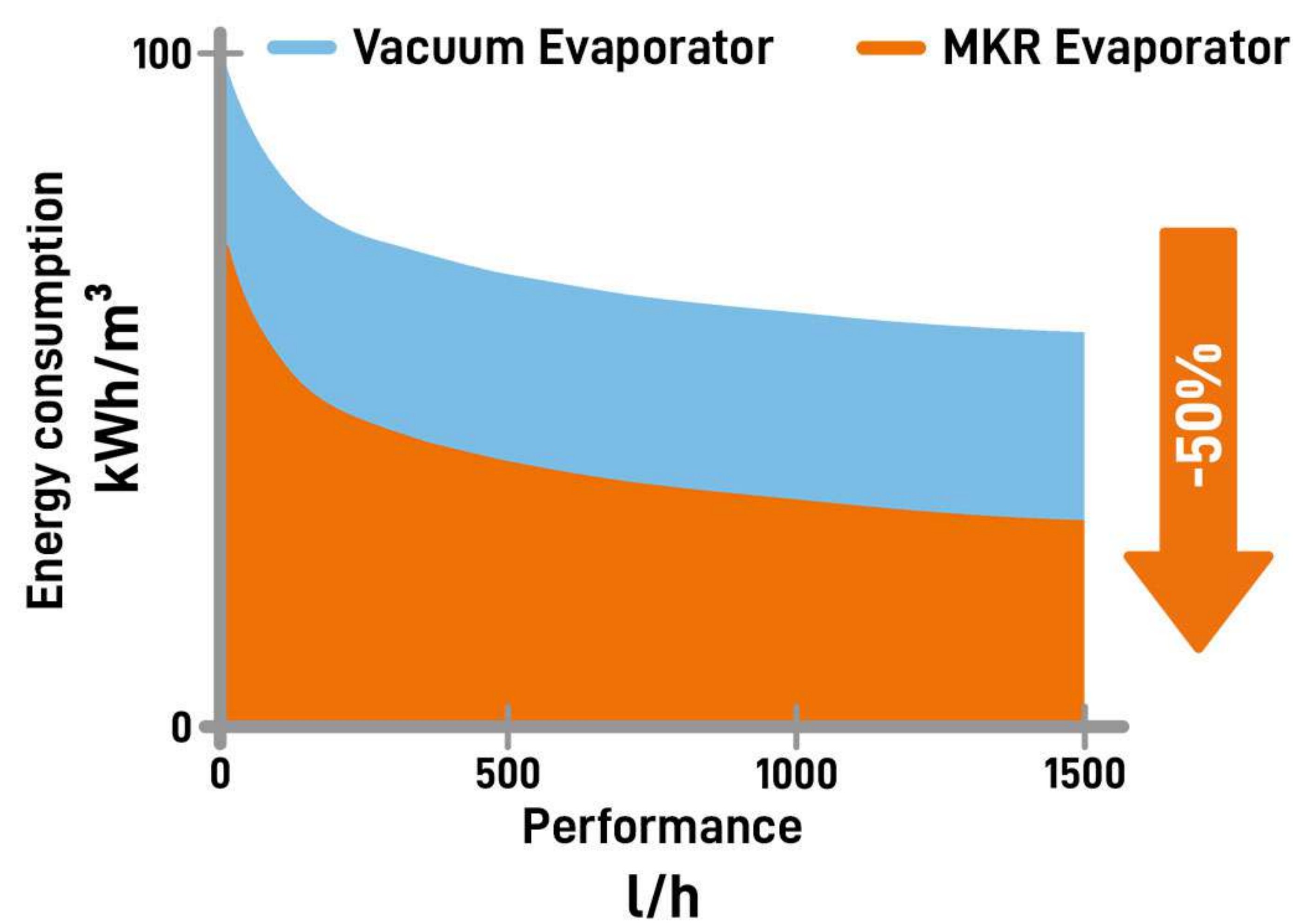
Virtually wastewater-free operation with the MKR evaporator. It is used in processes such as degreasing, phosphating, passivation, cathodic dip/atm dip, and chemical coating.



## Advantages of MKR evaporators

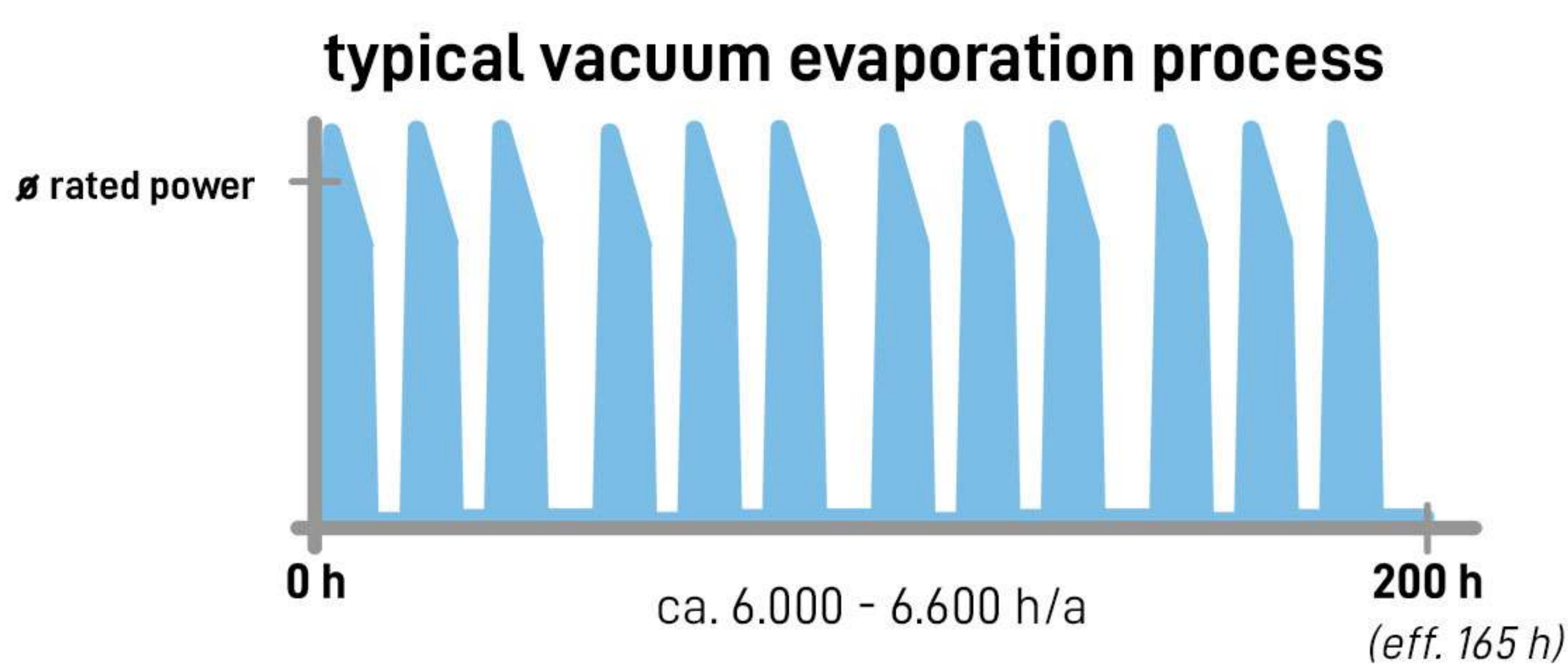
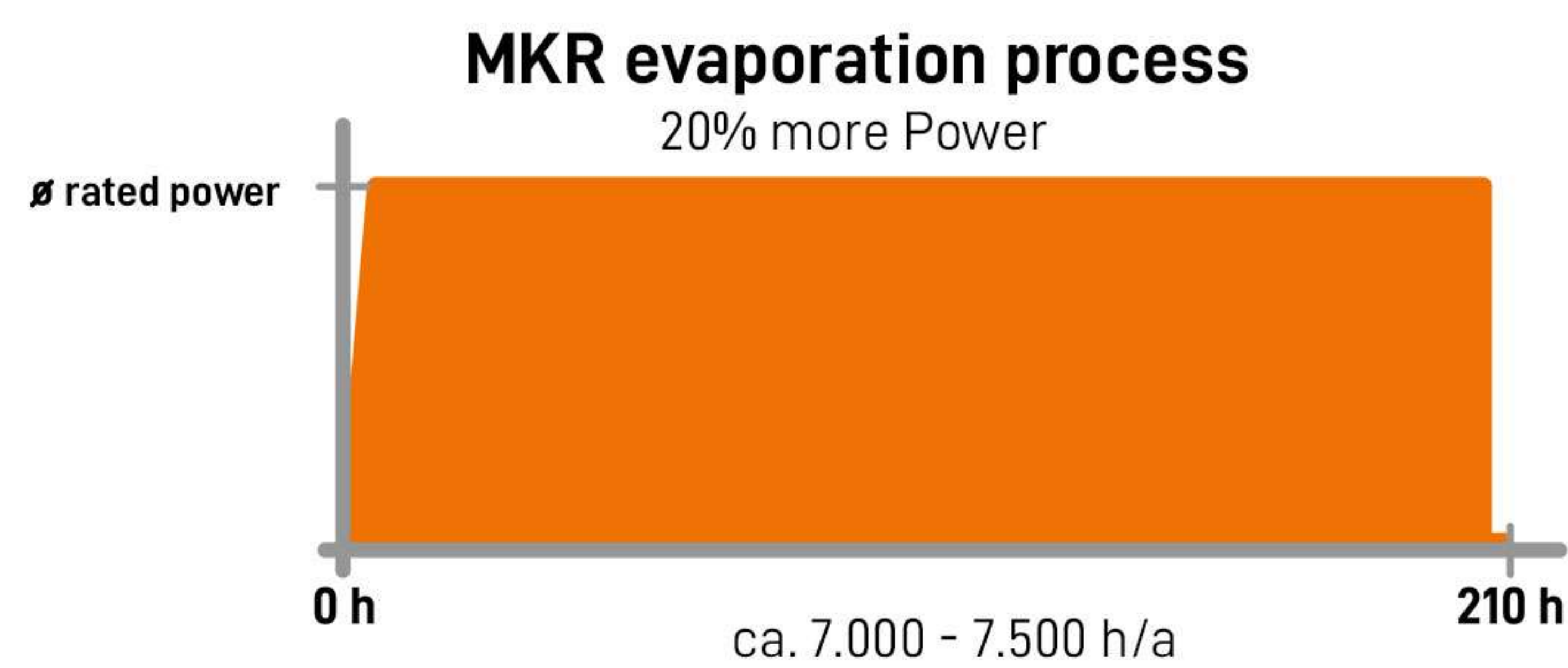
- lowest energy consumption
- highest distillate quality
- low concentrate quantity
- low personnel costs
- continuous operation at MKR  
**>200 h concentration**  
*1 x heating*  
*1 x automatic cleaning*

## Energy savings in the distillation process



Energy savings of up to 50% with evaporators from MKR

## Maximum efficiency through continuous process



## Evaporator sizes

Performance data in l / h based on process water

ET Series		S				M				L			
Nominal output	l / h	50	100	150	200	250	350	500	750	1000	1500	1750	2000
Capacity per year	m³ / a	380	750	1150	1500	1900	2650	3800	5700	7500	11500	13300	15000
Energy consumption	kWh / m³	65	60	55	50	48	45	35	35	35	35	35	35
Length	mm	1950		2500		2900		4450		4450		4850	
Width	mm	1260		1580		1750		2350		2800		2800	
Height	mm	2100		2600		2600		3100		3100		3100	
Weight	kg	2100		2300		2900		4800		8000		8000	

# Extending the service life by maintaining the active baths

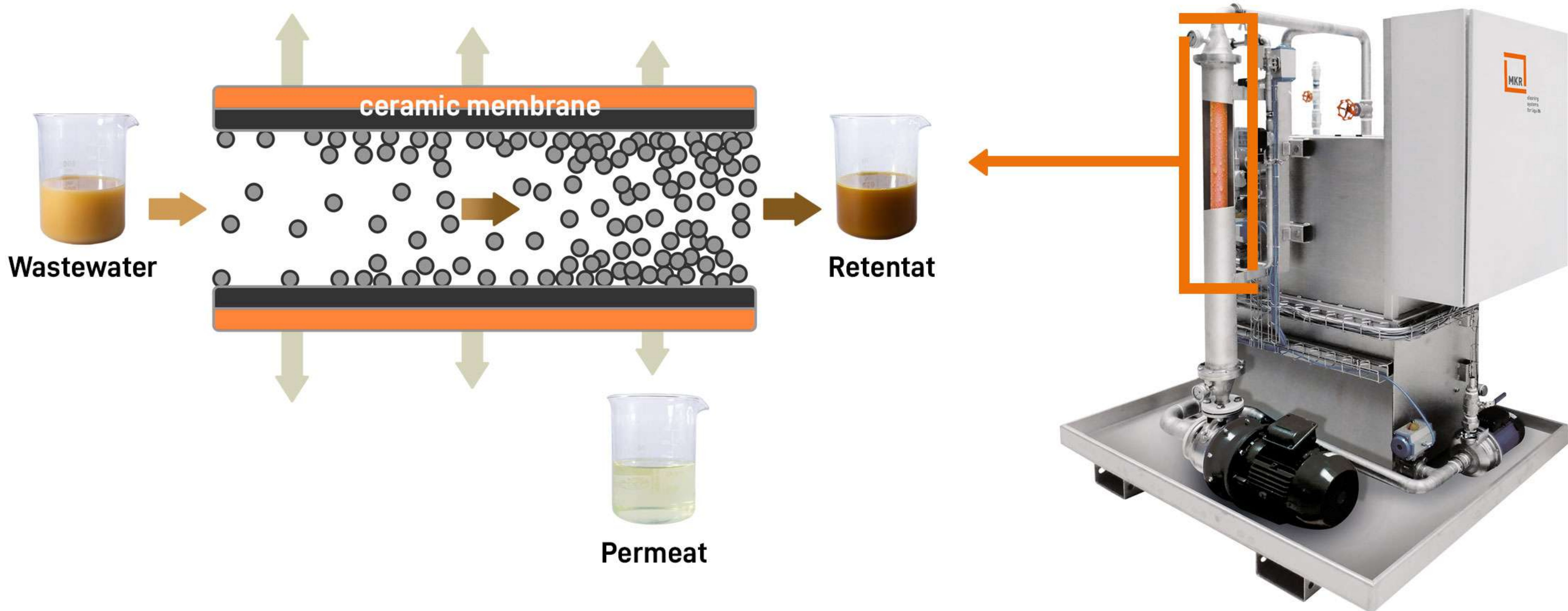
## Ultrafiltration

With our MKR ultrafiltration system, your active baths are maintained and fed into the process via a bypass. The up to 20-fold longer service life saves disposal costs and ensures consistently high quality of your active baths.




### Advantages of ultrafiltration

- lowest energy consumption
- separation of emulsified and non-emulsified oils as well as sediment and particles up to < 0.1 µm
- filtration with 0.1 µm
- cost savings on chemicals and disposal

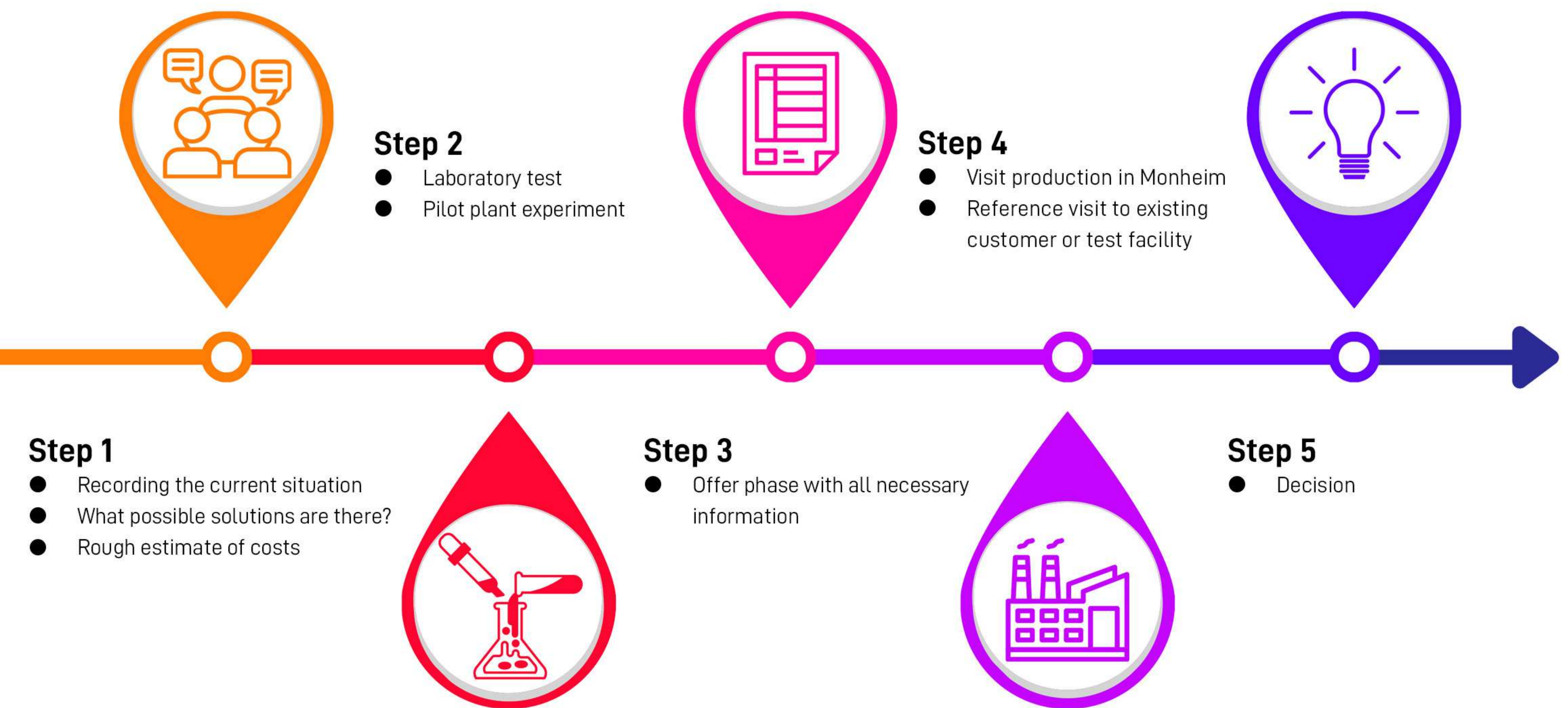
### Membrane filtration technology



### Use cases

			
	Tramp oil separator	Centrifuge	Ultrafiltration
demulsified oils	●	●	●
emulsified oils			●
sediment / particles		●	●

## How do we proceed?



There are various options for the care and treatment of wastewater from paint pretreatment:

### 1. Membrane process / ultrafiltration

Advantage: bypass care with very low energy consumption  
*Ideal for the care of active baths*

### 2. Chemical / physical process

Advantage: low energy consumption  
Disadvantage: compliance with discharge limits must be observed  
high fresh water consumption  
high use of chemicals & trained personnel in wastewater treatment

### 3. Thermal process / evaporator

Advantage: reuse of distillate  
reduction of the amount of wastewater to be disposed of - concentrate  
fully automated operation  
*Ideal for preparing active and rinsing baths*

# The Success Story

## Tradition becomes Innovation



**2023**

ET MaXx ZLD  
ET MaXx ZLD



**2001**

Fremdölabscheider  
Tramp Oil Separator



**1997**

Verdampfer  
Evaporator



**1996**

Ultrafiltration  
Ultrafiltration



**1992**

Zentrifugen  
Centrifuges



**1990**

Saug- und Filterwagen  
Suction- and Filter Cart



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systems  
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