Pretreatment & Organic Finishing



R.W. Phillips Jr. (left) • MarRichAssociates P.O. Box 3072 • Lynchburg, VA 24503 R.W. Phillips III • Brent America, Inc. Arlington, TN

Who is Responsible for Housekeeping?

There is usually no one who wants to accept the job of housekeeping as the glamorous opportunity of the day. No one wants to pick up, clean up, stack, store, move, monitor concentrations and temperatures, and all the other tasks that need to be done routinely. Most of us don't think of housekeeping as a part of our job. Good housekeeping, especially on a paint line, is like the oil lubricating equipment—you just can't get the job done without it.

Cleanliness & Safety

Good housekeeping is essential to have an effective health and safety program, as well as efficiency in production. It is not a casual responsibility. It requires discipline and consistency and a well-planned execution. When the workplace is clean, safe and well-organized, employee morale and productivity improve. It also makes a better impression on customers and visitors.

Poor Housekeeping

Can Promote Inferior Work A while back, I was shocked when I entered a surface finishing facility. The aisles and walkways were cluttered with parts, empty pallets, racks and hooks. It took about five minutes to clear a path to get to the washer tanks so a titration could be completed to try to determine the cause of some spotting problems. It even required some fancy stepping to find foot placement room to inspect parts coming from the dry-off oven. There were no operating logs, maintenance records or inspection reports to review. The operator's statement was: "Well, I know what I titrated. I adjusted the pH and concentration according to the chart showing how much of each material to add.'

When we began to titrate the fivestage washer (alkaline cleaner, rinse, iron phosphate, rinse and alkaline seal), we had to dig around in some drawers to find the proper tools and solutions. The pH meter also had to be adjusted because it was reading about 0.6 too low. My guess was that the operators had not been titrating, but were making additions according to past experience. The titration in the phosphate stage of the washer was at about 1.8 percent with a pH of about 5.1. It should have been running about 2.5 percent with a pH of about 4.5. The alkaline cleaner was about onehalf percent too low, and the seal stage was almost useless. It took several hours to get the solutions properly balanced, but after that the parts were streaking only at the hook run-down area, with a good even appearance of phosphate conversion.

Parts Were Blemished After painting and baking, spots and blemishes appeared on the parts. They resembled full-flowered daisies. The blemishes were about 1/4-in. in diameter with stripes or petals resembling a bloom. The paint was adhering well to the spots and the overlapped weld areas. When the spots were scraped, a dust-like condition was revealed under the paint.

I returned to observe parts coming out of the washer before they entered the dry-off oven. There were no spots. There did appear to be some contamination at the run-down areas from the hangers and bars. The contamination seemed to be on one side of the parts as they were hanging on the line.

A check inside the washer revealed that a baffle covering the conveyor track and hanging bars had been removed. It had been removed several months ago to replace track and supports that had rusted out in some stages of the washer. The old supports were replaced with stainless steel everywhere, except on one side in the phosphate stage, which allowed spray solution to wet-out the conveyor and channel causing run-down on the parts during the dry-off period. When solution started to evaporate at that spot, it caused blemishes.

Problem Solved

The next day, a cover was installed in the washer, and the blemishes on the parts were eliminated.

Laboratory tests later confirmed that the solution pH was not being monitored properly, creating an excess of ferrous iron in the solution and the accelerator. This prevented a complete conversion to the ferric iron phosphate we call "vivanite."

Good housekeeping may not always eliminate problems, but keeping everything in proper order can help keep us from overlooking the things that cause them. Good operating logs, maintenance records, follow-ups and inspection reports make it a lot easier for supervisors to make sure that housekeeping chores are being completed on the line. When things begin to look cluttered, the process could be cluttered, too.

If you have a technical question about surface finishing, contact any columnist with *P&SF*. They'll be glad to help. *P&SF*

AESF's Chemical Pretreatment & Organic Finishing Committee will meet at AESF Week on Tuesday, January 28 at 10 a.m.

See back of label carrier for a schedule of all Committee, Section and Board meetings.