

# IST International Surface Technology

The International Edition of **JOT**  
Germany's Leading Magazine for Surface Technology

## **Spray Guns**

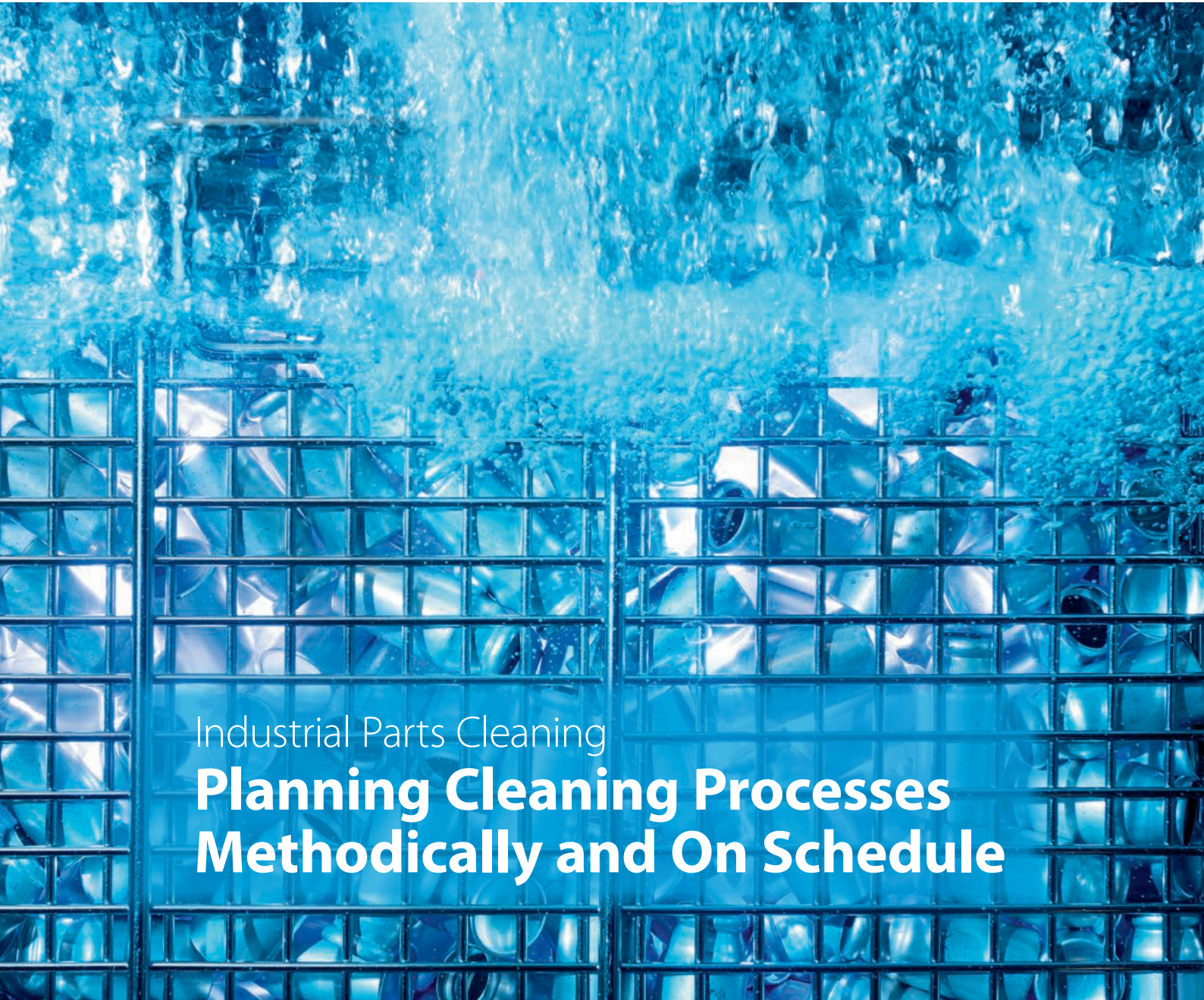
Improving Quality and  
Reducing Maintenance

## **Automotive Finishing**

Skidless Paint Shop  
Conveyor

## **Powder Coating**

Flexible Coating Process  
for Alloy Wheels



Industrial Parts Cleaning

**Planning Cleaning Processes  
Methodically and On Schedule**

# Planning Cleaning Processes Methodically and On Schedule

The process of planning cleaning solutions is complex and often involves the cooperation of several different departments. The methodology employed by the project manager will determine the success of the project and the reliability of the cleaning process.

Walter Mück, Steffen Achatz

In all areas of manufacturing, the subsequent stages of the process determine the requirements for cleaning components and assemblies. Contaminant films and particulate matter can cause problems with the quality and appearance of the product. In the worst case scenario, they can lead to functional faults and large amounts of rejects. Parts cleaning therefore plays an important role at different stages of the manufacturing process. Managers of parts cleaning projects need to have an overview of the entire produc-

tion process, the current cleaning methods, the types of machine available, the appropriate cleaning agents and the results that can be achieved cost-effectively. The planning method is therefore a key factor in the success of the project.

## Awareness of the overall context

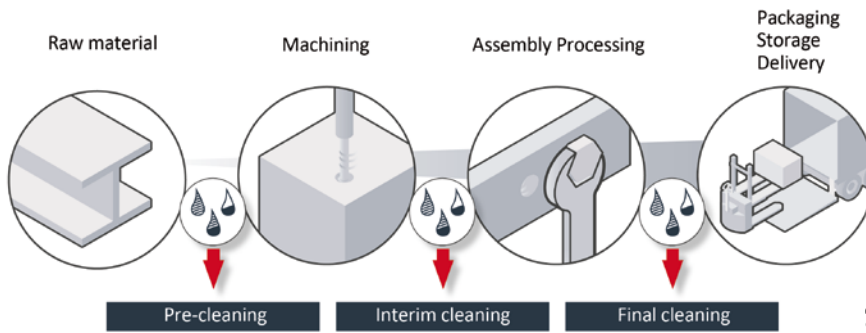
Components are produced using pre-defined processes and special manufacturing supplies. In addition, they are generally manufactured individually from a spe-

cific raw material. Each manufacturing process therefore produces a different type of contamination. Changes to the process, such as the use of different cooling lubricants, often have an impact on the subsequent cleaning phase and the results it produces.

In order to achieve the required level of cleanliness reliably and cost-effectively, the production process must be analysed (requirements engineering) and the cleaning process must be designed to suit the production conditions. In addition, the entire manufacturing and cleaning procedure must be clearly documented. The role of the project manager includes championing the cause of parts cleaning within the organisation, as cleaning always involves additional costs. However,



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Describing the production process and the cleaning-related factors makes the cleaning project more transparent.

in many areas of industry only parts that have been cleaned can achieve the necessary standard of quality and performance. If project managers are familiar with the management objectives, such as plans for future products and new customer groups, they can carry out an accurate assessment of the cleaning work involved. In addition, they can include the cost of an appropriate cleaning machine in the budget and ensure that the cleaning solution will meet the future needs of the production process.

### Bringing everyone on board

Experts from several different departments need to be involved in planning cleaning solutions. It is important not to underestimate the human factor. If the parts cleaning process is planned purely from a commercial perspective, the technical specialists may put obstacles in its way. Bringing everyone involved on board at an early stage will help to ensure that the project can be completed on schedule.

Experience shows that the larger the organisation is, the longer process of obtaining approval for investment projects takes. A cleaning project that is clearly described and effectively presented will be more likely to be approved quickly by the purchasing department. If the company's safety representative is involved in the project during the early phases, he will be able to give the go-ahead at the decisive moment, because he has already established that the project complies with regulations relating to chemicals and cleaning agents and with local, regional, national and international legislation.

Automation experts are often needed to integrate the cleaning machine into the production line. The project manager should include enough time in the schedule to reach an agreement with suppliers, because the cleaning system and production facilities need to be connected to the internal IT system. Data formats and access permissions must be decided on early in the project.

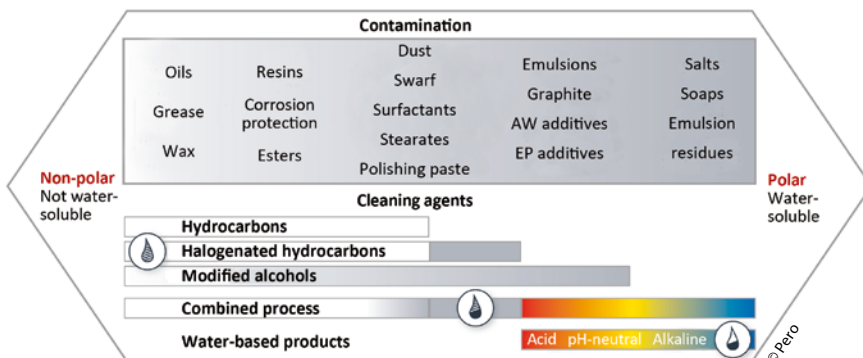
It is important to ensure that the production and plant managers, the production engineering specialists, the management team and the purchasing manager have all the necessary information when the project reaches the decision-making phase. In addition, the machine operator must be consulted during this phase of the project or the cleaning machine may not pass the acceptance stage at the start of production.

### Demonstrating that the goals have been achieved in advance

Modern parts manufacturing processes are very varied and have individual requirements. As a result, the contamination that they produce is highly specific. If a cleaning process is designed systematically and tested in real cleaning machines, it is possible to demonstrate before the cleaning machine is integrated into the production line that it can reliably achieve the required level of cleanliness. This makes it possible to identify the results that can be produced by different cleaning agents and helps with choosing the ideal product.

By taking a methodical approach to a cleaning project and running cleaning tests using original contaminated components, the chosen cleaning agent and the stages in the process can be described in detail. In addition, the results can be documented. This is the ideal preparation for the in-house project meeting and for the decision on which machine to buy.

If the cost-effectiveness of the cleaning solution has been calculated during the planning phase, a well-informed decision can be made. Using the correct methodology allows the volume of parts to be determined at an early stage and this in turn makes it possible to tell at the start of the project whether an external or an internal cleaning solution will be more financially viable. //



Cleaning the workpieces during the planning process will demonstrate whether the contamination can be reliably removed.

### Authors

**Walter Mück**  
**Steffen Achatz**  
 Pero AG  
 Königsbrunn, Germany  
 Tel. +49 8231 6011 0  
 pero.achatz@pero.ag  
 www.pero.ag