

# Tecga

Technischer Galvanoservice AG

## CARBOLUX 50<sup>®</sup>

**Fully automatic crystallization of carbonates, sulphates and chlorides.**

**The patented original from Switzerland for economic solutions.**



**WORLDWIDE THOUSANDS OF CARBOLUX 50<sup>®</sup>**

**IN DAILY USE**

## Carbolux unit® - Type 50

Our own patented development allows detrimental decomposition products to be removed from various electrolytes and process solutions. An optimal media constancy is achieved thus safeguarding product quality.

Precipitation of: Carbonates, Sulphates and Chlorides

## Typical Applications

Efflorescence of Carbonate, Sulphate and Chloride

## Advantages

- An optimal and constant quality of the fluid
- A longer life time of the fluid
- Lower reject rate
- Low energy costs
- Efficient use of chemicals
- Less waste water
- Constant parameters
- No production time interruption
- Low labour costs (machine is automated)
- Less maintenance on heat exchanger
- Abidance DIN Specifications 9002/9003
- Short payback period



## Hidden costs in the electroplating industry

Crystallisation of salts, carbonates and sulphates

Customers' growing demands and the pressure they exert in terms of pricing, along with the increasing competition within the electroplating market, mandate optimisation of production and costs – now more than ever before. Improved economic efficiency notwithstanding, quality should not be neglected.

But where can cost savings be made during production ? Energy and chemical resources are certainly key factors, and it is important to leverage them, since significant savings are possible in these areas.

Previously, production had to be halted, the treated liquid was transferred by pump and there was a waiting period until winter. The salts had to be disengaged using shovels and pick-axes. This is neither state-of-the-art nor in keeping with the times. The ensuing consequences – and thus costs – are/were:

### Component staining

- Excessively high electricity costs due to higher voltage being used
- Poor electricity yield, therefore longer bath soaking times and decreased layer thickness
- Rough surface coatings
- Irregular layer thickness on the components
- High drag-out rate due to bath viscosity
- Poor anode solubility, risk of staining
- Higher medium temperature
- The need for better cooling power
- Blocked heat exchangers and pumps
- Expensive new approaches and disposal costs
- Worst-case scenario: production stop

Today, economically successful businesses deploy cold crystallisation technology for baths using CARBOLUX®. The undesirable salts, carbonates and sulphates are separated by means of continuous freezing. A specific quantity of the medium is removed from the bath without impacting production. This is then cooled to a precisely defined temperature. Following the fully automated re-infusion of the purified medium into the bath, the resultant crystals remain behind on the belt filter, subsequently being dispensed into the collection chamber. The salts that have been filtered out can now be disposed of.

The service life of the process solution is thereby extended exponentially, with quality remaining consistent. This results in enormous savings in terms of energy and chemical resources. The residual waste materials are salts, carbonates, sulphates.

**Thank to this technology, the companies that use CARBOLUX® profit on following advantages:**

- Consistent quality and thus satisfied customers
- Simple handling
- Bath cooling
- Extension of service life
- No production downtimes
- Lower electricity costs
- Uniform distribution of layer thickness
- Reduced outlay on maintenance

Those who are aware of their hidden costs remain competitive and, thus, in contention. Costs associated with energy, chemical resources and waste water are factors that are increasingly accorded importance when addressing the optimisation or reduction of production costs.



**The diversity of customers' specifications makes it possible for us to offer a high degree of flexibility in the system variants.**

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## Carbolux 50<sup>®</sup>

Our in house developed patented product.

The perfect system for the crystallisation of carbonates, zinc nickel, sulphates, chloride.

The performance of Carbolux is enhanced when used with a pre-cooling tank (if the temperature of the medium is excessively high, e.g. 60°).



The unit can be operated parallel (multiple **Carbolux** for a single bath).



### Carbolux with **Belt Filter PLUS**

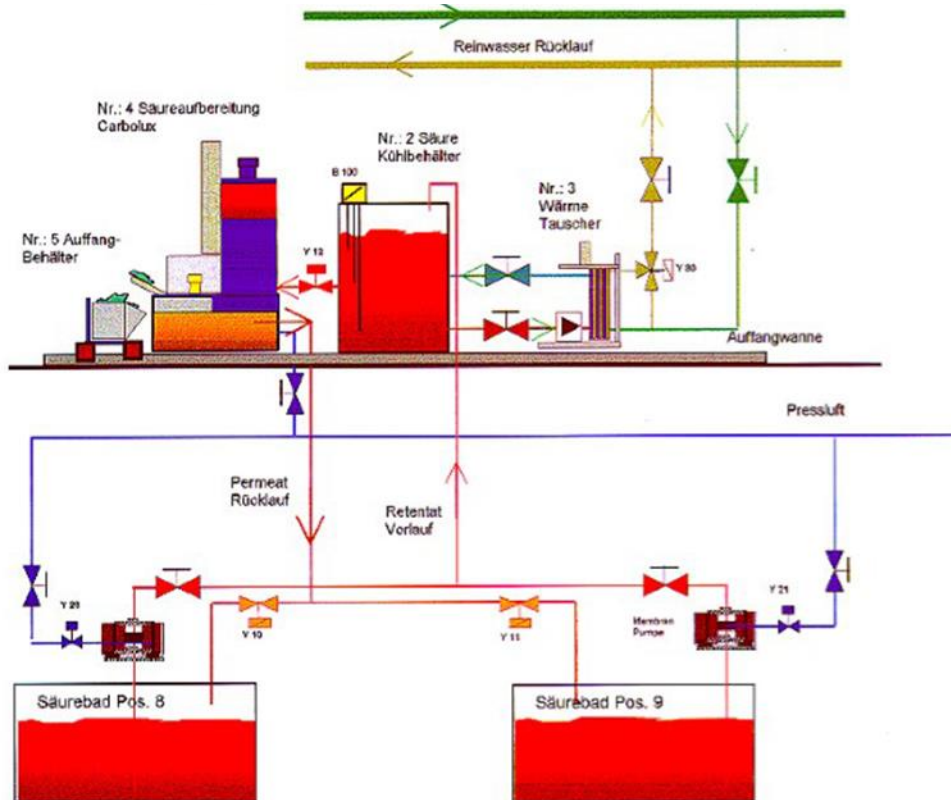
- Dry crystals
- Optimize dripping of
- Reduced chemical loss
- Automatic filter cloth cleaning
- Easy conversion
- Used belt filter can be used as spare parts.



An extended belt filter permits the carbonate to drain better and for a longer duration, with reducing drying time.



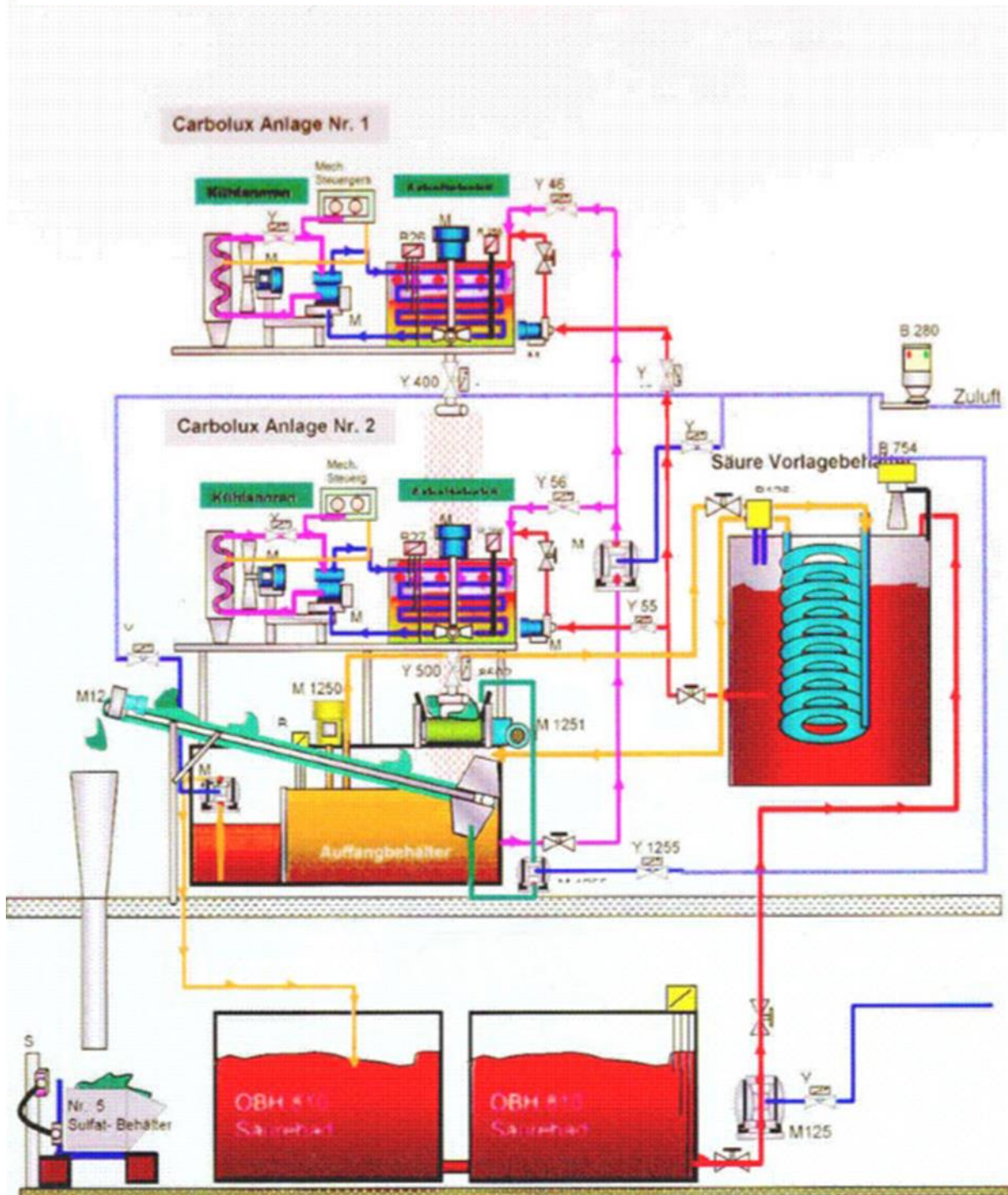
## Acid preparation



## The course of Acid Processing

- 1 Acid medium (Retentat) becomes by means compressed air membrane pump alternately from the Pos. 8 and 9 in the cooling container Nr. 2 pumped.  
**Important:** Suction conduction Pos. 8 and 9 must be 20 mm over the Tub bottom.
- 2 Acid medium of the container Nr. 2 becomes over the plate exchange Nr. 3 in circulation on ca. 30° C cool off. (Adjustable)  
Cool medium is pure water.  
Basic attitude +32° C + - 4°C
- 3 Precooled acid medium will be sucked from the Carbolux plant Nr. 4 from the container Nr. 2 by each batch and by further cooling, the ferrous sulfate will be efflorescenced.  
With Temperature regulate, adjustable from +6° C until 0° C will be regulate the efflorescence of the quantity from ferrous sulfate.
- 4 The acid medium without ferrous (Permeat) flows back in loads in the appropriate bath Pos. 8 or 9.
- 5 The ferrous sulfate, with by cooling of the acid medium who results in form of wet granulates, will be delivered with the conveyor out of the Carboluxplant in the receptacle Nr. 5.
- 6 The resulting remainder liquid from the receptacle Nr.5 must be given manual to the cooling container .
- 7 The ferrous sulfate have to be dispose in accordance with the „Disposal Industrial waste“

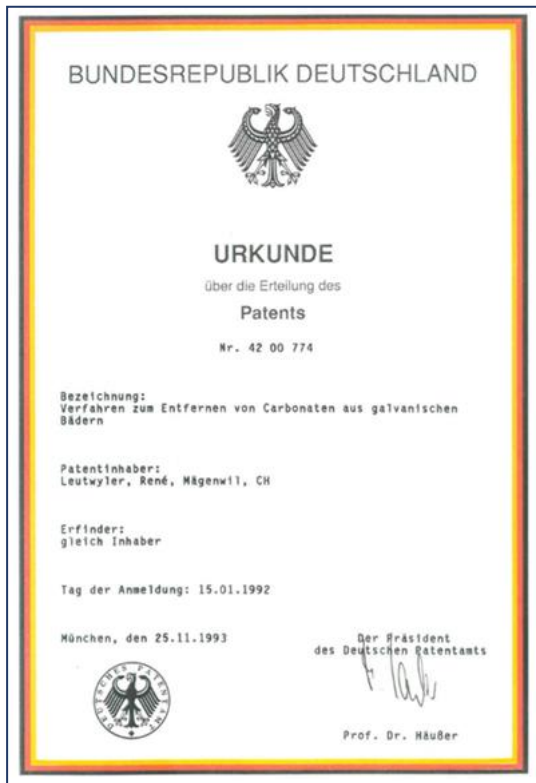
## Flowschema and functional sequence



## Technical operation of process acid preparation

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Carbolux Patent of Germany

Carbolux Patent USA

