CIPTEC

Danmarks Mejeritekniske Selskab
Thursday the 06-12-2018

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ÅF
Food & Pharma, Randers

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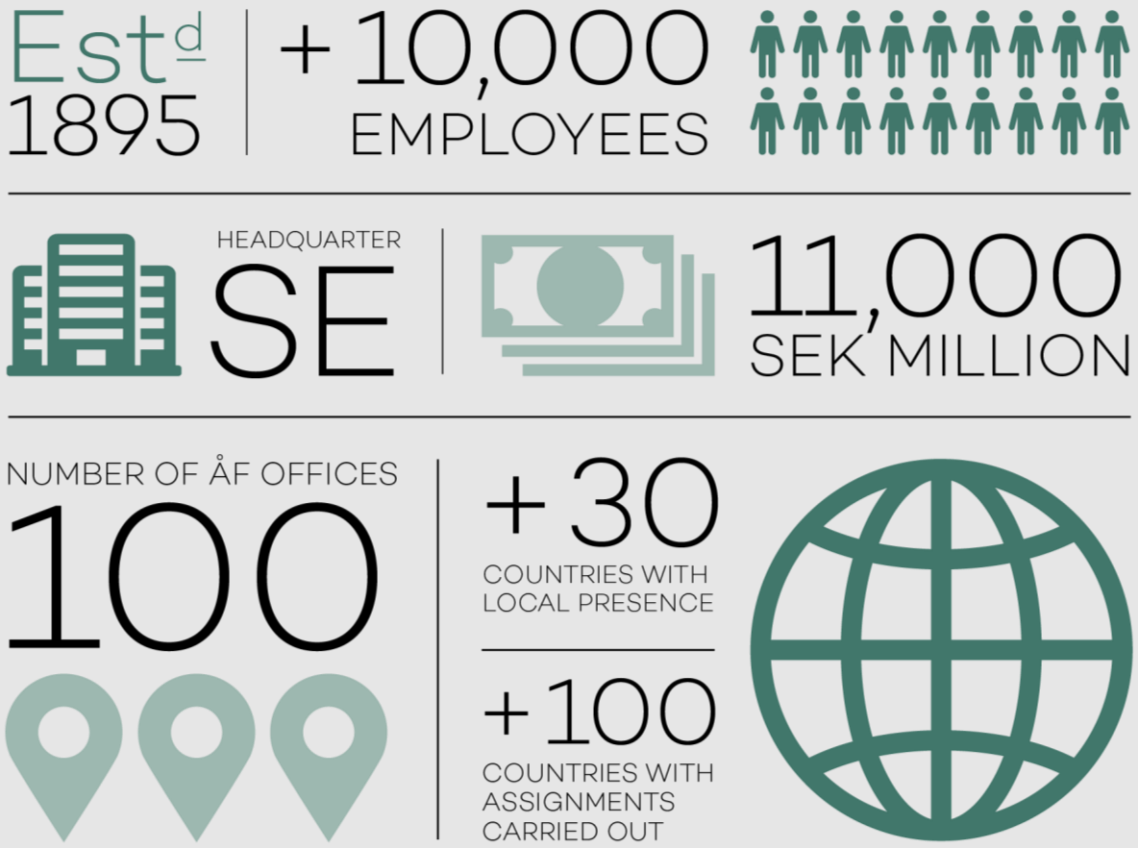
ÅF at a glance

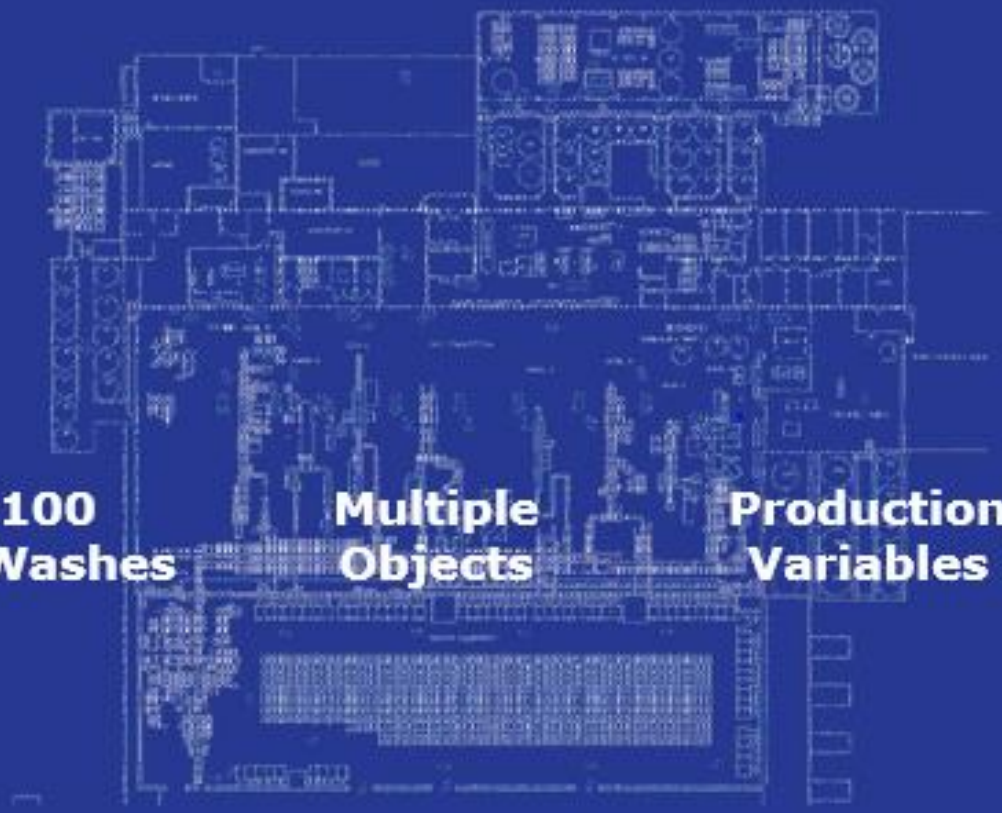


ÅF in Denmark

600+
DEDICATED EMPLOYEES

10 OFFICES IN JUTLAND & ZEALAND

3 SECTORS
INDUSTRY, ENERGY & INFRASTRUCTURE



50-100
Daily Washes

Multiple
Objects

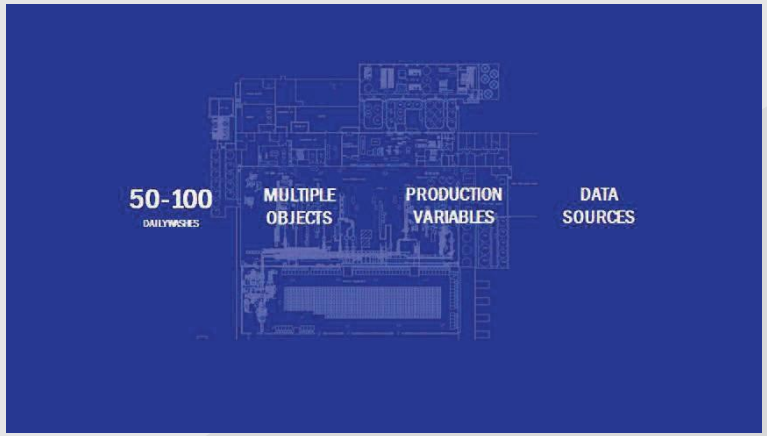
Production
Variables

Data
Sources

PLANT CIP OPERATIONS ARE OVERWHELMED BY DATA

CHALLENGES IN CIP

TOO MUCH DATA



FEELING OF OVER-CLEANING

UNFORESEEN PROBLEMS

CIP Cleans are controlled by:

- Temperature
- Conductivity
- Flow
- Time

But when the cleaning starts, you put on a blindfold!

CIP Cycles are based on empirical averages

- Average times are generally too long
- Wasting valuable time and resources
- But in some cases can also fall too short
- Risking the safety of your product

You need to ensure your equipment is clean, every time.
But you also need to ensure that you are not wasting valuable resources.

Diversey® CIPTEC™ allows you to remove the blindfold and visualise your CIP cleans … **to see the unseen**!

PART 2

How does CIPTEC work?

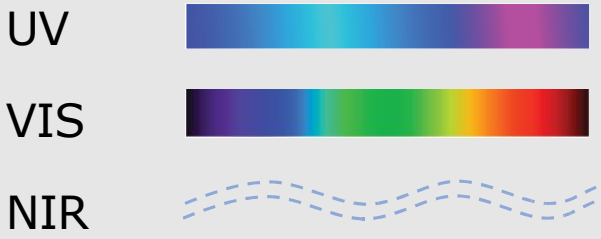
HOW DOES CIPTEC WORK?

Spectophotometer

Measures soil in ppm levels

HOW DOES CIPTEC WORK?

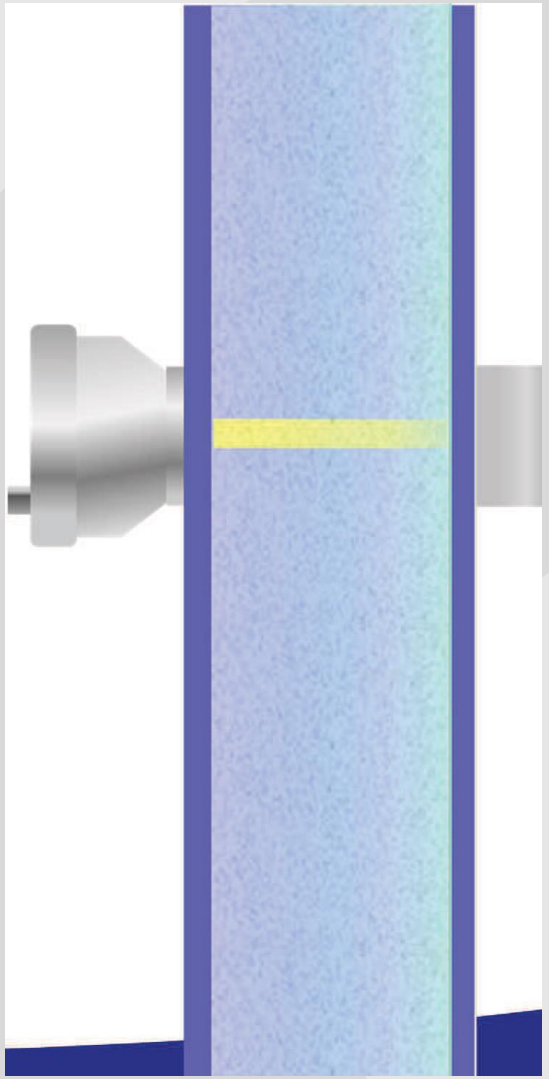
Measures light inside CIP line



Chemicals in rinses

Soil in liquids

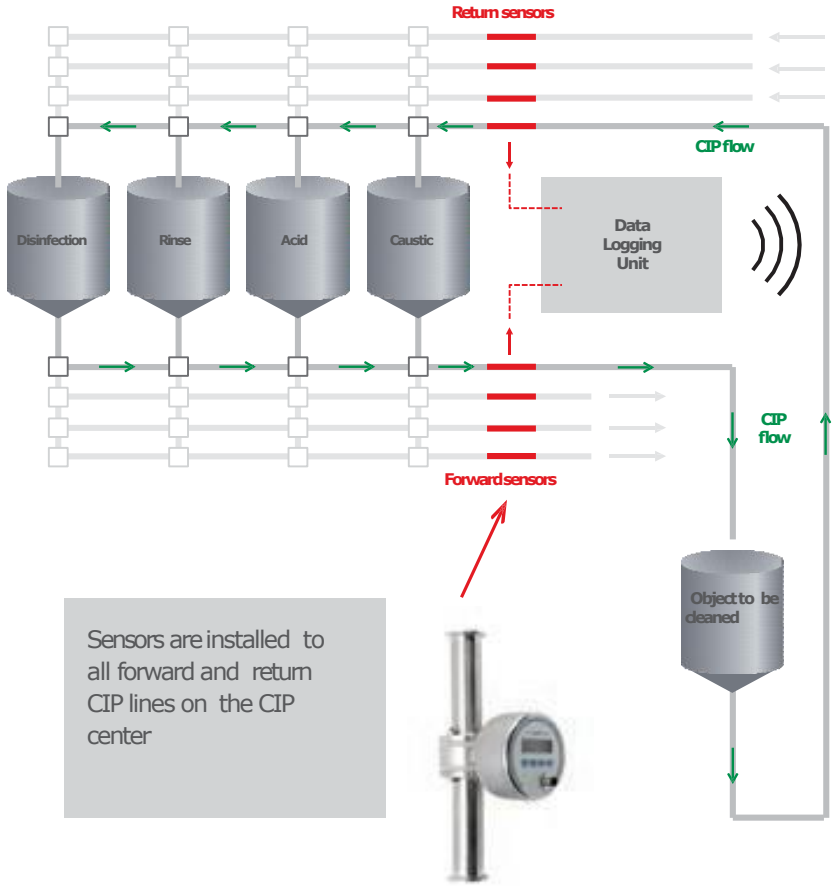
Accuracy to 0.5 ppm



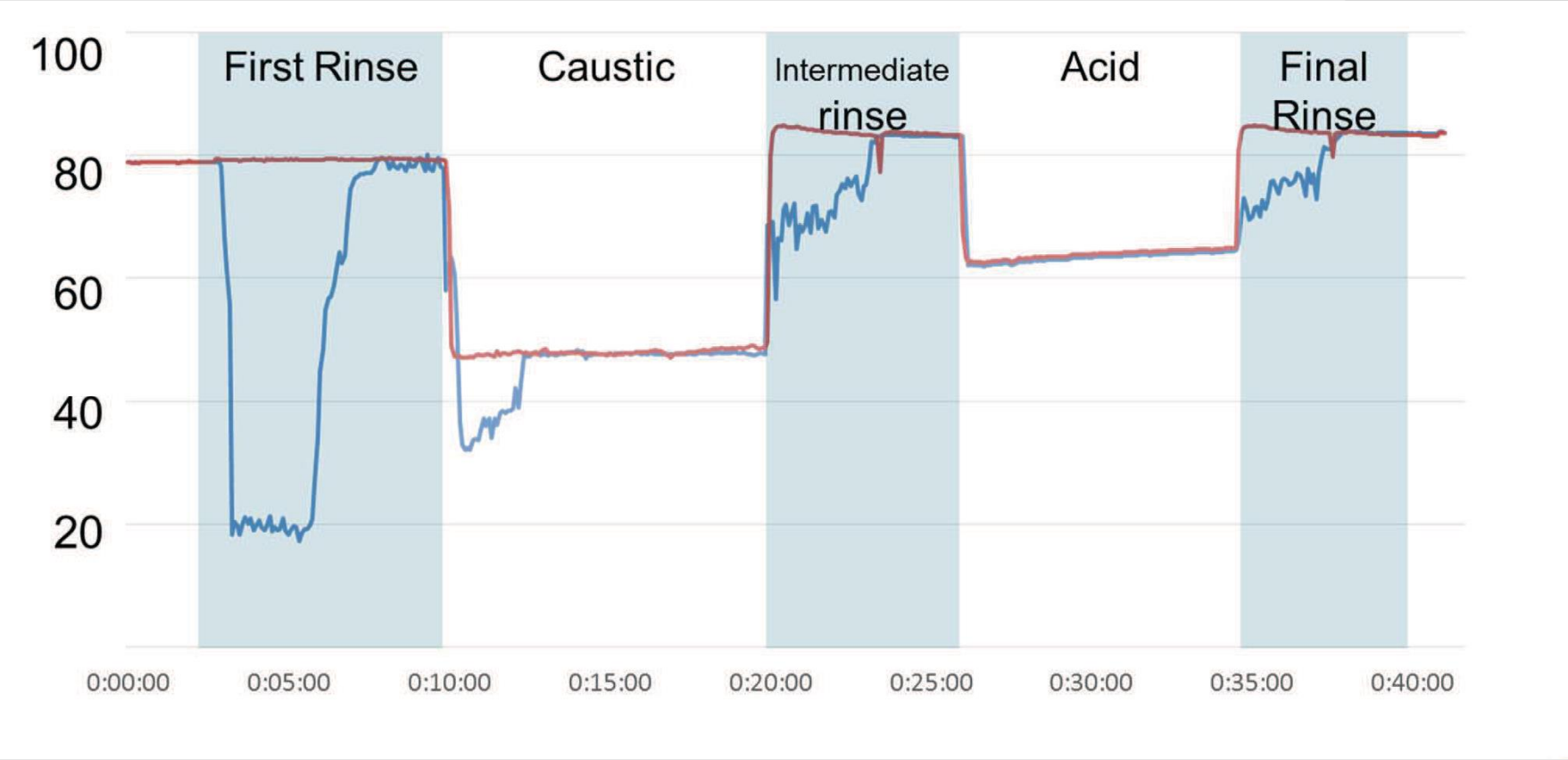
HOW DOES CIPTEC WORK?

Forward and return sensors measure the soil in each line throughout the CIP clean

This data can be plotted to accurately show the stages of the CIP clean



Example of Intake Pipe CIP Cleaning



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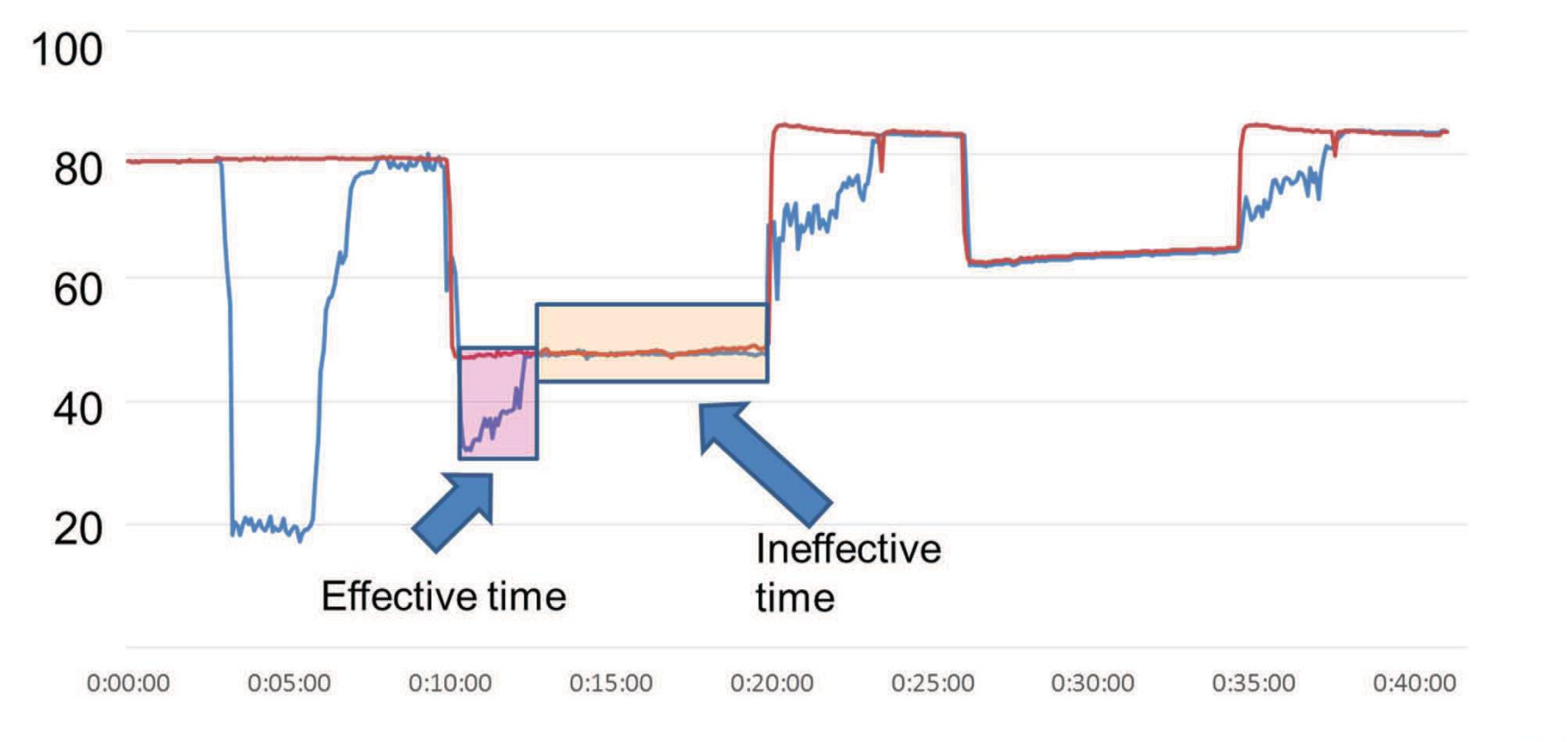
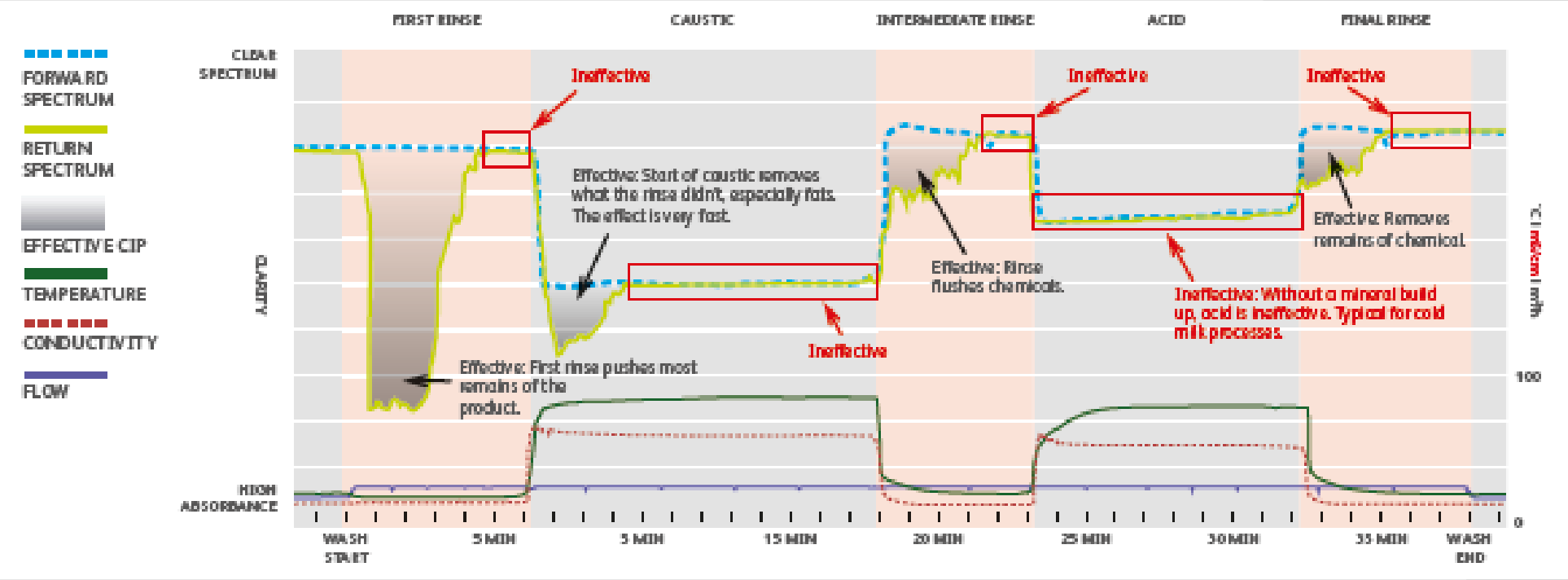


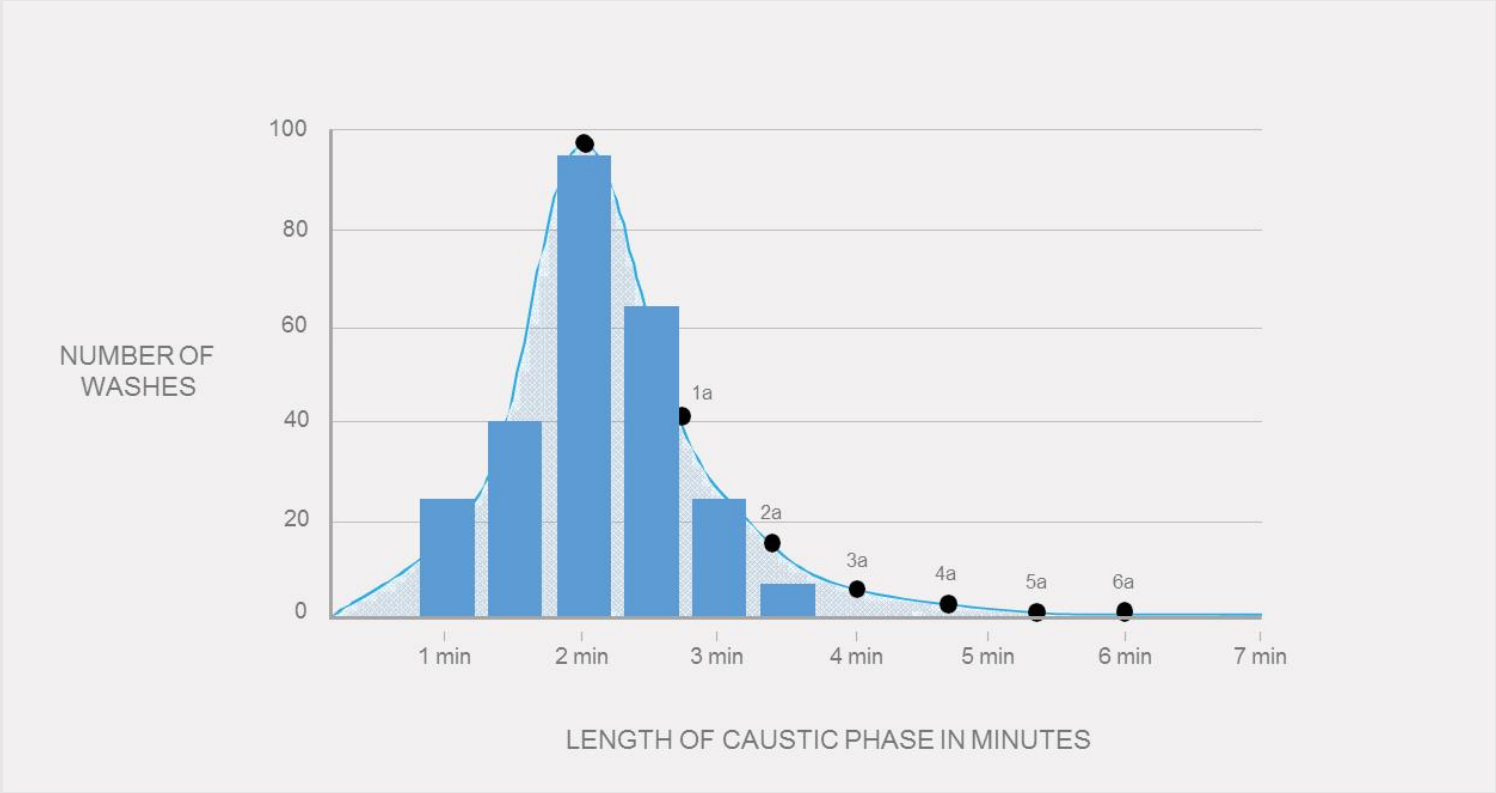
HOW DOES CIPTEC WORK?

Effectiveness of each CIP Phase



HOW DOES CIPTEC WORK?

CIPTEC collects the data from multiple CIP runs to model the distribution of cleans



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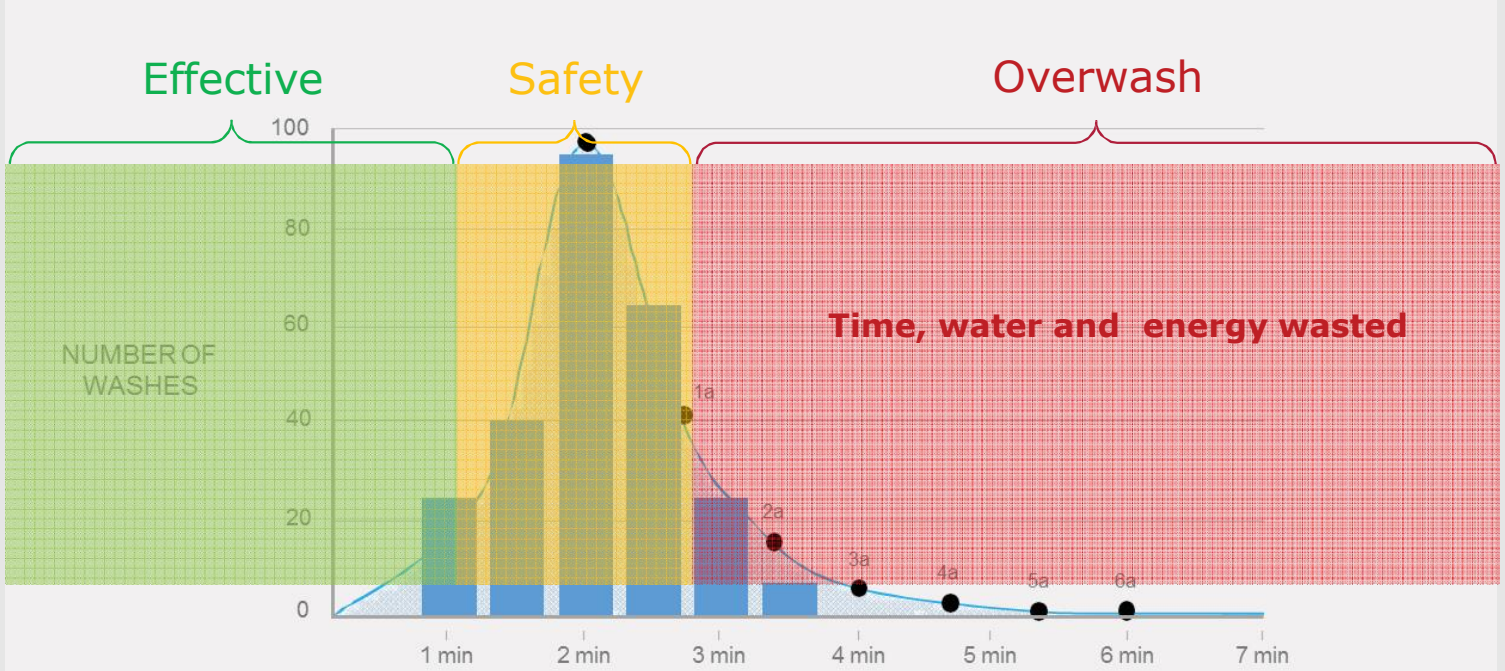
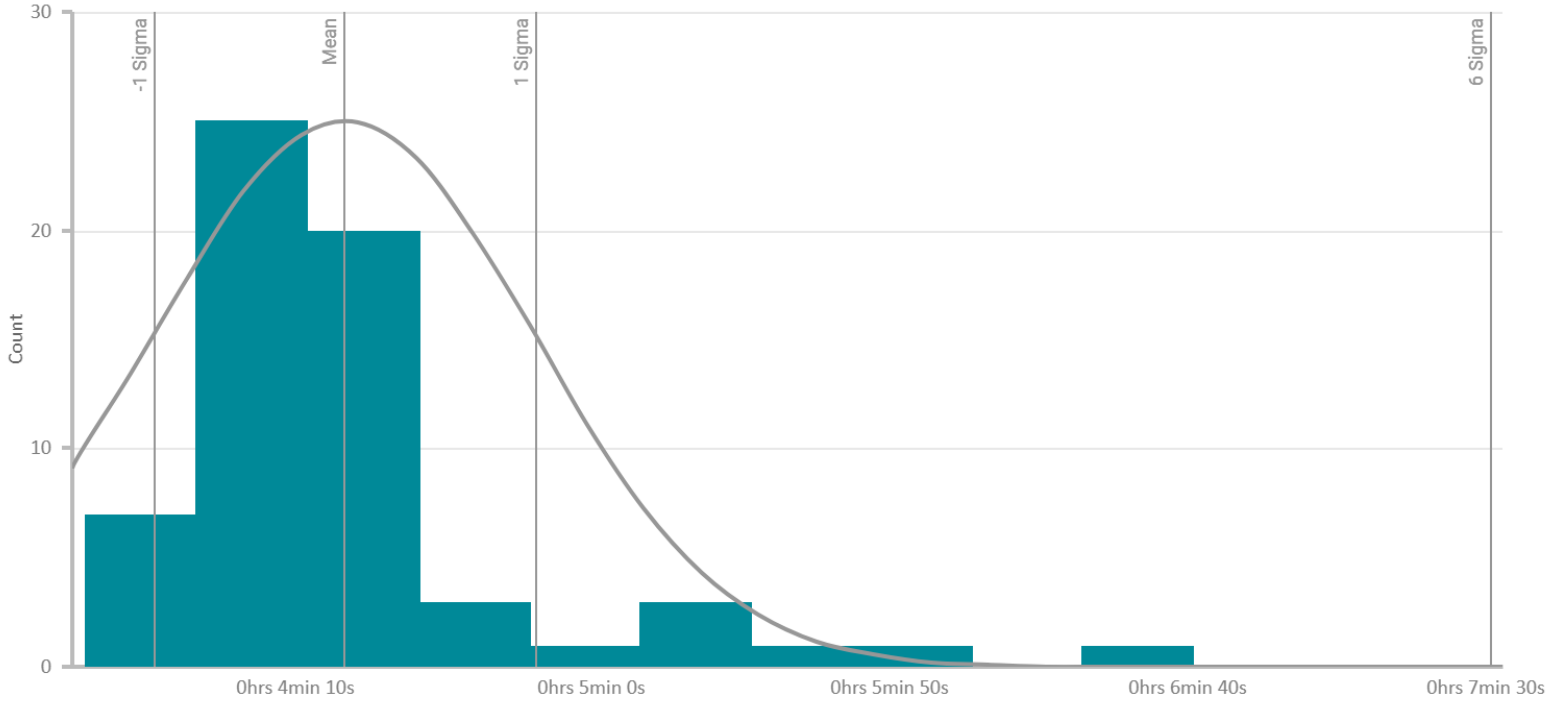


Gräddpastör

— Intermediate rinse



— Intermediate rinse fwd

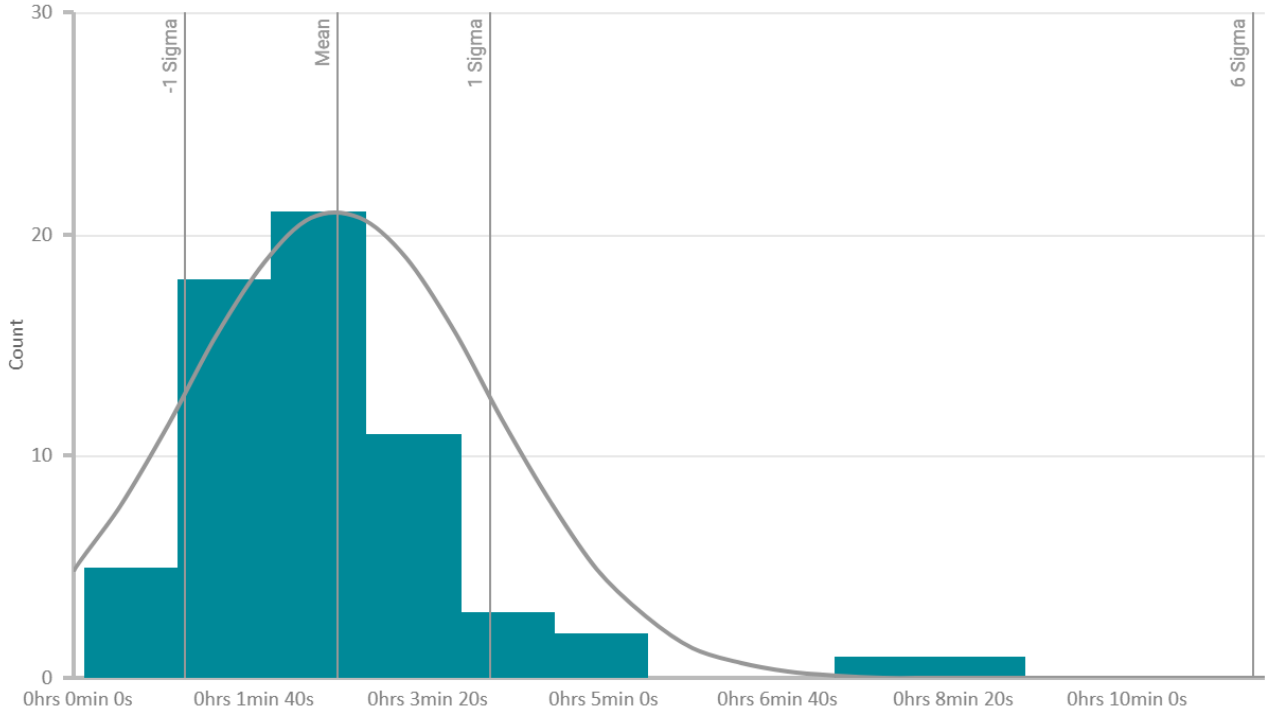
— 9min 30s

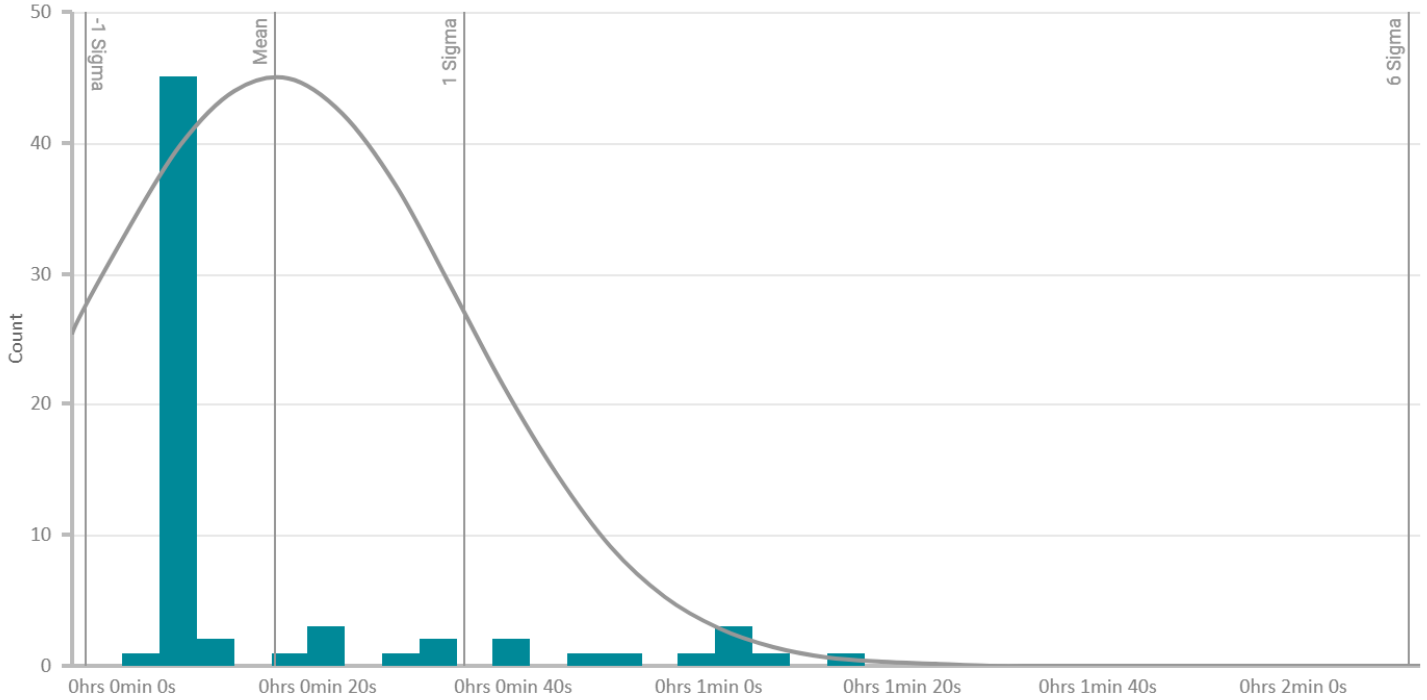
— Recommendation

— 7 min

Gräddpastör

— Caustic



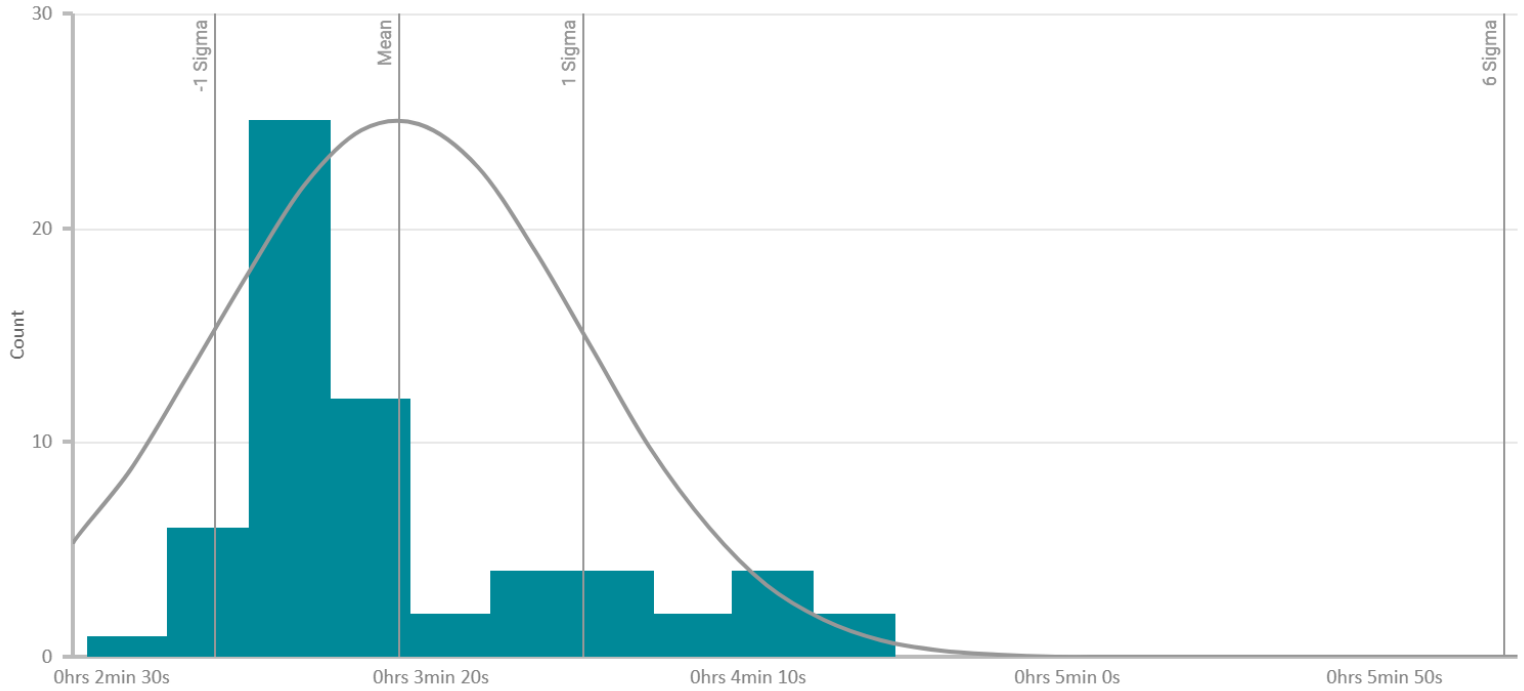


— Acid 18min 09s

— Recommendation 10min

Gräddpastör

— Final rinse



— Final rinse fwd 11min

— Recommendation 5min

Gräddpastör

phase	current	6 Σ	Proposal	savings
prerinse	5min 42s	-	5min 42s	-
caustic	28min 54s	11min 11s	15min 00s	13min 54s
intermediate	9min 30s	6min 59s	5min 30s	4min 00s
acid	18min 09s	0min 0s	10min 00s	8min 09s
final rinse	10min 59s	3min 40s	5min 00s	5min 59s
total	1h 29min 49s		57min 47s	**32min 02s**

PART 3

CIPTEC – Value delivered

VALUE DELIVERED

Plant Intake	100 mill litres	200 mill litres	300 mill litres	500 mill litres
Total Savings	310 k EUR	560 k EUR	780 k EUR	1.2 k EUR
Product Recovery (0.50 EUR/litres *)	200,000 litres	380,000 litres	540,000 litres	850,000 litres
Water & Effluent (2.50 EUR/m³ *)	20,000 m³	33,000 m³	43,000 m³	63,000 m³
Energy & Electricity (45.00 EUR/MWh *)	1,000 MWh	1,900 MWh	2,600 MWh	3,900 MWh
Chemicals (0.45 EUR/kg *)	5,000 kg	13,000 kg	24,000 kg	60,000 kg
CIP Time (30.00 EUR/h *)	3,600 h	6,600 h	9,000 h	13,500 h

Note:
Estimate values are based on data from over 200 factories

*Rounded average cost

PART 4

CIPTEC Implementation Process

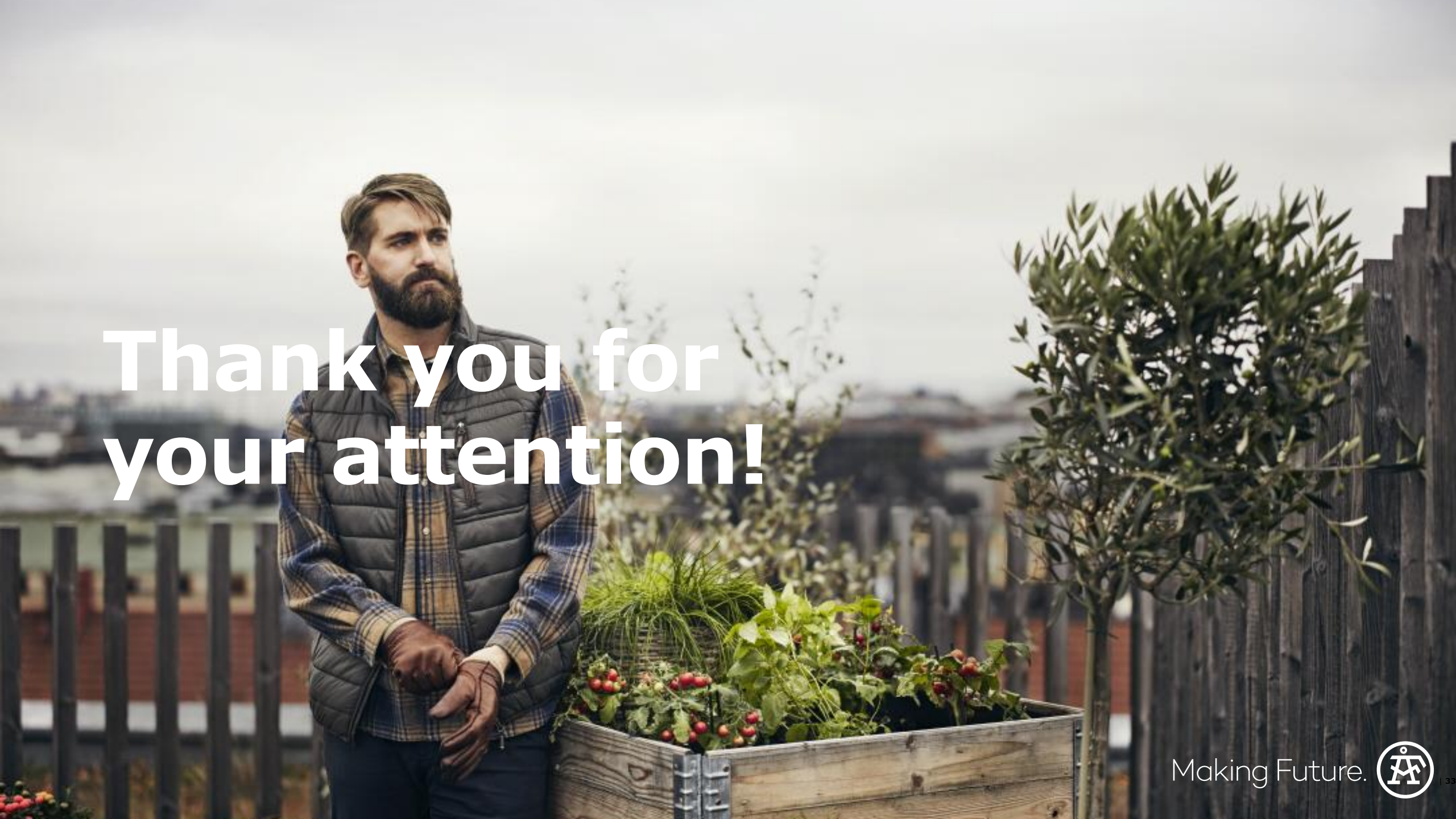
Example of Project Implementation Schedule

Project name

Action	Responsible	Calendar Week	Monht / Cumulative week	February				March				April					May				June					July				August				September				October					November				December			
				5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Project signed	Both	5	-7																																															
Delivery of the sensors	Diversey	11	0																																														
Mechanical assembly of the equipment	Customer	12	1																																													
Start up of the sensors	Diversey	13	2																																													
Data Collection	Diversey	13	2																																													
1st Changes of times meeting	Both	19	8																																													
1st Changes of times	Customer	19	8																																													
2nd Proposal for changes of times send customer	Diversey	27	16																																													
2nd Changes of times	Customer	28	17																																													
Report meeting	Both	37	26																																													
Roadmap for next actions	Diversey	37	26																																													

CIPTEC helps to resolve the challenges in CIP

1. Harnessing data to improve performance
2. Eliminating over-cleaning without risking safety
3. Allowing for unforeseen problems



Making Future.