



Pretreatment & Organic Finishing

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Pumping Up Production At a Vitreous Enameling Facility

In December 1994, I received a FAX inviting me to participate in a problem-solving process with a client. I received up-front information that the client wanted to explore ways to change an established process. The company was responding to some customers who wanted a quicker turnaround of parts.

Some Background

For more than 25 years the facility operated a vitreous enameling process. It was a typical metal finishing company. It had good and bad days; ups and downs in business. Management also made the necessary changes and investments to comply with wastewater treatment regulations, modifying chemical processes and finishing procedures, while continuing to use wet enamel finishing processes, with some dry applications.

During the 1980s, the company began operating its curing conveyor at double-speed, increasing from 7–8 ft/min to 16–20 ft/min. The oven's BTUs were increased so that it could recover faster as cold metal was introduced, and to ensure it would maintain the correct temperature-to-time ratio. Paint formulas were modified slightly to cure faster while maintaining the same quality.

The first problem was encountered when the metal preparation schedule was unable to keep up with the speed of the line. It took too much time for cleaning, pickling, nickel deposition and drying to keep the line full. The metal preparation scheduled had to be increased to a full 7-day/24-hr operation to keep up, but even that allowed only for production of about 14–15 ft/min.

Research Leads To Solutions

In 1992, it was determined that if the nickel deposition could be eliminated, those tanks could be converted for use as additional cleaning and pickling stages, with more inhibitors and neutralizers. The cleaning and preparation volume could then be increased and returned to a 5-day/24 hr work schedule. A number of tests were performed (salt spray, impact, thermal and UV), and it was determined that eliminating the nickel deposition did not cause a quality problem. It also eliminated the need for some wastewater treatment.

Changing Needs Require Continued Improvements

That FAX last December requested my help to increase the preparation volume so the company could finish parts that would require about 60 hr of preparation per week.

We started by testing some new cleaners that are considered "drain safe." We learned that the cleaning time could be reduced by about 25 percent if oil skimmers were installed, and cleaning solutions were pumped through outside coalescent filters constantly to remove the contamination. Within six months, the life of the cleaning solutions was more than doubled, and preparation time and quality were improved. Remember, even advanced chemicals used today can become contaminated with grease and oils, making them ineffective for cleaning parts.

A few weeks ago, my clients called to say that production goals were being achieved, quality had improved, and chemical use had been reduced. Now, the company wants to modify

Food for Thought

Communication is an important part of the average business day. Millions of dollars can depend on using just the right words, or pressing the right buttons, or sending the fastest FAX. Some aggressive business professionals will even resort to placing telephone calls to persons in meetings to get the edge on a business deal. It's all about communication.

How do we communicate? Many will say, "just use the right words" or the "right method of expression." Others may say: "It's what we say and how we say it." A few might say: "What's the difference? Just say it."

You haven't communicated until the communication is received and understood. That's the important part.

the entire facility to process a conveyor-line, vitreous enameling powder application with a new material that has the potential to produce the same properties as the wet-dip system. That's a good message for all of us—a new process that will give us a cleaner environment and better products for life.

We wish you all a merry Christmas and a happy, healthy and prosperous new year. ○