

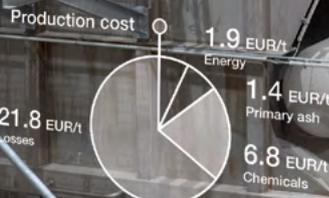
# Optimize DIP quality and reduce cost

## OnEfficiency.DIP



Voith Cloud

☆☆☆ DIP Quality  
60.3% ISO Brightness  
15.6% Ash content



**Replace**  
Part 115 Section B  
Expected error in 5 days  
6 pm Technician informed



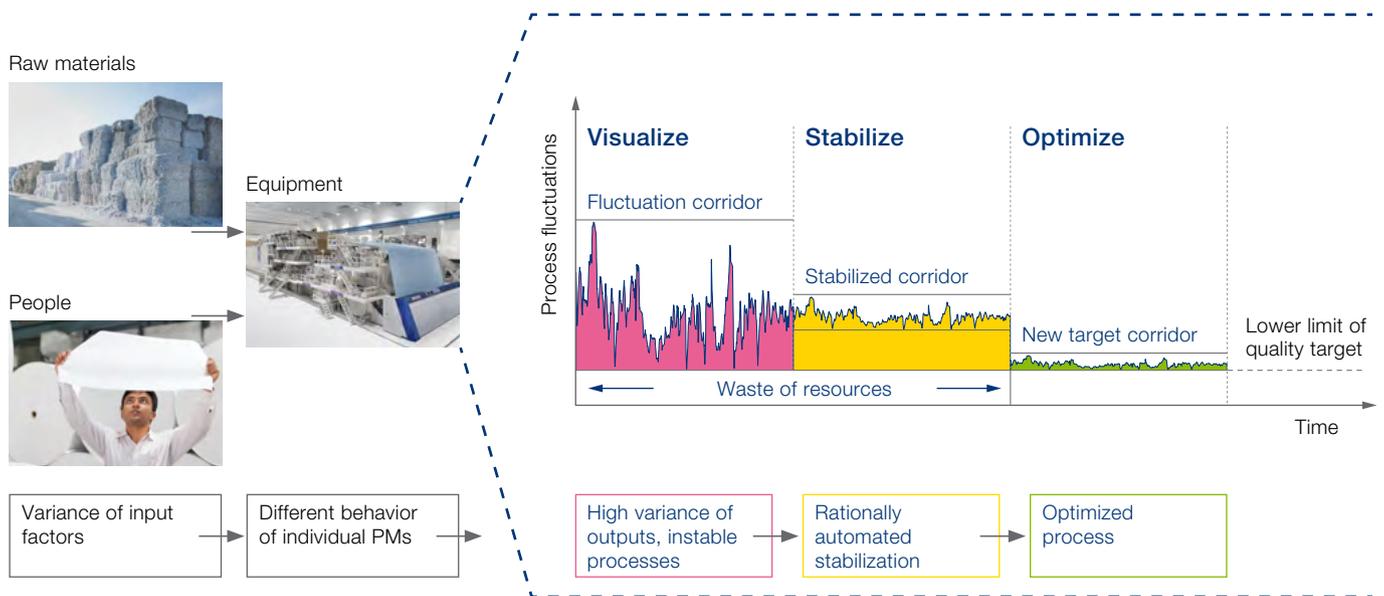
# The OnEfficiency principle

OnEfficiency uses a simple three step approach to drive efficiency: Visualize – Stabilize – Optimize.

Variations in raw material, differing behavior of operators and complex equipment lead to variations in the process and the resulting quality parameters. To ensure a permanent achievement of the target quality, it is therefore necessary to maintain a safe margin from the lower limit of the quality target.

The greater the fluctuations, the greater the margin needs to be and the higher the potential for excessive resource consumption. Therefore, the first step in driving efficiency is to visualize the fluctuations so that in the second step the process can be stabilized and finally optimized to minimize waste while reliably meeting the quality targets.

## The OnEfficiency principle: Visualize – Stabilize – Optimize



# OnEfficiency.DIP

Today, most DIP lines still have no dynamic control for key components, which leads to excessive consumption of bleaching chemicals and low yield.

OnEfficiency.DIP optimizes an existing DIP line towards steadier DIP quality at minimum cost.

To reach that, the existing flotation equipment is supplemented by additional actuators and new sensors are installed to monitor the quality parameters.

The DIP quality fluctuations created by incoming raw materials or production changes are then reduced by

- dynamic adjustment of the losses at the flotation
- real time optimization of the bleaching chemicals dosage.

## Without OnEfficiency.DIP

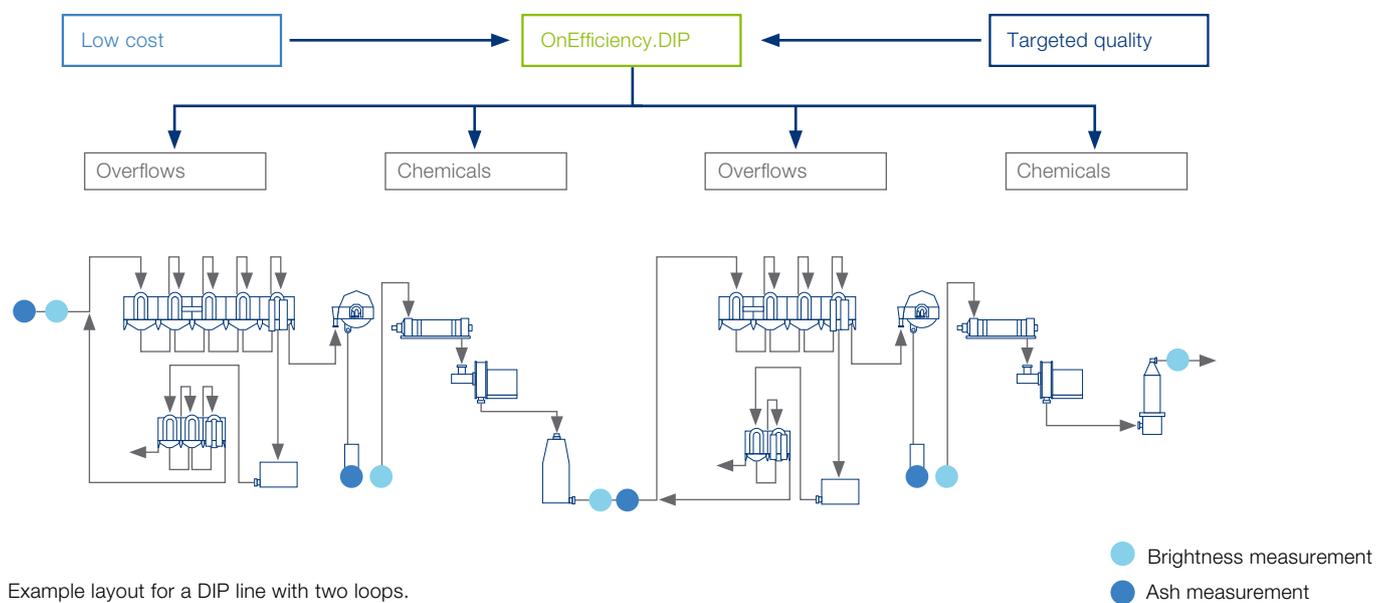
Under-optimized usage of resources (furnish, bleaching chemicals) due to

- variability of incoming raw material quality (brightness, ash, dirt specs) and production variations
- no or only limited adjustment of the sub-systems flotation and bleaching to the stock quality.

## With OnEfficiency.DIP

The OnEfficiency.DIP control modules keep the relevant quality variables on target, while optimizing the flotation and bleaching stages in regards to cost.

## Optimize DIP quality and lower cost



Example layout for a DIP line with two loops.

Ash measurement is only necessary, if the maximum ash load to the PM needs to be restricted.

# Customized to your needs

Depending on your specific DIP plant setup, OnEfficiency.DIP will be tailored to your needs. While OnEfficiency.DIP 1.0 is suitable for most of the DIP lines and requires no rebuild, OnEfficiency.DIP 1.5 and 2.0 were especially developed for Voith EcoCells / InjectaCells and include small rebuilds which then lead to the highest possible savings.

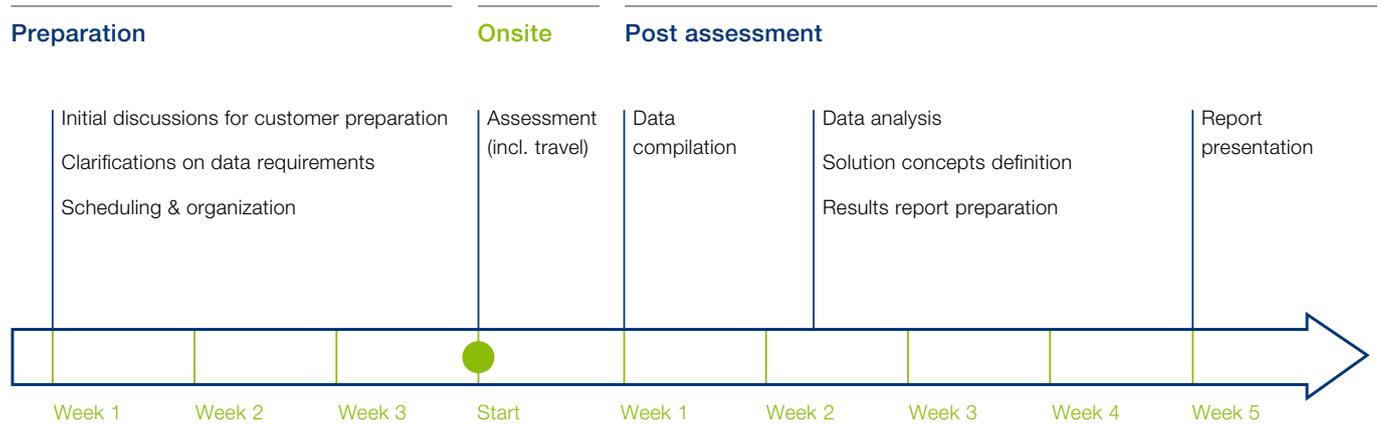
## Overview of customized OnEfficiency.DIP solutions

		OnEfficiency.DIP 1.0	OnEfficiency.DIP 1.5	OnEfficiency.DIP 2.0
<b>Saving targets*</b>	Yield	< 1 %	< 1.5 %	> 1.5 %
	Energy	–	–	up to 15 kWh/t
	Bleaching chemicals	up to 50 %	up to 50 %	up to 50 %
<b>Control features</b>	Self-adjusting process optimizer	✓	✓	✓
	Dynamic process model incl. delay compensation	✓	✓	✓
	Enhanced losses control	–	✓	✓
<b>Hardware requirements</b>	Ash / brightness sensor	✓	✓	✓
	Flotation foam weirs with positioning drive	–	✓	✓
	Speed controlled flotation pumps	–	–	✓

\* Actual savings are depending on raw material fluctuations, process setup and plant operation and will be estimated in a value add assessment.

# The way to OnEfficiency.DIP

To define the right OnEfficiency.DIP solution for a specific DIP line and to calculate the individual savings potential, a value add assessment (VAA) is carried out.



## Value add assessment execution

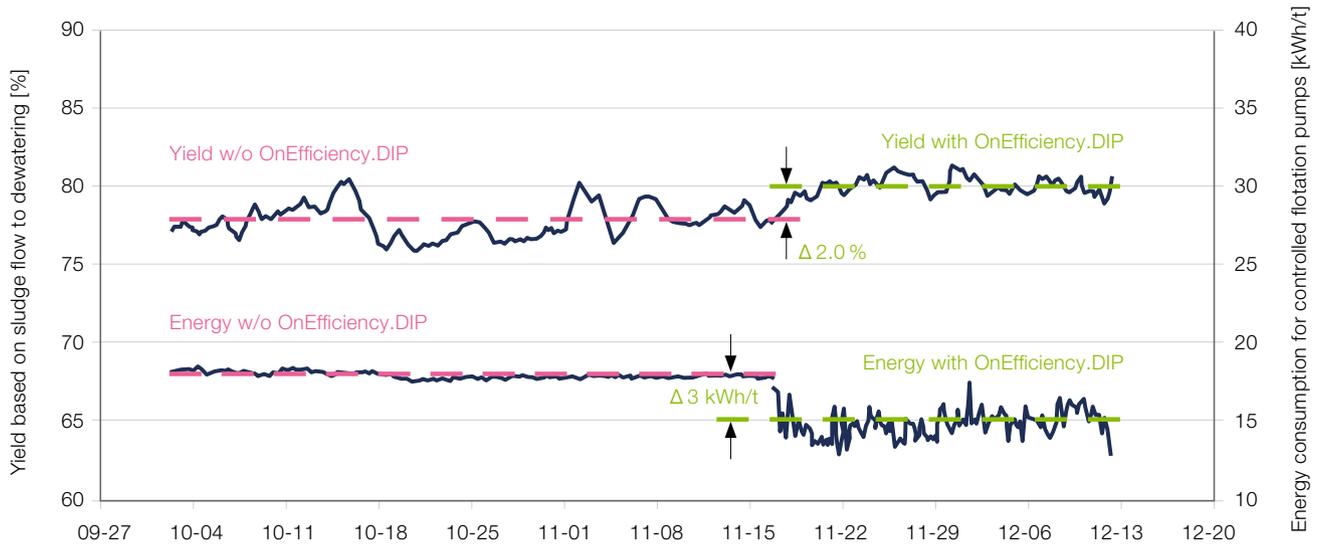
- One technologist, 2 days on site
- Plant and technology assessment relating to the installation of OnEfficiency.DIP
- Determination of target for the warranties
- Assessment of sensors status and availability
- Focus is on yield increase, bottleneck and quality analysis, grade change speed

## Value add assessment preparation by customer

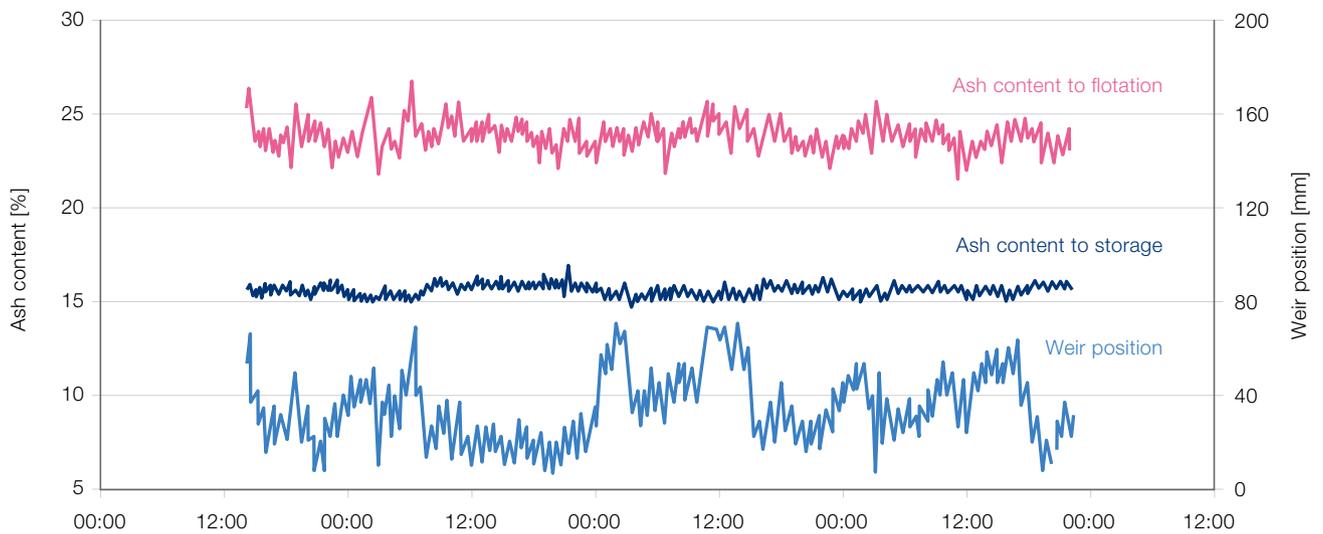
- Process / lab trends have to be made available for a period of at least 3 months
- Piping and instrumentation diagrams of the stock preparation
- DCS screenshots
- Additional lab measurements may be required depending on the data available

# Field results

Example of yield and energy savings with OnEfficiency.DIP for a DIP line with 170 ktpy

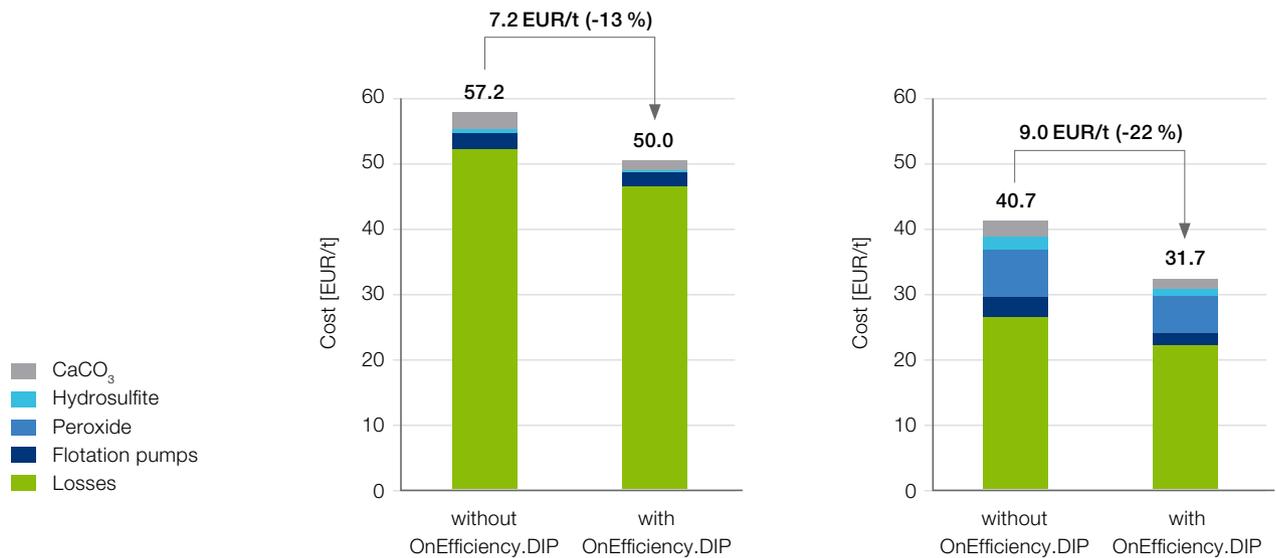


OnEfficiency.DIP stabilizes ash content to storage by dynamic control of the weir position (Voith EcoCells/InjectaCells)



## Field results for savings achieved with OnEfficiency.DIP

	Mill 1	Mill 2
	Brightness & ash control	Only brightness control
<b>Production capacity</b>	170 ktpy	350 ktpy
<b>Yield</b>	0.96 MEUR/year	1.54 MEUR/year
<b>Energy flotation pumps</b>	0.04 MEUR/year	0.37 MEUR/year
<b>Peroxide (incl. caustic)</b>	N/A	0.54 MEUR/year
<b>Hydrosulfite</b>	0.05 MEUR/year	0.35 MEUR/year
<b>Primary ash</b>	0.17 MEUR/year	0.35 MEUR/year
<b>Faster grade change</b>	N/A	0.40 MEUR/year
<b>Total savings</b>	<b>1.22 MEUR/year</b>	<b>3.55 MEUR/year</b>



Contact us for more information and for an estimation of your individual savings potential!

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