

SCLAVOS Dye House Control (SDC)

Introduction

Sclavos Dyehouse Control (SDC) is a unique, advanced dyeing expert system with in-built knowledge which reflects the decades-long SCLAVOS Dyeing Technology and textile expertise.

With SDC the factory will enjoy the benefits of its SCLAVOS machines to their full extent from day 1 of their operation and as a result achieve maximum return from its investment.

SDC determines for each dye lot (by means of dyeing rules taking into consideration all its characteristics.) the optimum dye process (incl. machine settings) and recipe. Optimum does not equal world-record performance but exactly that combination of dye process, recipe and machine settings that will ensure required quality at minimum cost. SDC leads to the optimal usage of the SCLAVOS dye machines, with

- As short cycle times as possible
 - As low utilities consumption (water, energy) as possible
 - As high loading as possible
 - As few chemicals as possible
- and at the same time
- Absolute compliance with Customer's requirements
 - Optimum quality

SDC is integrated seamlessly in the factory's IT landscape and ensures that the calculated optimum dyeing conditions go error-free to the machine's controller and are executed -without deviations- by the machine.

Functionalities

SDC has the following functionalities:

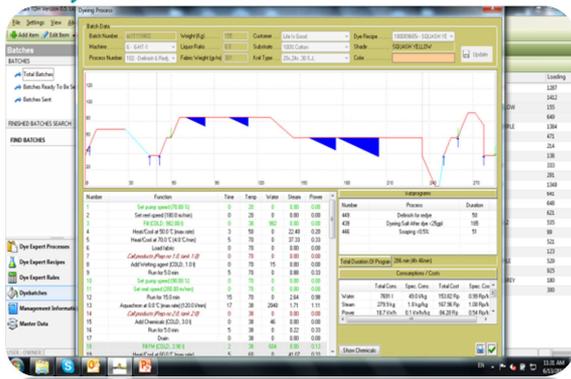
- Dye process selection and optimization
- Recipe selection and optimization
- Optimum machine settings selection
- Dyestuff recipes management
- Chemicals Recipe Management
- Dyeing cards / dyeing process / recipe & dyestuffs cards printout
- Additions and Re-process Management
- Lab recipe Management and Transfer to Bulk recipe
- Dyeing Technology Backup and Restore
- Quality Module
- Pre-calculated batch costs analysis
- Pre-calculated batch consumptions
- Exact actual costing at batch level
- Batch data acquisition and batch reporting
- Link to the factory ERP and to the central dye house system (Sedomaster)

In more detail, SDC functionalities are explained below:

➤ **Process and Recipe Optimization**

SDC calculates for each dye lot the optimal dyeing recipe (dyestuffs, chemicals), process and machine settings.

An optimized process diagram automatically calculated by SDC is depicted below.



Optimized Process Chart

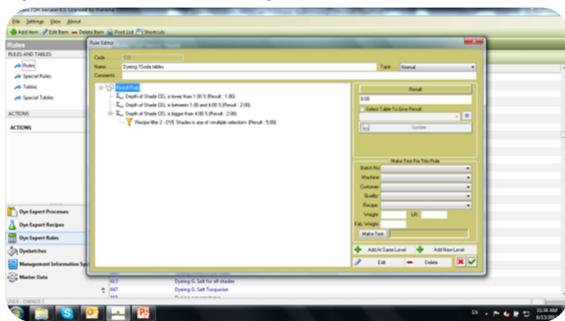
The choice of sub programs in the dye process was controlled by SDC rules with their proprietary tree structure, which allows them to be as detailed and complex as necessary.

Rules-based Optimization

Optimal dye conditions are selected in run time through a powerful set of very easy and intuitive definable rules; SDC rules take into consideration anything that matters during dyeing

- Machine Technology
- Raw materials
- Auxiliaries
- Quality requirements
- Customer-specific requirements
- Previous history etc

Thus SDC ensures that every batch is dyed with its own optimum conditions.



A shade-dependent rule

Optimum machine settings selection

SDC calculates the dyeing machine settings (liquor ratio, reel & pump speed, fabric cycle time, etc.) based on specific batch data (machine type, batch load, fabric type, fabric weight and width, etc.) using the in-built SCLAVOS Machines expertise.

Reprocessing/ Additions Handling

SDC ensures that any addition or re-process is linked to the initial batch. With SDC no re-work will go unnoticed (and cost will always be correctly allocated to each batch).

Dyeing Technology Backup/ Restore

SDC rules-system is equipped with a powerful backup & restore function, so the user can go back to rules at any point in time in case something went wrong and an undesirable technology change was made (that was only detect upon dye batch finishing ie 2-3 days later).

Quality Module

The user can enter quality measurements for any batch at any time. These measurements can also be received automatically from measuring devices such as spectrophotometer etc. The user can define own measurable attributes.

Pre-calculated batch cost

Based on the specific batch data the following batch costs are pre-calculated: 1) the cost of the dye recipe, 2) the cost of the auxiliaries' recipe, 3) the cost of water, steam and electrical power according to the pre-calculated consumptions, 4) the cost of machine hour based on the theoretical process time.

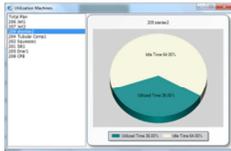
Pre-calculated batch consumptions

For each batch, the theoretical time and the water, steam and power consumptions are calculated, based on the specific machine type.

Management Information System

SDC has numerous powerful reports on

- Productivity
- Utilization of equipment
- Consumptions and Cost
- Environmental Impact
- Quality
- Machines operation etc



Machine Utilization Report



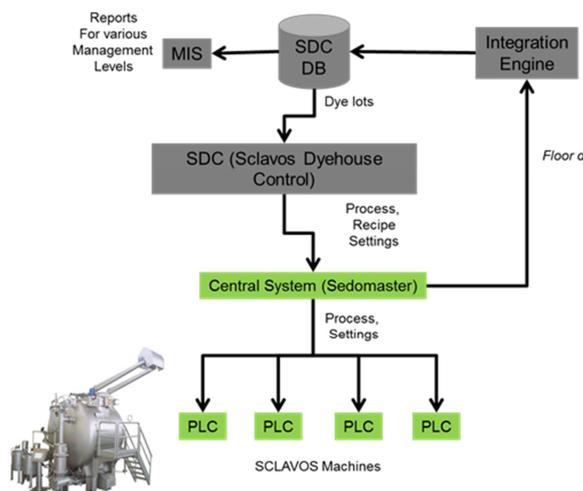
Detailed Cost Report



Automated KPI report

Seamless IT Landscape Integration

SDC is seamlessly integrated with ERP and with Dye House Central Systems in order to ensure full automation and avoid human interventions and errors. System integration is shown below:



Further Characteristics

SDC is equipped with

- English, Spanish, Chinese, Turkish User Interface
- Modern graphical user interface
- Powerful relational database
- User management features

SCLAVOS DYE HOUSE CONTROL

Integrability

Upon request¹, SDC can be integrated with

ERP	MES	Automation
<ul style="list-style-type: none"> • Sustain Suite • SAP R/3 • Oracle • Navision • AKWin • Other Vendors 	<ul style="list-style-type: none"> • Orgatex • Sedomaster • Other Vendors 	<ul style="list-style-type: none"> • Dispensing systems (bulk, Lab) • Barcode & RFID • PLCs • SCADA systems • Scales etc

Hardware Suggestion²

Server requirements

- Operating system: Windows 10, Windows Server 2016
- Processor Unit: 4 Core (1.66GHz per core)
- RAM: 4GB ram
- Hard Disk Drive: 500 GB
- Graphics Card: 1GB or more; should support 1920-1080 resolution
- Monitor: 17"
 - Available Network Card

Client requirements

- Operating system: Windows 10
- Processor Unit: 2 Core (1.66GHz per core)
- RAM : 2GB ram
- Hard Disk Drive: 100 GB
- Graphics Card: 1GB or more; should support 1920-1080 resolution
- Monitor: 17"
- Available Network Card

¹ And –possibly- quotation
² Stand 1/1/2019