

# Are you grappling with these issues in metal parts cleaning?

- ✓ PARTS NOT BEING SUFFICIENTLY CLEANED
- ✓ DRYING ISSUES
- ✓ CORROSION OR DISCOLORATION

This guidance document helps you identify the possible causes behind these issues in both aqueous cleaning and solvent cleaning. It also offers some quick fixes that might help you resolve the issue.

If the problem persists, we always recommend that you consult your cleaning media supplier as well as the manufacturer of your cleaning equipment.

## PARTS NOT BEING SUFFICIENTLY CLEANED

### AQUEOUS CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Parts are not sufficiently rinsed	Extend rinsing time. Higher up flow of rinse water. Check for contamination in rinse water
Too much soil in the cleaner	Check soil levels. If necessary, exchange cleaner and clean out the tank to remove soil sediment
The cleaning cycle is too short	Increase the cleaning cycle time
Temperature is too low	Check the temperature and adjust if necessary
Cleaner concentration is not correct	Check the concentration and adjust if necessary
Cleaner is not "strong" enough (pH is probably too low)	Switch to better fitting cleaner. Examine the use of a higher pH, higher alkalinity cleaner
Parts are misarranged/insufficient spraying/areas covered by parts	Rearrange parts in basket
Too many parts at one time in the basket	Allow more space between parts. Reduce number of parts in the basket
Insufficient mechanical influence	Check mechanics (e.g. ultrasonic, agitation, spraying, flushing etc.)
Change of cleaning agent	Check cleaner prior to use
Infrequent/insufficient monitoring of the process	Check regularly the concentration, pH-value and add cleaner, if required
Critical contaminations	Check contaminations/oils prior their entry to cleaning machine
Change of machine parameters	Consult machine manufacturer

### SOLVENT CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Oils to be removed are not having the same polarity as the solvent	Order an oils compatibility test. As an easy test: Take the stained parts and try to remove the stain using a cloth soaked in water (little agitation); repeat same procedure with solvent and a dry cloth. The outcome can give hint to the polarity of the stain
Too much oil in the solvent	Check distillation efficiency. Remove waste oil through rest distillation. Let a clean part go through the standard cycle and check if re-contamination occurs
Vapor degreasing is not working properly	Check the efficiency of the distillation unit (temperature); and the temperature difference between tank and distillation unit
Parts are misarranged/insufficient spraying/areas covered by parts	Rearrange parts in basket
Too many parts at one time in the basket	Allow more space between parts. Reduce number of parts in the basket
Insufficient mechanical influence	Check mechanics (e.g. ultrasonic, agitation, injection and flooding etc.)
Change of cleaning agent	Check cleaner prior to use; perform a solvent analysis and potentially an oil compatibility test
Infrequent/insufficient monitoring of the process	Check regularly the pH-value and alkalinity/acidity and add stabilizer, if required
Critical contaminations	Check contaminations/oils prior their entry to cleaning machine
Change of machine parameters	Consult machine manufacturer

## DRYING ISSUES

### AQUEOUS CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Suboptimal drying process setting	Check parameters (e.g. time, temperature)
Scooping parts (e.g. blind holes, hull)	Rotation of basket if possible, optimize parts orientation

### SOLVENT CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Suboptimal drying process setting	Check parameters (e.g. vacuum, time, temperature)
Scooping parts (e.g. blind holes, hull)	Rotation of basket if possible, optimize parts orientation

## CORROSION OR DISCOLORATION

### AQUEOUS CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Cleaner concentration too high	Check bath concentration and dilute with water if necessary
Bath temperature too high	Check bath temperature and adjust if necessary
Cleaner too aggressive for metal surfaces	Look for a suitable cleaner and check the right pH, preferably a cleaner solution with a lower alkalinity. Switch to a solution with more corrosion inhibitors; add an anti-corrosion additive

### SOLVENT CLEANING

POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Critical acidification of the bath	Check bath condition and take appropriate measures (e.g. add stabilizer); check source of acidification, and examine Material Safety Data Sheets (MSDS) of oils used in manufacturing; perform solvent analysis and if necessary (partial) bath exchange
Cleaning copper (alloys) in presence of sulphur	Eliminate sulphur (check oils) or use appropriate stabilizer

# Metal cleaning should not be a bottleneck in your manufacturing process.

If you are experiencing challenges in your metal cleaning activities, or would like to implement an efficient, reliable and sustainable cleaning process, do get in touch. We would be happy to assist you in finding the right solution.

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