Sustainability
in commercial laundering processes

Module 6
Special aspects

Chapter 6

Monitoring, Controlling, Documentation

Content

- Targets

- Textile logistics

- Application of transponders

- Production data collection

- Process monitoring

- Machine monitoring

- Monitoring washing machine, examples

Targets of data collection

⇨ **Quality control**

✓ Process data protocol

✓ Laundry identification, traceability

⇨ **Warranty to maintain product quality**
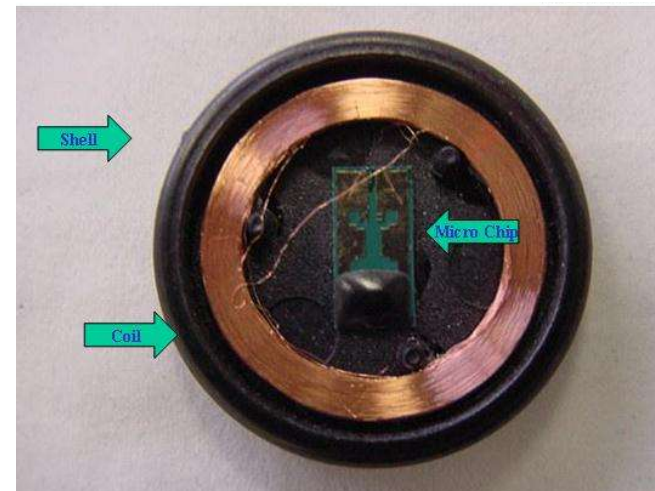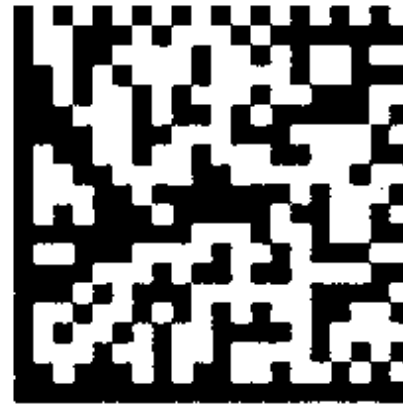
✓ Textile identification, functionality-monitoring

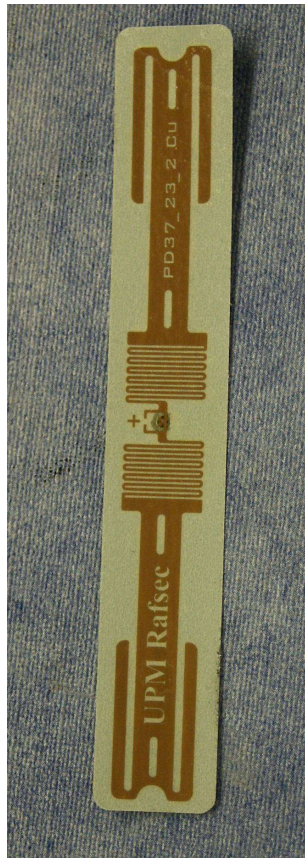⇨ **Cost reduction, sustainable production**

✓ Textile logistics

✓ Life cycle control, comparison of performance

✓ Staff coordination, application of machines (coordination)

⇨ **Warranty by maintenance**

✓ Reduction of stop periods/down times

Possibilities of data collection

Transponder application, advantages

- More transparency (data-/product flow)

- Warranty of textiles availability

- Improvement of quality control and traceability

- Efficient supply-/store management

- Efficient and constant quality check

- Data processing and monitoring immediately

- Simple complaint and textile item exchange management

Transponder application, advantages
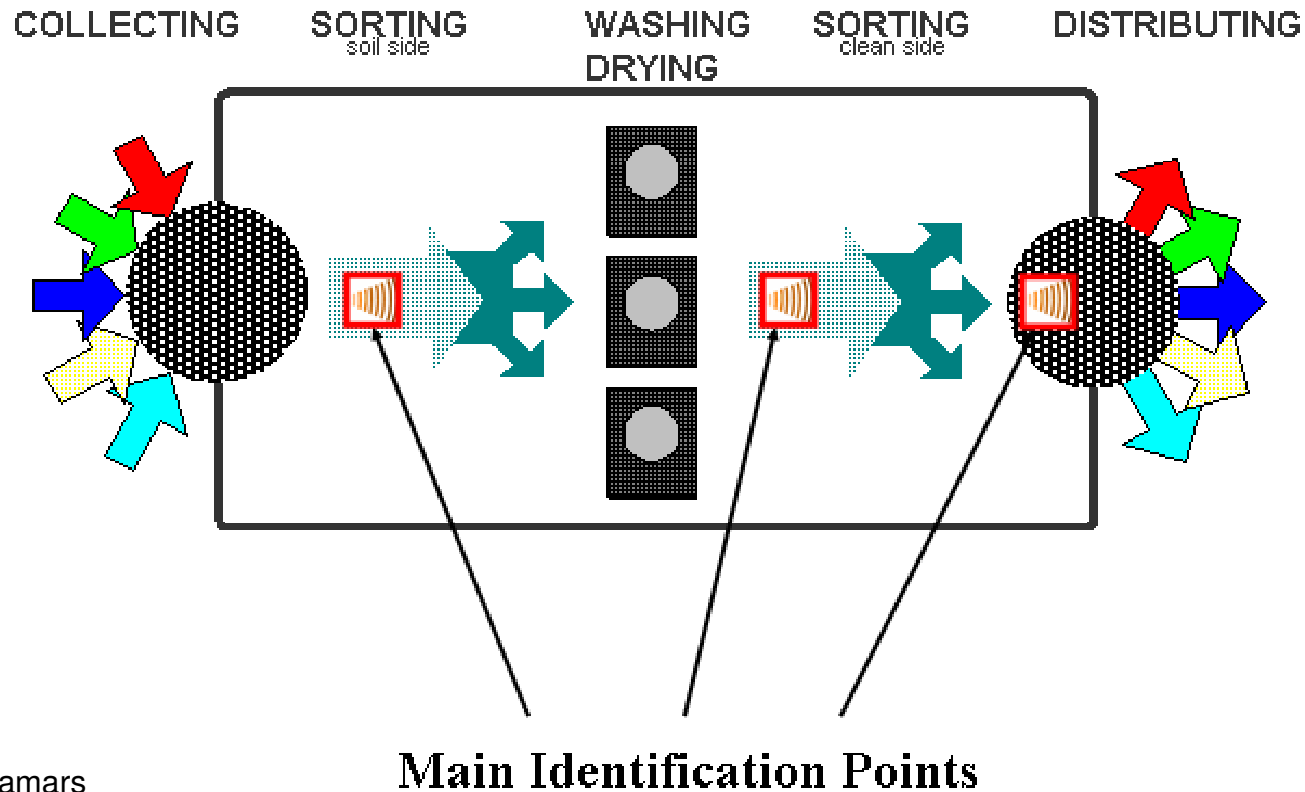
- Supply Chain Management – Controlling of the entire process

- Automatically registration of soiled laundry, separate laundry in chaotic position

- Register without contact

- Robust labelling, resistant against soiling, chemical and thermal action

- High data collection performance in comparison to manual

- Low error rate

- No risk of contamination

RFID application possibilities

TYPICAL LAUNDRY CYCLE

source: Datamars

Teleservice
(also see 6-7)

ISDN

Router

- Hardware
- Betriebssystem
- Datenbank
- USV

Switch (managebar)

Workstation

Server/Cluster

source: Kannegiesser

Production data washing

Available production data

Consumption data
- Product consumption
- Per product, dosing unit and kg dry laundry

Detergent dosing programmes of washer extractor
- Amount of dosage per impulse
- Pump performance/min
- Dosage per kg dry laundry

Fault protocol
- Lack of product
- Machine defects
- Exceed of dosage time
- Flow-monitoring

Failure protocol
- Failure per signal
- Machine assignment
- Date, time, duration

Daily diagram
- Program start of each washer extractor
- Including optional load and program duration
- Amount of batches per machine

source: ecolab

Production data washing

Available production data

Dialy production
- Amount of dosing programmes per washing machine
- Batches per machine in kg
- Total amount of batches

Duration
- Washing time
- Machine running time
- Machine down time/idle time

Manual functions
- Kind, date/time and duration of manual operations

Dosage processes to calibrate
- Per dosing unit
- power per second/per minute
- Date of last calibration

source: ecolab
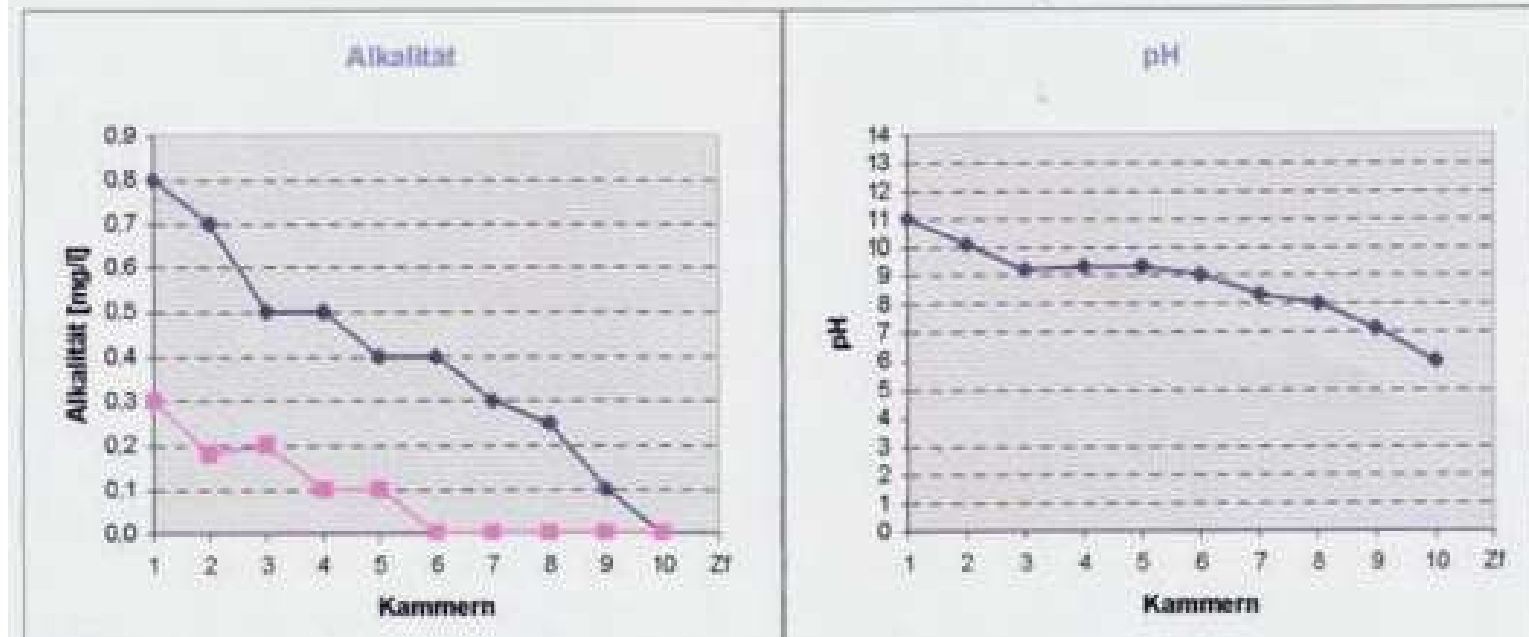
Process control washing program

➢ **Measuring data**

⇨ Load ratio

⇨ Bleaching agents and dosage

⇨ Max. liquor temperature, duration

⇨ Liquor ratio main wash, rinsing phase

⇨ Concentration of alkalinity

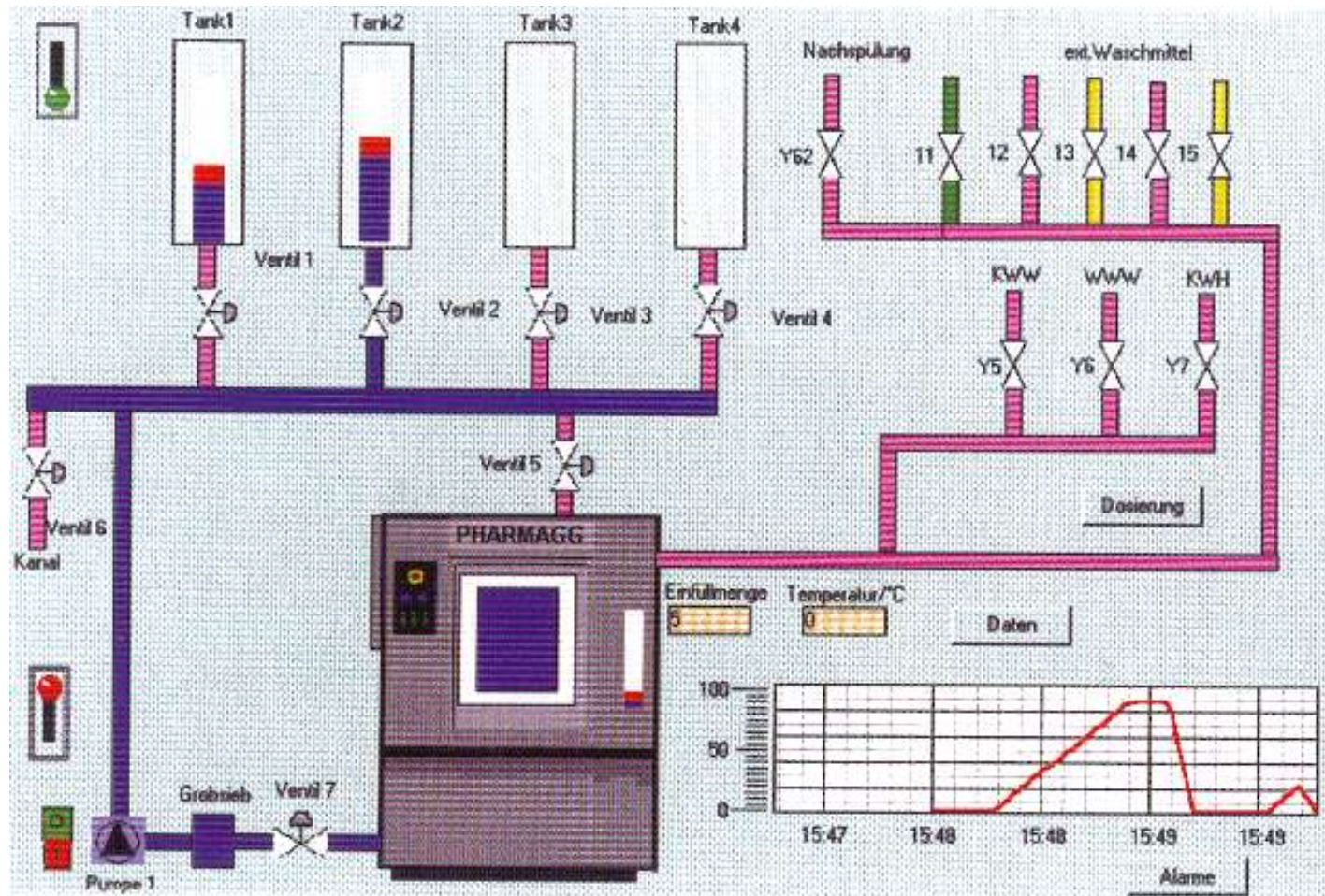⇨ Water consumption (fresh water, total water)

Process control washing
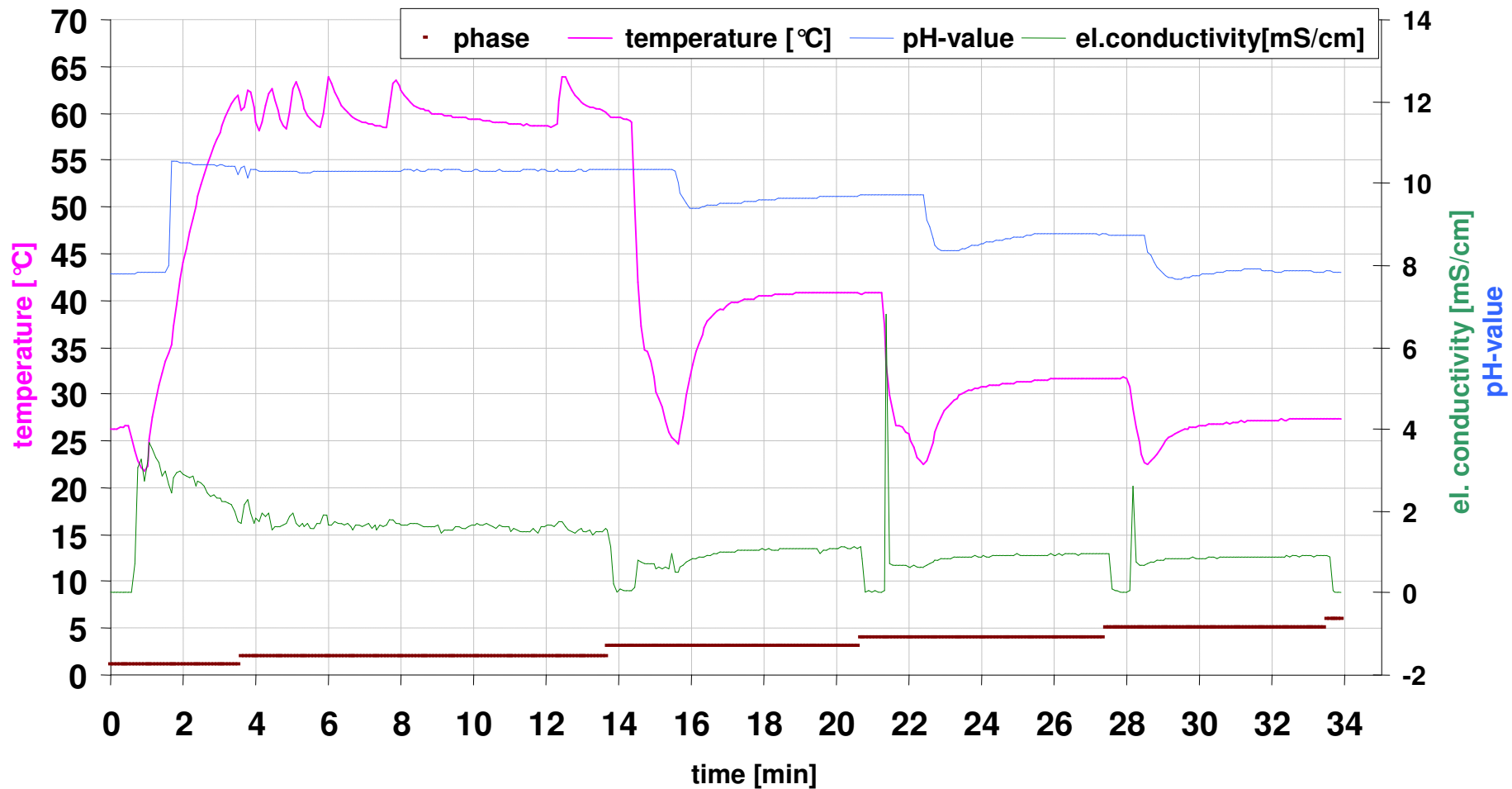
Titration protocol OP-theatre

Messwerte		pre wash		main wash				rinse			finish	
pH		11,0	10,1	9,2	9,3	9,3	9,0	8,3	8,0	7,1	6,0	
Gesamtalkalität [mg/l]		0,8	0,7	0,5	0,5	0,4	0,4	0,3	0,3	0,1	0,0	
Ätzalkalität [mg/l]		0,3	0,2	0,2	0,1	0,1	0,0	0,0	0,0	0,0	0,0	
Sauerstoffgehalt [mg/l]		42	40	192	172	156	123	98	67	45	35	

Alkalität

pH

Process control washer extractor

source: Pharmagg

Waschverfahren DTV-Standard statistische Auswertung Mischgewebe **blau dunkelbunt**

Column headers (top, diagonal): rein weiß | weiß hellbunt | weiß kontrastbunt | hellbunt kontrast dunk | dunkelbunt kontrast h | dunkelbunt | schwarz | keine Angaben

1.) Sortierung   Graumaßstab

in welchen Sortierungen wurde der Kittel gewaschen

(dunkelbunt column marked: IIIIII)

2.) Maschinentyp

Tunnelwascher	
Waschschleuder	IIIIII
ungeteilt	III
Pullmann /Diagonal-Tlg.	II
Y-Teilung	I

Trommelteilung

Trommelgeometrie — Tiefe / Durchmesser

0,5	0,6	0,7	0,8	0,9	1,0	1,1	1,2
		IIII	I				

Beladeverhältnis — Beladegewicht zu Trommelvolumen

1 : 6	1 : 8	1 : 10	1 : 12	1:14	1 :16	1:20	1:24
0,166	0,125	0,100	0,083	0,071	0,062	0,05	0,041
		I	I	II	I		

Art der Flottenführung

sprüh	Bad
	IIIII

3.) Bleichtyp

im Klarbad — Chlor (NaOCl) Aktivchlor

0	6	12	25	50	100	200	400	800	mg/l Chlor

Sauerstoff (H2O2) Aktivsauerstoff

0	6	12	25	50	100	200	400	800	mg/l O 2
							I		

4.) verfahrenstypische Besonderheiten

mit Encym	Desinfekt.

5.) maximale im Verfahrensverlauf erreichte Temperatur in grad Celsius

30	40	50	60	70	80	90	°C
			I	IIII	I		

Einordnung

Data collection washing
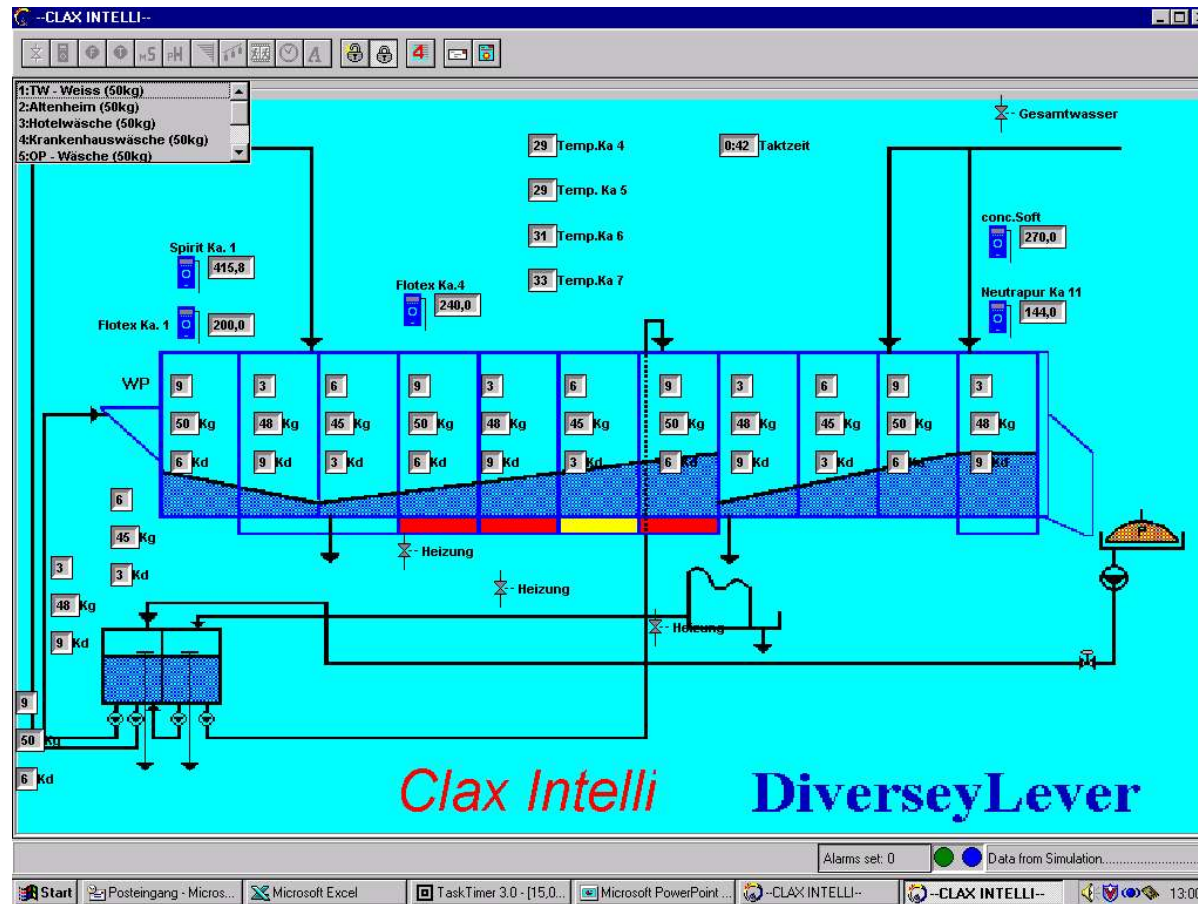
Quelle:
DiverseyLever

Data collection washing

Determination of product consumption on basis of nominal values (Pump power) or by measuring flow