



## Case study Neutralac® SLS45

# Metal galvanization Precipitation of heavy metals

### Customer Application and Activity

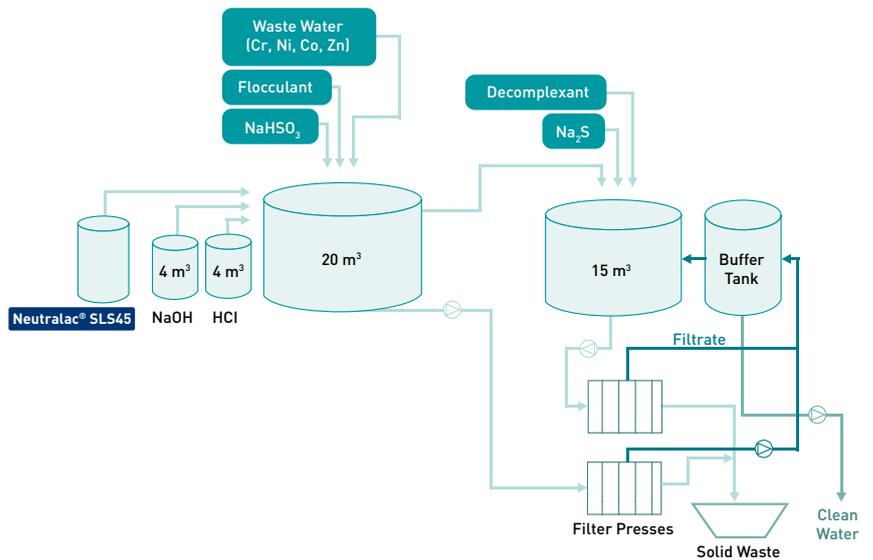
WHW Hillebrand Galvanotechnik in Wickede (Germany), is a major European player in the surface treatment of metal components. The search to find an optimum solution for treating its rinse water and other wastewater from its plant was one of its main priorities. The plant creates 300m<sup>3</sup> of effluents per day and strives to continuously improve the quality of water it discharges into the environment.

### Problem to be solved

In addition to filtering out zinc, copper and nickel, treating cobalt and chromium posed additional challenges and came at a high cost. Moreover, sedimentation of metallic hydroxide flocs by adding caustic soda was generally a time consuming operation and the dewatering of the sludges was not always satisfactory.

### Neutralac® SLS45 Solution

Rheinkalk, the Lhoist Group's German affiliate, suggested precipitating the heavy metals by substituting Neutralac® SLS45 for caustic soda during neutralization. Neutralac® SLS45 is stronger than any other liquid lime and comparable to 47% Caustic Soda solution. At a viscosity below 300cP, it delivers 45% Ca(OH)<sub>2</sub> solids by weight making it more fluid and more reactive (KIWA T90 < 5sec) than any other liquid lime. A short validation test displayed positive effects and so the process was quickly implemented on site.



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### Key Achievements

Detailed analysis of the effluent treatment installation showed that adapting the process to Neutralac® SLS45 could be carried out without stopping the installation. After the switch-over, the following benefits were observed:

1. Neutralization at a lower pH to achieve the reduction of high levels of chromium by 93% and cobalt by 70%
2. Complete conformity to effluent consent levels
3. A considerable reduction in the sedimentation time required for the removal of metal hydroxide flocs
4. More efficient operation of the installation, allowing for increased capacity
5. A reduction by almost 33% of the volume of dewatered sludges and an improvement in filtration capacity



### Conclusion

Convinced by the improved results of the process, the customer has invested in its Neutralac® SLS45 solution. Since 2008, its new installation has been working successfully.

The utilization of Neutralac® SLS45 has allowed for:

1. A marked increase in the effluent treatment capacity without plant enlargement
2. Faster sedimentation rates to be achieved
3. Cost effective and improved reagent use through the substitution of two reagents (caustic soda combined with hydrated lime) with a single, ready-to-use reagent.