Process control and increased lifespan of process baths

Resource efficient quality optimisation

- Recovery of water and process chemicals
- Maintained or improved product quality
- Circular economy in practice

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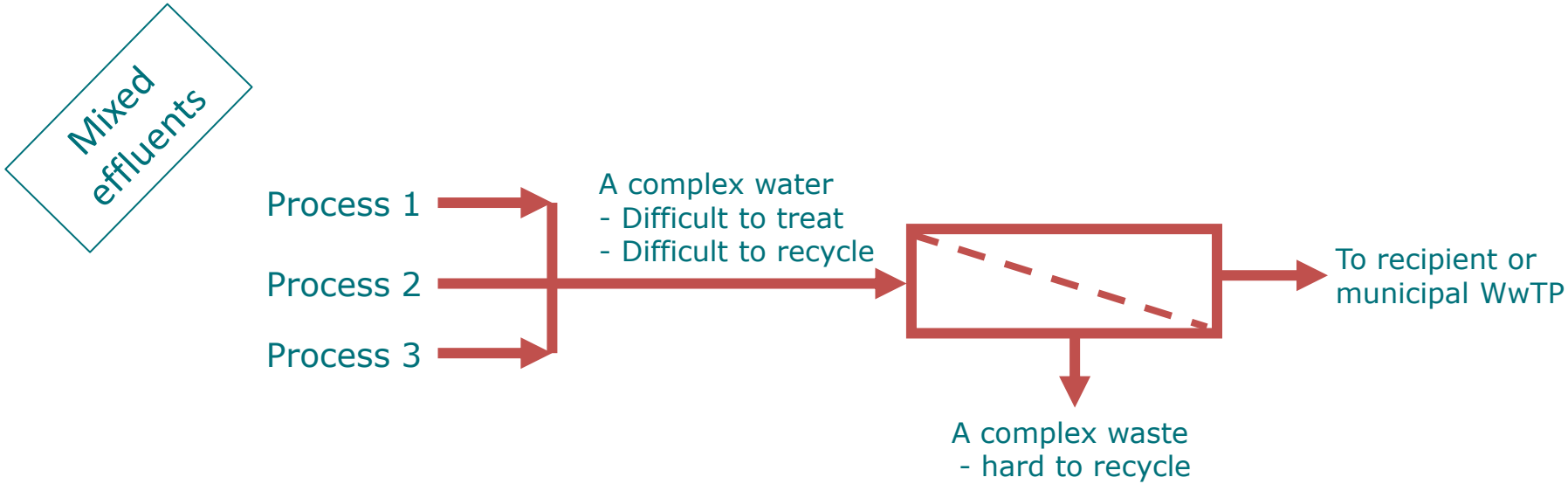
End-of-pipe treatment of process water



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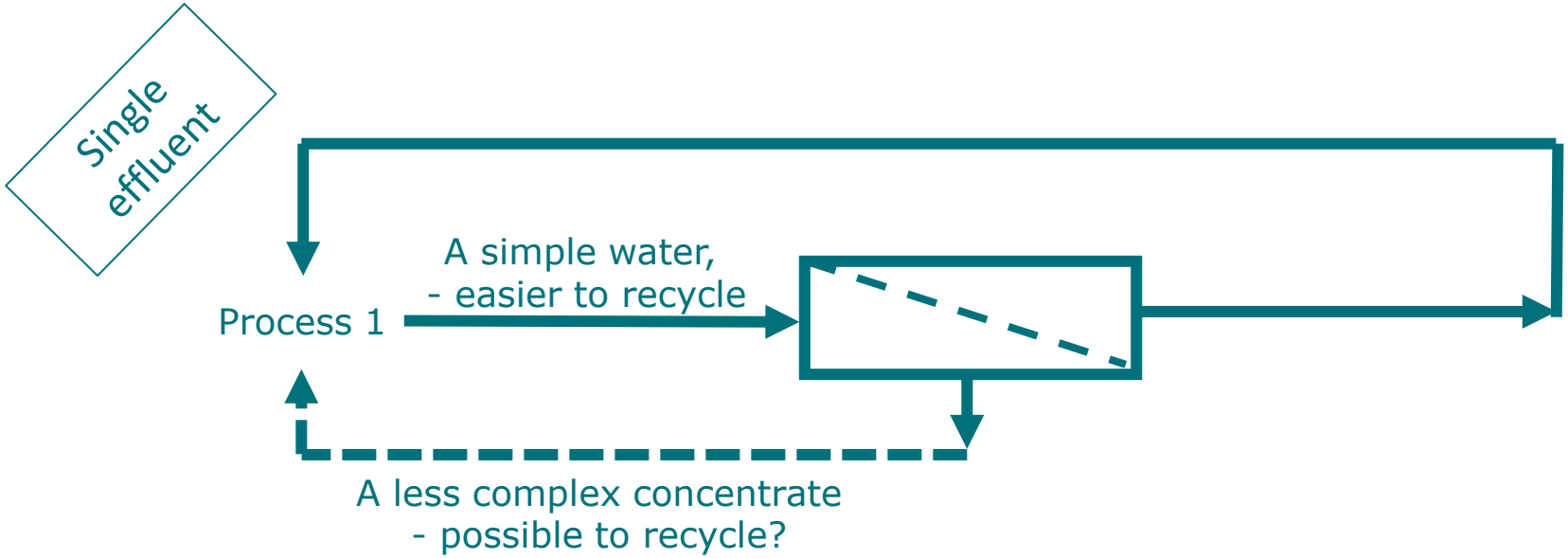
Treatment at the source



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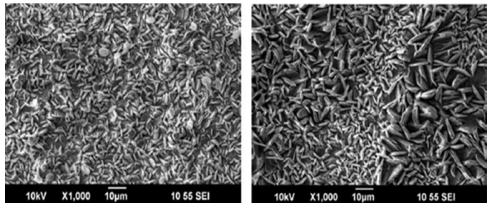
Phosphating - Pretreatment before painting of cabins

Steel plate



Steel plate with phoshate layer

Painted steel plate

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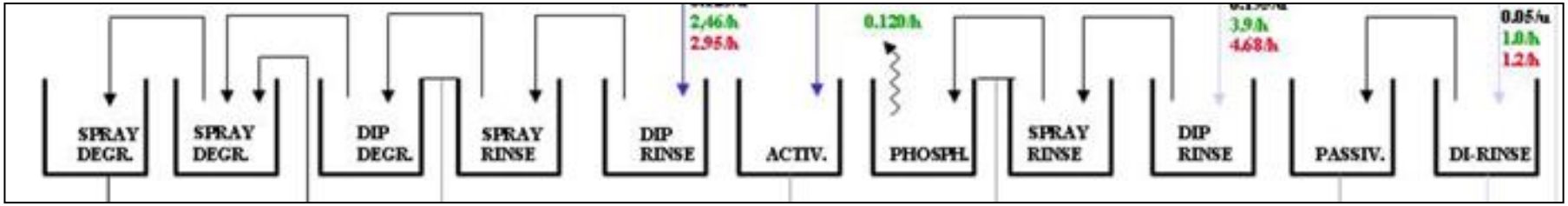
Pretreatment before painting of cabins

Co-corellations!
Highly complex!

Cabins



Degreasing → Phosphating → Passivation

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Lack of process *knowledge* - a hinder for recovery of chemicals

Processes are often run by experience rather than by knowledge:

- a hinder for process development and recovery of process chemicals

Better process knowledge opens up for:

- reuse of water
- recovery of process chemicals
- increased lifespan of process baths
- maintained or improved product quality

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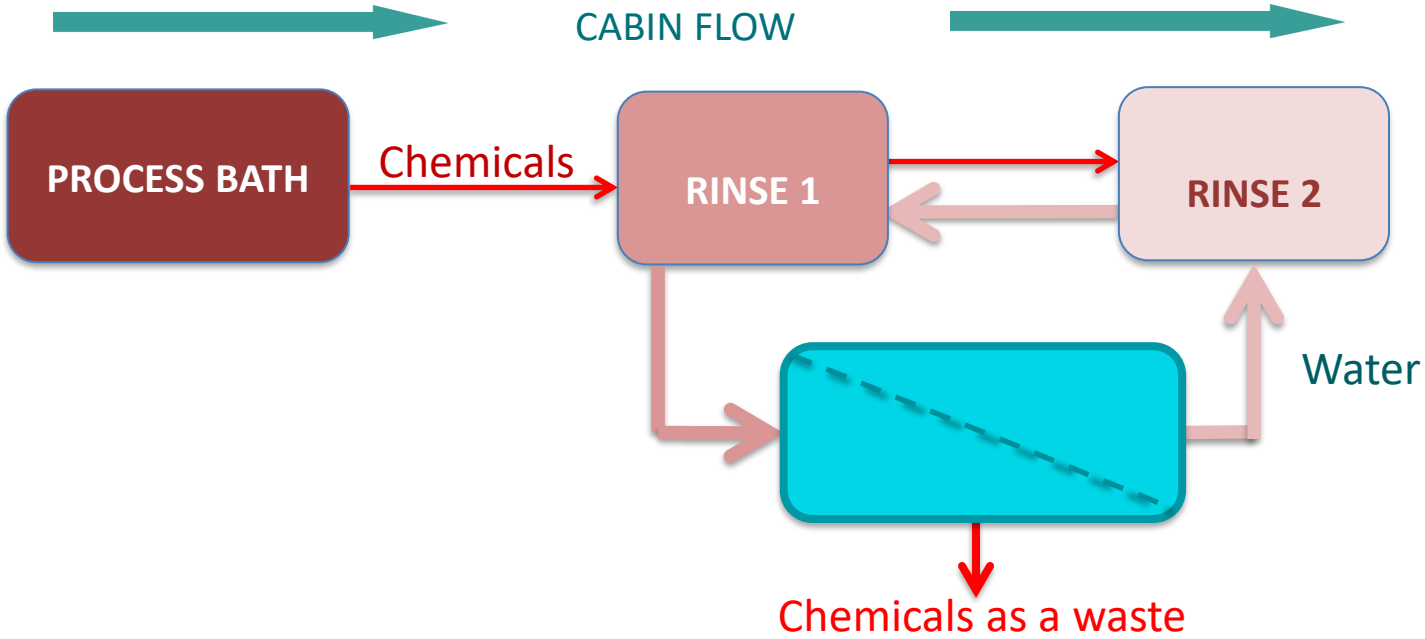
Recycling of water today - ”Closed loop”



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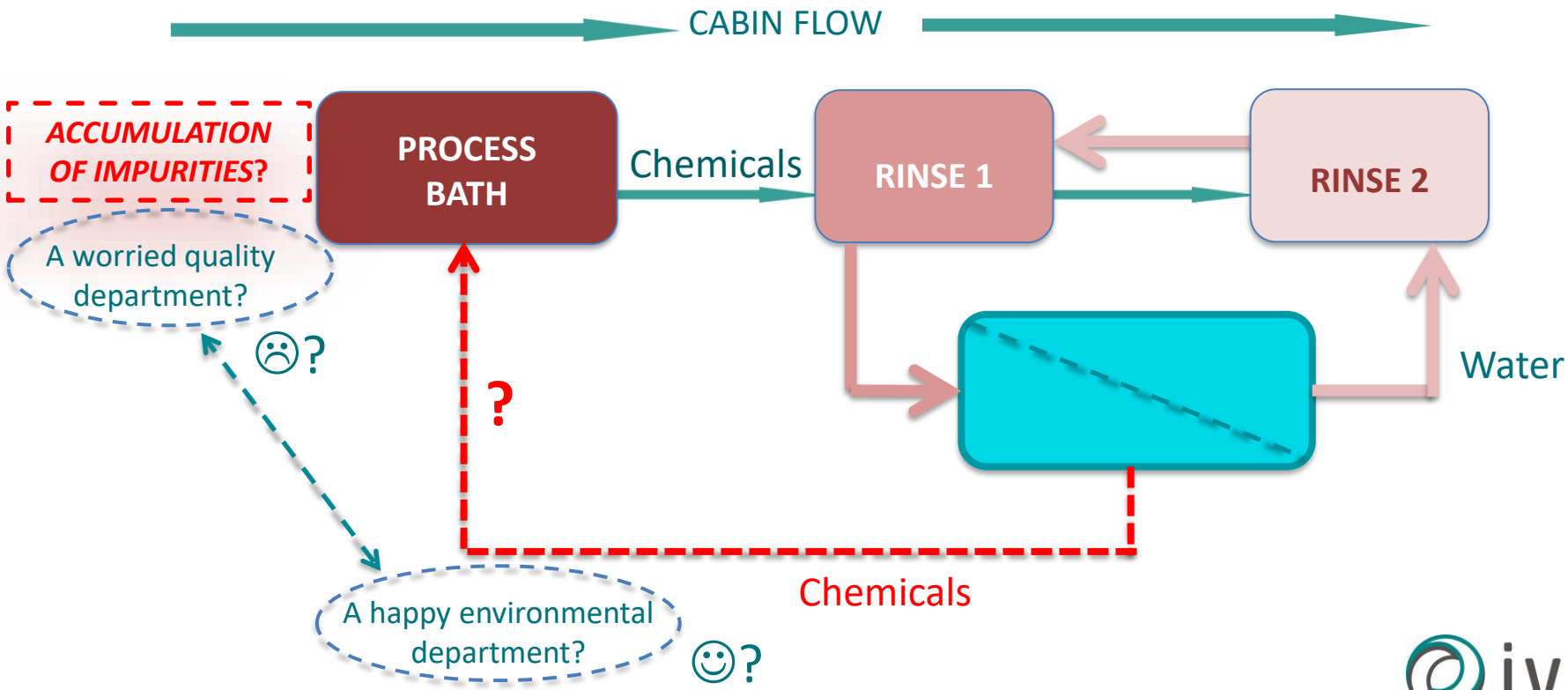
Next step: Recovery of chemicals – a new process?



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Resource Efficient Quality Optimisation - 6 Steps

1/ Find the correlations between the process parameters and the product quality

2/ Predict the product quality

3/ Take control over your material balance (water, chemicals)

4/ Find ways to selectively separate the impurities

5/ Start to recover chemicals (and water) with caution

6/ Increase the recovery rate of chemicals (and water)

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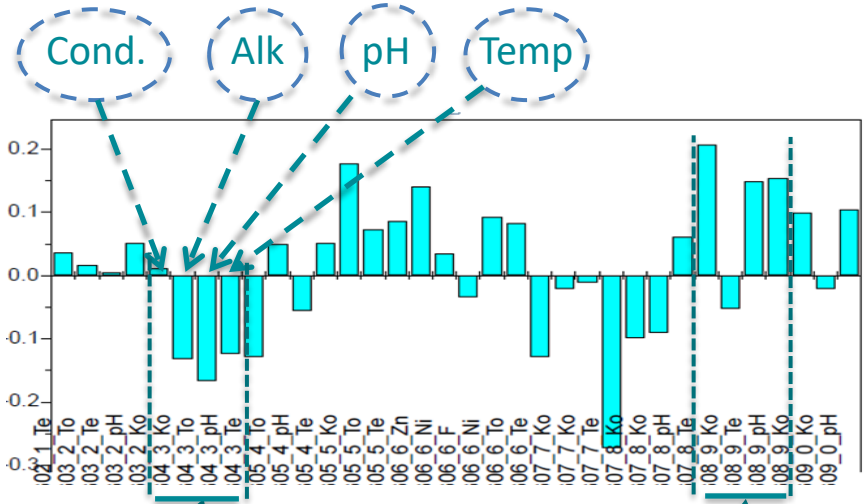
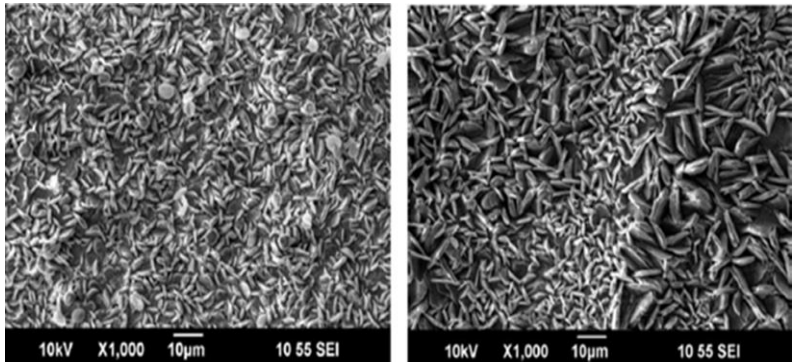
1/ Find the correlations between process parameters and the quality

- Observe the co-correlations!



Parameters in process baths

Process



Quality of phosphate layer

- Weigth
- Crystal size

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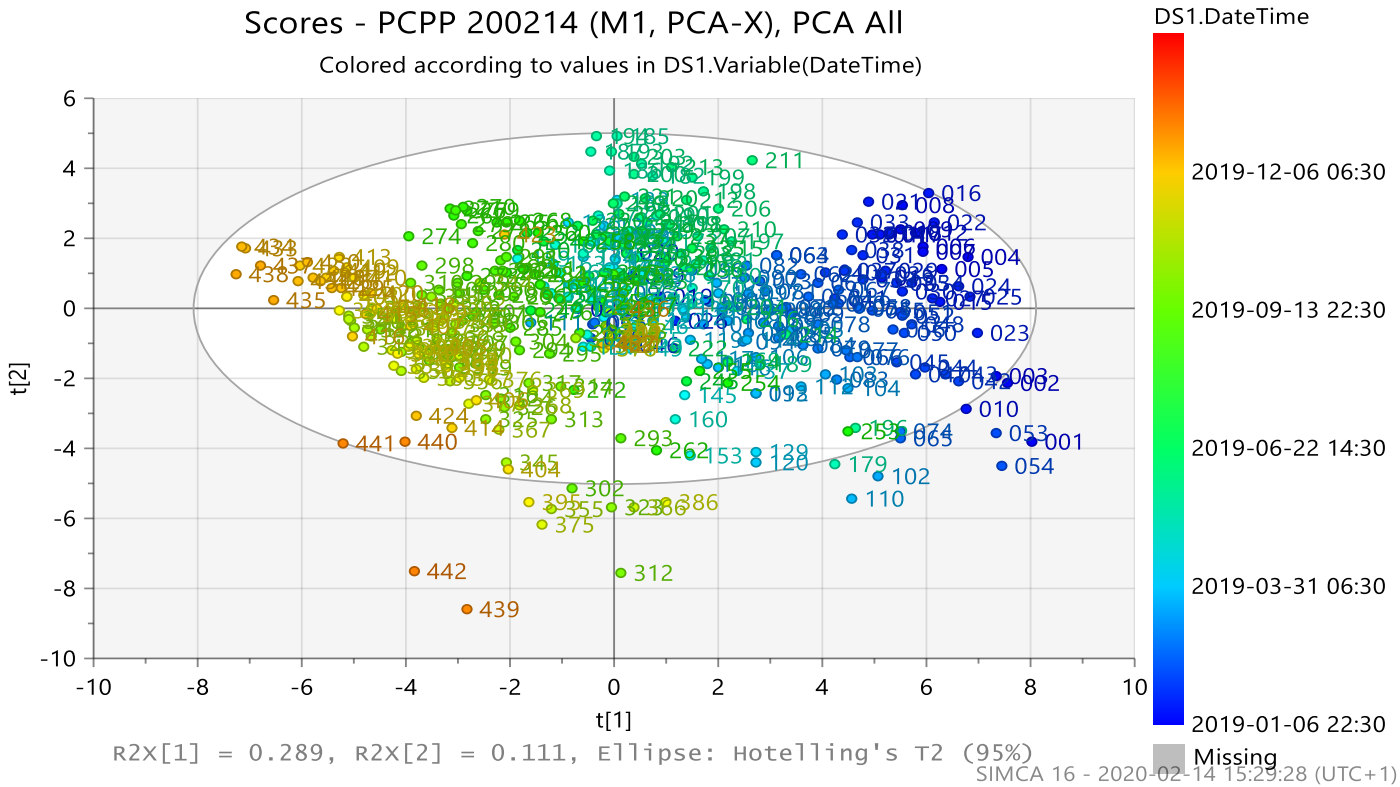
1/ Find the correlations between process parameters and the quality

- The process moves over the year



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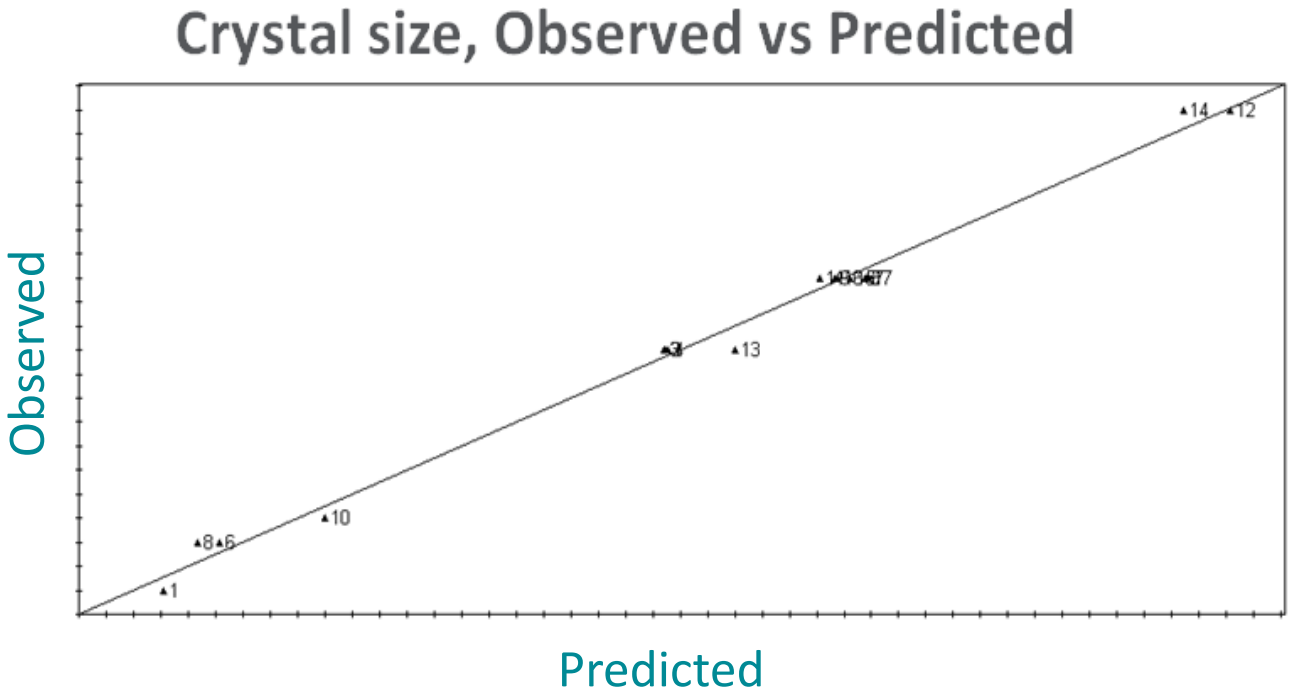
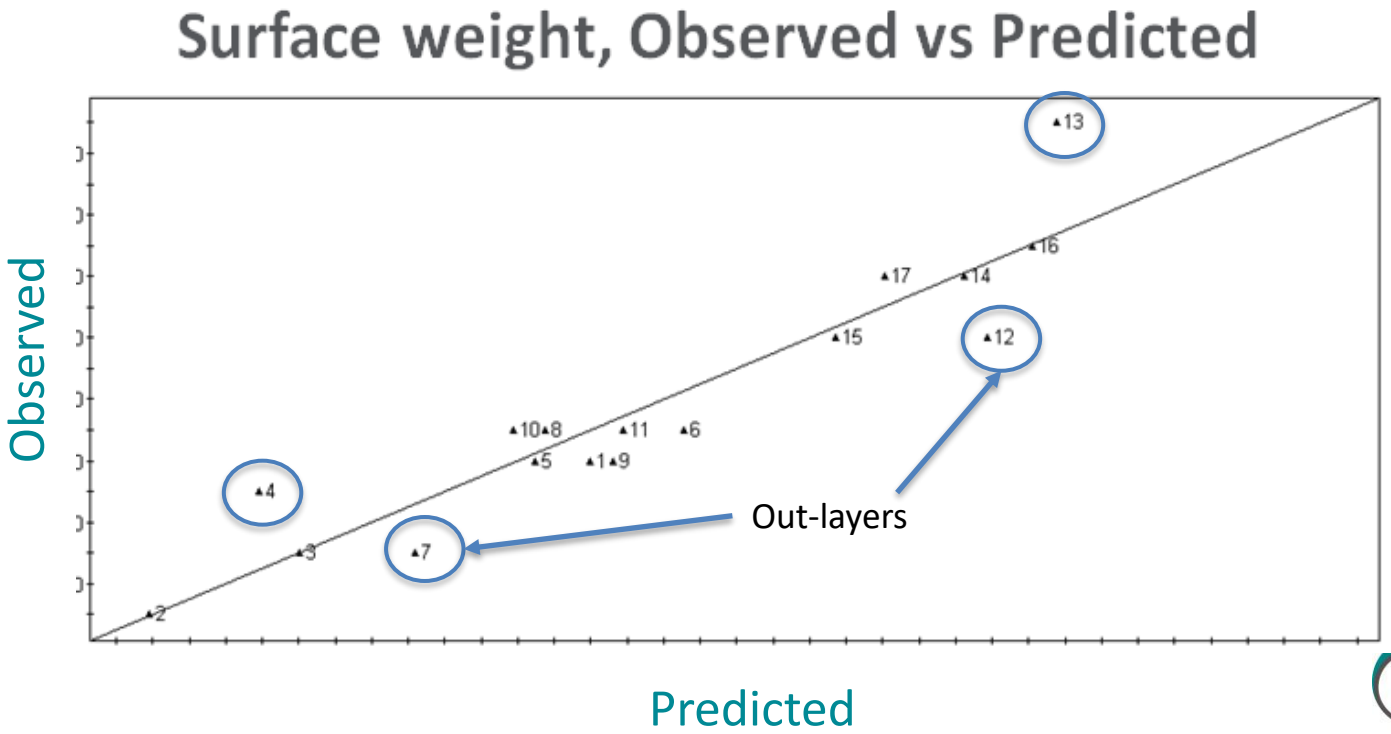
2. Predict the product quality by data modelling



2. Predict the product quality by data modelling



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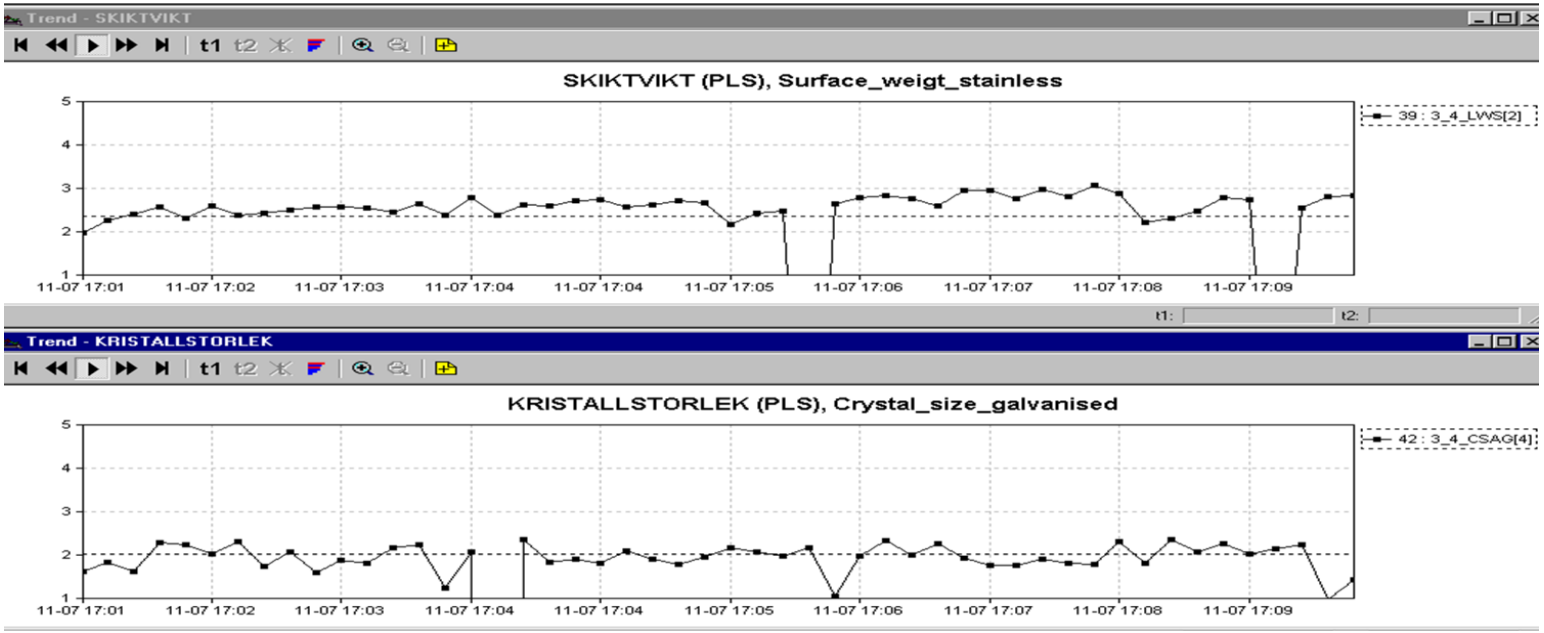
2. Predict the product quality by data modelling



Real time quality control !

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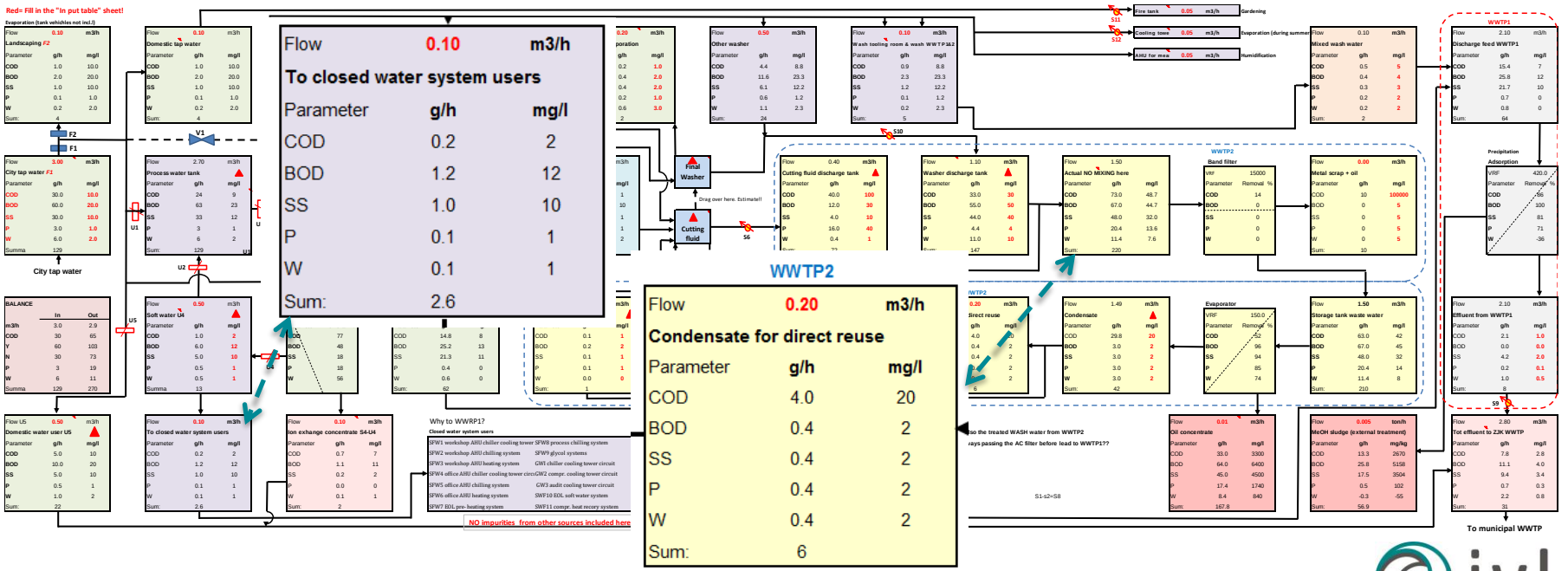
3. Take control of the mass balance

(chemicals + impurities + water)



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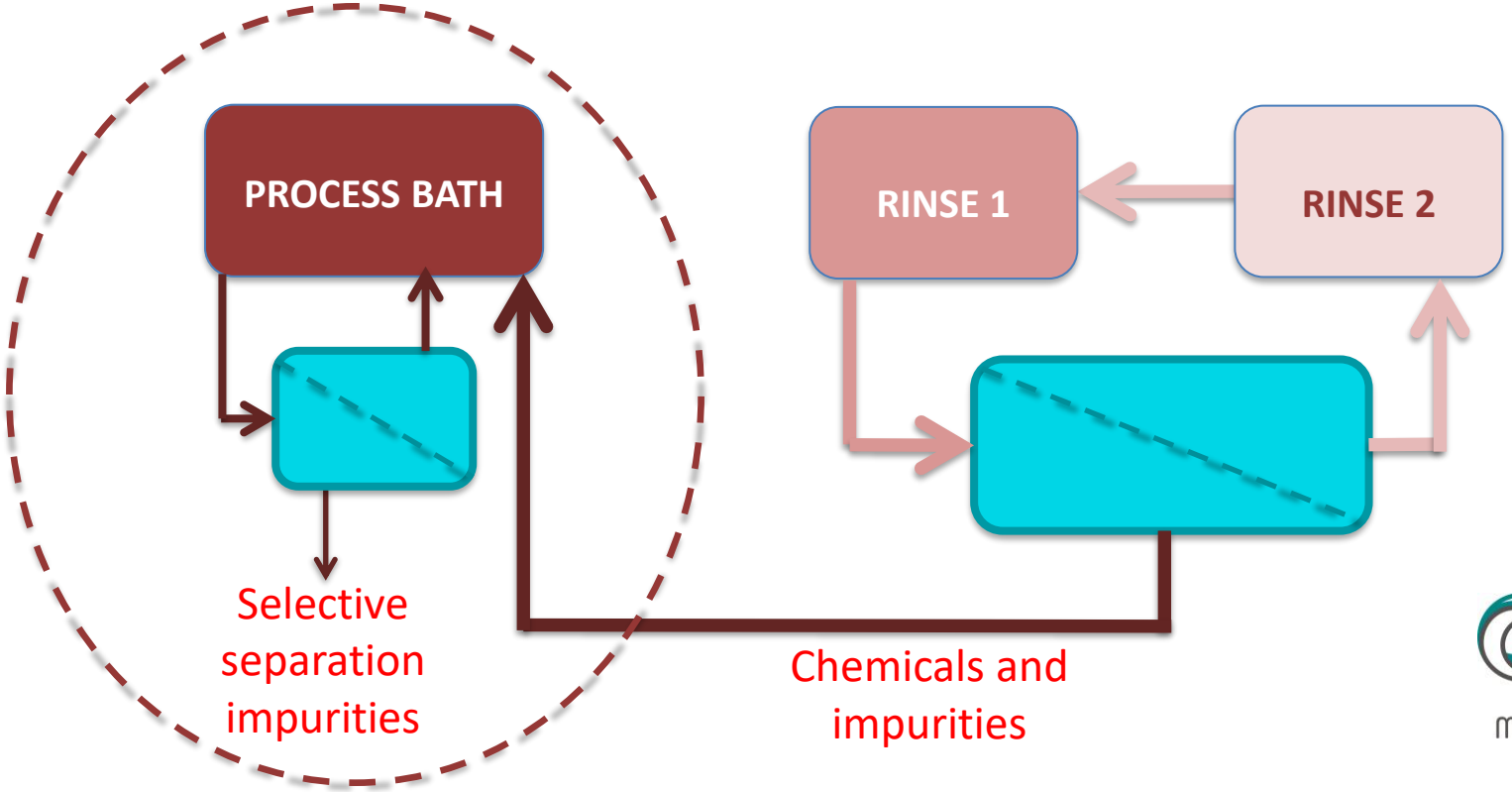
4. Separate impurities selectively



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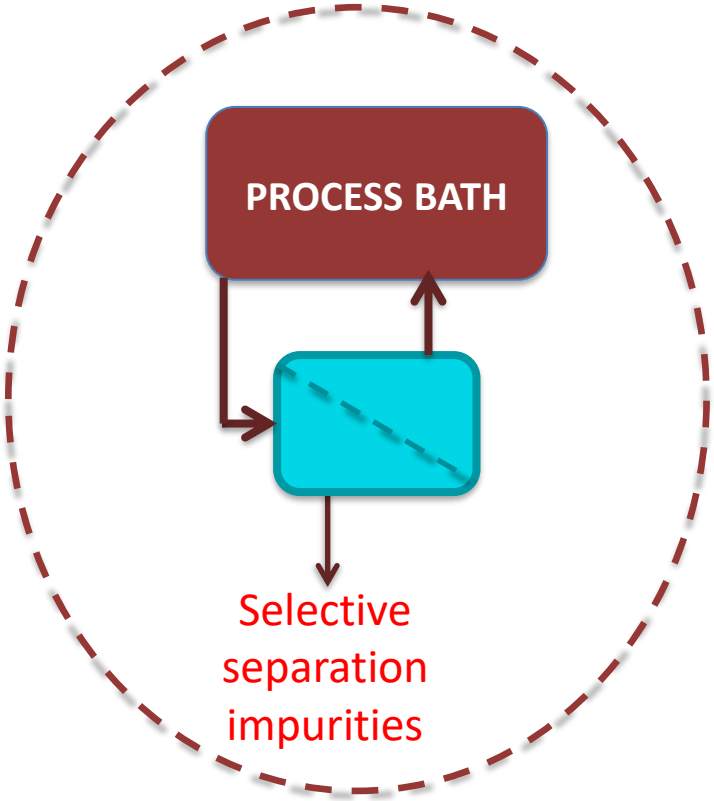
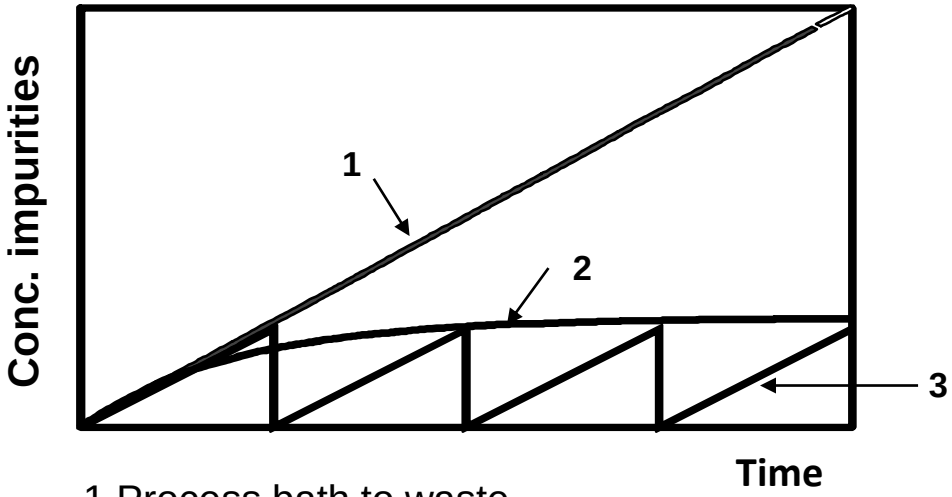
Increased lifespan of process baths





1 Process bath to waste
2 Continuous separation
3 Intermittent separation

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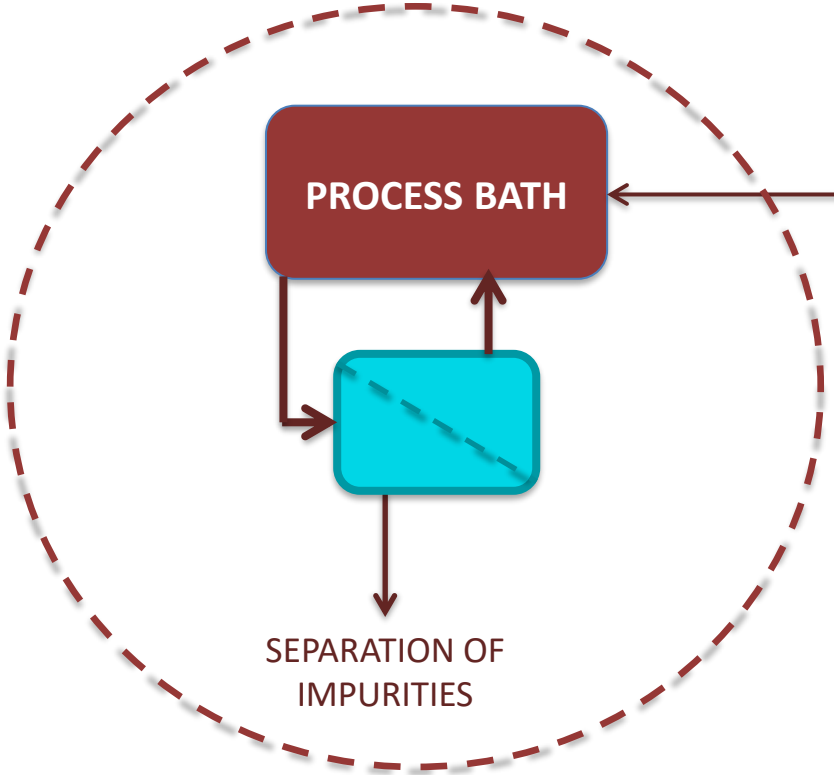
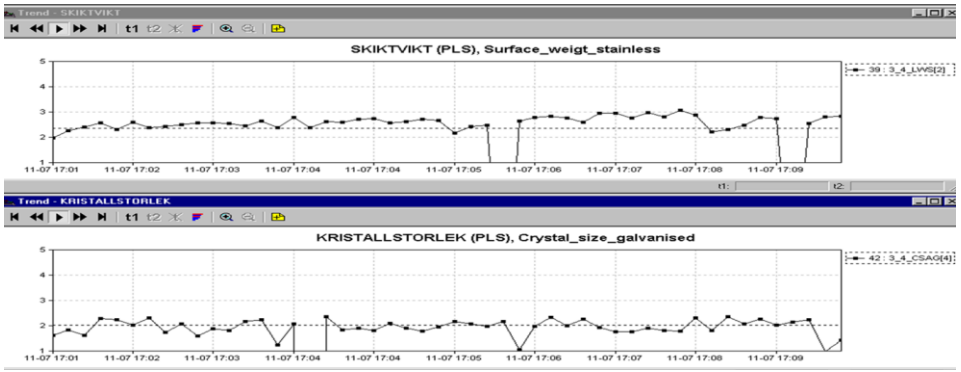
5. Start to recover chemicals stepwise and with good control



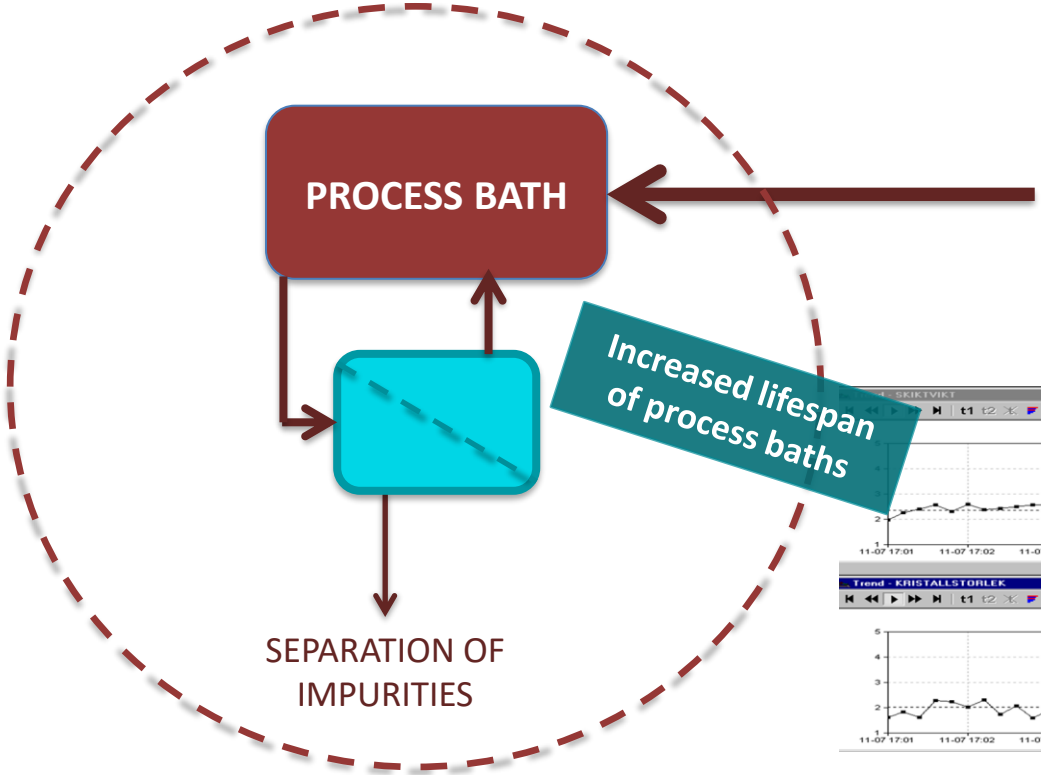
RECOVERY OF CHEMICALS

Carefullness!

GOOD PROCESS CONTROL



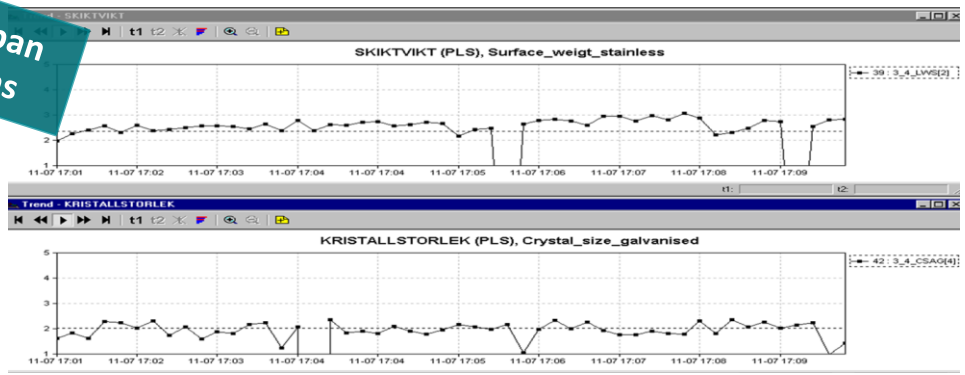
6. Recover more process chemicals and keep the good control



RECOVERY OF CHEMICALS

Increased lifespan of process baths

GOOD PROCESS CONTROL



Resource Efficient Quality Optimisation

- Recovery of water and process chemicals
- Increased lifespan of process baths
- Maintained or improved product quality
- Circular economy in practice

Thank you for listening!

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