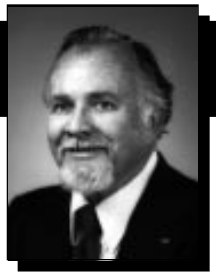

Pretreatment & Organic Finishing

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Watch For Warning Signals

Why is it that every time you think a problem is solved, it pops up again when you least expect it? Is it because we neglect to see the warning signs until it is too late? Or, is it because we are so anxious to get a jump on everything that we overlook important signals?

The yellow traffic light that we often run through before the red light appears is there to warn of potential danger. So, when the light turns yellow, we must decide whether to try to make it through before it turns red, or brake quickly and risk being hit from the rear by someone who is anticipating getting through the yellow light behind us. If we make the wrong decision, we often pay for the error. Can we prepare for those yellow light experiences, or do we wait to face them as they come?

A Mysterious Warning

One evening as I was about to sit down with my wife to watch some television, I received a phone call from a paint operation asking for help. Because the facility was less than 30 min away, I agreed to investigate. The second shift was experiencing a problem never before encountered. Parts coming from the bake oven were streaky and blemished all over. The line was shut down, and the crew was checking solutions in the five-stage zinc phosphate washer. The results from titration were confusing, and they had no clue why the phosphate bath was extremely out of balance between the established range of free acid and total acid.

A quick test showed that the bath was almost operating at "zero" concentration. The second shift did not know why, because they were operating the same as in the past. They had never seen the little blinking light on the pH controller/monitor before.

The concentrate was being fed from a drum on the same setting, as it had been for many months. Up until now, there had never been a problem. I looked over records from the past month, and the figures seemed to indicate that they had been duplicating, not titrating. I was half right.

Personnel on the second shift said they titrated only when the yellow light came on, indicating that the pH was out of range. The pH was checked, and additions made as needed to balance the solution. Personnel on the second shift were afraid to record the situation or list any corrections made. They said the first shift never showed any changes from the established correct ranges. Why were they afraid to record changes in conditions, or make corrections?

A Quick Fix Put Them Back On Line

We made the corrections in the solution by adjusting the concentration, pH, free acid and total acid, along with checking the zinc concentration, which had never been demonstrated to the second shift before. At this point, I felt it was time for a round of complete training for both shifts.

The second shift felt that there was not enough time to keep up with production and clean up properly at the end of the shift. They also felt that they were not properly trained to make important technical decisions when required. The second shift was never at the shop when the first shift arrived in the morning for work, and

there was a feeling that the first shift was always in a hurry to leave when the second shift arrived in the afternoon. So, there was very little discussion between the two groups.

This was a yellow warning light for me. How was I going to approach this problem without causing friction between the shifts?

The next morning, I was there before the first shift started production. I discussed the events of the previous evening with the foreman and plant manager. We went to the production floor to observe the titration and set-up for the washer and paint kitchen. As noted the previous night, operators were not recording the condition of the solution during the shift. The adjustment was recorded, and the automatic feed pump was set to deliver a predetermined feed rate for production. Everything looked good. Parts were coming from the washer with a beautiful zinc phosphate conversion, and the painted parts looked great.

When the second shift came to work, I returned to the production floor to observe the titration, corrections, etc., and noticed that the feed pump was not adjusted to handle chemical additions. I asked why? I was told they had never been instructed to change the setting. The problem was determined immediately thereafter.

Size Was the Real Problem

In the past, both shifts processed about the same square footage of metal, and parts about the same size. Starting the previous day, however, the size of the parts being processed by the second shift were about four times larger than those of the first shift. I was told that, because the first shift had extra personnel, it could make adjustments to spray patterns faster, and process a greater quantity of small parts. The larger parts were assigned to the second shift because they did not require major, or frequent paint spray pattern adjustments.

The second shift should have received proper instructions about how chemical requirements in the solution change when the size of the parts being processed changes. Both shifts have now been trained to watch for those "warning lights," and to always be aware of the size of parts and ft^2/hanger/hr of production.

It has been a long time since that experience, and the paint line has had very few problems. A continuous training program was initiated at the shop, and good cooperation between shifts has helped to eliminate problems. Everyone now looks for those caution signals that serve as a warning when something should be changed or adjusted. o