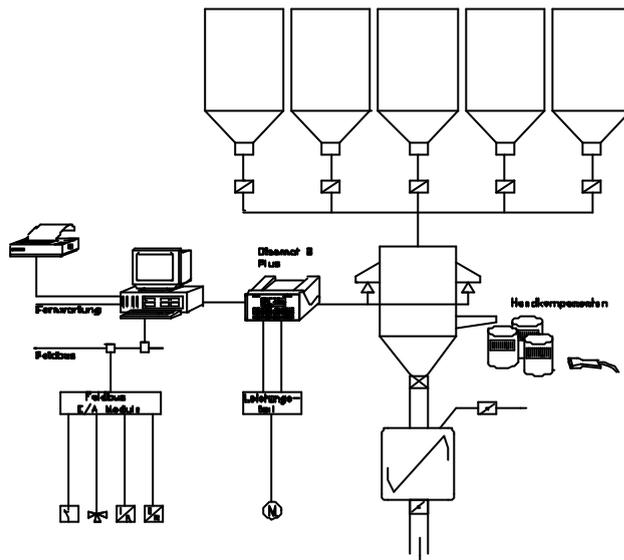


## Control for Discontinuous Batching Plants

Application Light Industry



In discontinuous batching plants, products (e.g. food ingredients, plastics and additives) are put together and, if necessary, mixed. The ingredients can be stored in various storage bins or fed manually. The blend is stored in another storage bin, fed into a mixer or added to the downstream process.

The batching plant is operated, controlled and monitored via PC. Products and storage vessels can be assigned with flexibility. Formula and production jobs are prepared, processed and controlled from the process floor or from a convenient control room.

### Principal sections of weighing system and batch control:

- Mixer (if present) – if need be, on load cells
- Weigh hopper on load cells with DISOMAT weighing electronics
- Batch PC for plant control, formula and order preparation and processing
- Remote I/O assemblies for control of user gates and conveyors

### **Demands on weighing electronics and batching system control:**

- High weighing accuracy
- Ease of operation
- Clear representation of orders and formula
- Multi-station systems
- Manual feeding
- Multi-scale systems
- Data transfer to EDP systems (e.g. SAP)
- Batch and raw material consumption reports
- Communication to PMS

Our PC Batch Control System is tailored to the particular needs of these applications.

The individual ingredients of a blend are fed into the process one after the other. Feeding by full feed and dribble feed ensures a high accuracy. The DISOMAT weighing electronics transfers the cut-off contacts to the plant control system directly. Afterflow optimization ensures continuous weight check and corrects the cut-off value, if necessary.

The product movements are controlled via fieldbus contact modules. The input/output contacts can be simulated for testing and servicing.

During manual refill, the operator is guided by the system. Product data and the amount to be added are displayed. Unique identification with the aid of a barcode scanner is possible. The manual refill is acknowledged on the control PC.

Liquids can be fed gravimetrically like any bulk solid. If a liquid is not required before the downstream process, e.g. mixer, a flow meter acquires the amount to be fed out.

Multiple PCs can be networked. A multi-station system enables convenient formula and order preparation in the office and user-oriented operation on a local industrial PC with touchscreen.

### **The following customers use the Schenck batching systems.**

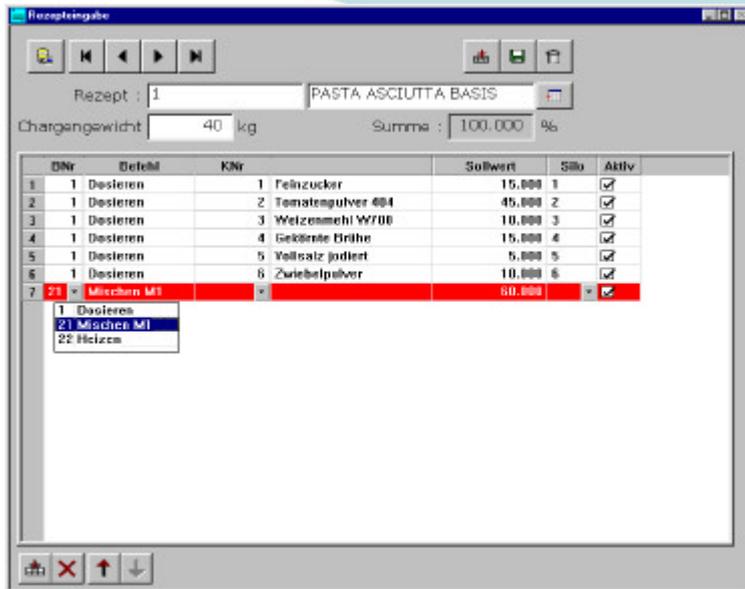
- Milupa GmbH & Co. KG, Friedrichsdorf and Fulda
- Bayer AG, Dormagen
- Böhler Thyssen Schweißtechnik GmbH, Hamm
- Degussa-Hüls AG, Werk Marl
- KBI, Kunststoffbeutel Produktions GmbH, Berlin
- Clariant GmbH, Wiesbaden
- Allied Signal, Hamburg
- TKV, Ehrenhausen
- Gummiwerk Geretsberg

For control of batching processes in process plants, our MultiBatch PC control is used. Multibatch controls and monitors the central formula and raw material management. Multiple scales can be involved in a formula, so multiple batching lines must be coordinated and synchronized.

MultiBatch comprises four program parts:

- Formula editor
- Order manager
- Database management
- Reports and evaluations

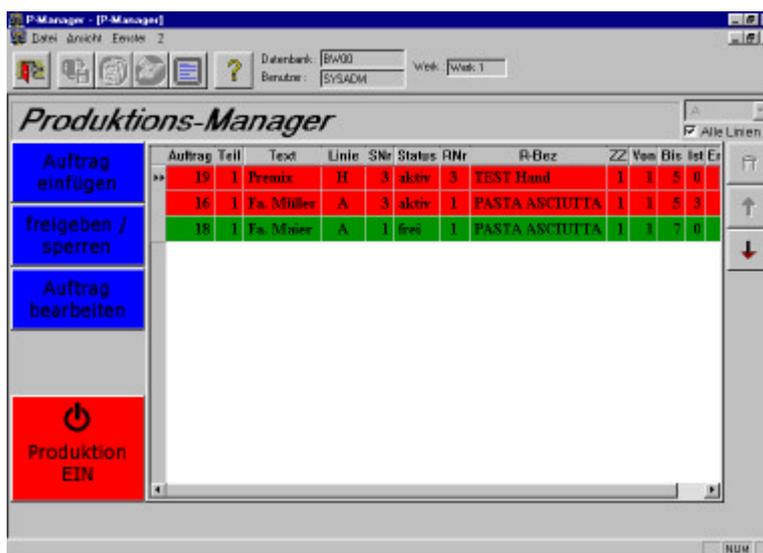
## Formula editor



The formula editor creates and processes the formula.

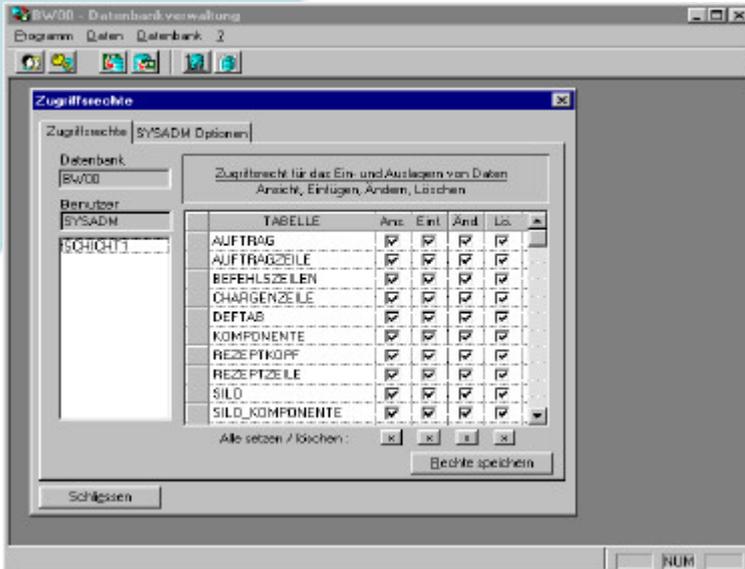
Ingredients, setpoints and processing commands are entered.

## Order manager



The order manager is designed for preparation, operation and control of production jobs. The display shows the current status of the active order and lists all available orders.

## Database management



All data are stored in the SQL database.

Access rights determine the individual competence for preparation and editing of production jobs.

## Database management

The screenshot shows a report titled 'Anforderung nach Bauteil' for 'Feinmischer'. The data is as follows:

Protokoll nach Komponente										
Datenzeitschneidung von 01.07.2000 bis 30.09.2000										Erreicht: 25.09.00 12:50
Komponentennummer-Nr von Nr										Seite 1
Gravichte in [kg]										
Komponente : 1 Feinmischer										
Datum/Client	Silo	Auftrag	Charge	ZZ	Sollwert	Istwert	Differenz	Status		
06-09-2000 14:57:40	1	1	1	1	16,0	0,0	36,0	MITOL		
06-09-2000 15:02:49	1	1	1	1	16,0	0,0	36,0	OE		
06-09-2000 16:23:09	1	1	4	1	16,0	15,3	0,7	OE		
06-09-2000 16:29:48	1	1	5	1	16,0	16,3	-0,3	OE		
06-09-2000 16:34:36	1	1	6	1	16,0	15,8	0,2	OE		
06-09-2000 16:36:40	1	1	6	1	16,0	0,0	36,0	TEIL		
06-09-2000 16:37:02	1	1	6	1	16,0	3,0	13,0	TEIL		
06-09-2000 16:37:29	1	1	6	1	13,0	2,2	30,8	TEIL		
06-09-2000 16:37:50	1	1	6	1	10,8	10,9	-0,1	OE		
					9 Wägen zu	65,8kg				
Komponente : 2 Tomatenpulver 404										
Datum/Client	Silo	Auftrag	Charge	ZZ	Sollwert	Istwert	Differenz	Status		
06-09-2000 16:26:40	2	1	4	1	16,0	15,5	0,5	OE		
06-09-2000 16:30:08	2	1	5	1	16,0	16,0	0,0	OE		
06-09-2000 16:35:36	2	1	6	1	16,0	15,4	0,6	OE		
06-09-2000 16:38:16	2	1	6	1	16,0	16,9	-0,9	OE		
					4 Wägen zu	65,8kg				
Komponente : 3 Weizenmehl W700										

All production data are recorded in the database.

A convenient evaluation module enables batches, raw material consumption and formulas to be documented.

A batch report shows setpoints and actual values, start and end times as well as the sequence of the single formula steps.



Measuring and Process Systems  
 SCHENCK PROCESS GmbH  
 D-64273 Darmstadt  
 Phone: +49 (0) 61 51-32 10 28  
 Fax: +49 (0) 61 51-32 11 72  
 E-Mail: sales2.process@schenck.net  
 www.schenck-process.net



Keep in Motion