

DuPont™ Teflon®

Industrial Coatings

C A S E H I S T O R Y

Electro Chemical Engineering & Manufacturing Company

“It seemed like an impossible problem to solve”...

Innovative applicator makes breakthrough with Teflon® 858-916 Liquid, High Build Ruby Red Permeation Resistant Coating

...A large specialty chemical company mixes methyl isobutyl ketone (MIBK) with hydrofluoric acid (HF). A host of protective tank coatings had been tried. Some failed as quickly as two weeks.

But a tank coated with DuPont Teflon® 858-916 liquid Ruby Red filled PFA coating has been up and running for more than a year. Prior to this, no coating lasted longer than six months.

“At this point we’ve doubled the best performance our customer has had before. And it’s still working,” says Mike Bunner of Electro Chemical Engineering & Manufacturing Co., an industrial coatings applicator in Emmaus, Pennsylvania.

“Every day it continues to operate, it sets a new record.”

“An ideal solution to an unsolvable problem.”

Electro Chemical has been in the business of coatings and linings for

53 years. “We’re always looking for breakthroughs in coating technologies,” Bunner says. “And it looked like Teflon® Ruby Red liquid had the potential to be a breakthrough for us, an ideal solution to an unsolvable problem.”

The problem was the customer’s mix of two extremely corrosive chemicals. “MIBK is a chemical which permeates plastic. The molecules will actually float through the plastic wall. HF is perhaps the most difficult acid to work with. It attacks just about anything, even glass,” Bunner explains.

“Either one of these chemicals, by itself, is a very, very difficult chemical to handle. But when you mix the two together, the problem compounds exponentially.”

“They were willing to experiment.”

Bunner’s customer had tried various coatings, including chlorobutyl elastomer, various fluoropolymers,

such as ECTFE, and other non-DuPont PFA coatings. The customer had seen little or modest success. They were open to new ideas. “We talked to them about Teflon® Ruby Red and they were willing to experiment with one storage tank that holds these chemicals. It was really us taking the initiative to take a new product to a customer where we knew there was a problem that had no solution.”

“Over the past several years they’ve tried numerous different ways to handle this chemical mix and none of them lasted more than six months or so,” Bunner explains.

But Bunner knew Teflon® Ruby Red liquid coating was different. “There’s a proprietary filler material in Teflon® Ruby Red that really slows down the permeation process. You don’t find that in other PFA coatings. And I think that’s one of the reasons that Ruby Red has stood up where other PFA systems have failed.”

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Significant advantages for the End-User

"We built a tank, we coated it with the Teflon® Ruby Red and we put it into service for our customer in September of 2000, more than a year ago," Bunner says. The coating has delivered more than twice the performance of any other coating used before. "Our customer is happy and we're happy."

"So as far as the customer is concerned, Teflon® Ruby Red is a solution to a problem that was previously unsolvable."

Bunner's customer subsequently bought 3 additional tanks, each lined with Teflon® Ruby Red. "They're all in service and as of the last time we talked, they were still functioning just fine," Bunner says.

His customer is enjoying significant economic advantages, too, Bunner says. "If something fails, you've got to take it out of service and hopefully you've got a spare out there. But there are still the costs to take it out of service, switch it over to the spare and sending it out to be recoated. Then there's the

"No matter what the price, the fact that Teflon® Ruby Red operates without failing is where the real economies are."

cost of having it reinstalled, along with the costs of lost productivity during all the downtime. If you've got to repeat that process every 6 months or so, the dollars add up quite significantly.

"They've tried some coatings that were less expensive and some that were a lot more expensive. But no matter what the price, the fact that Teflon® Ruby Red operates without failing is where the real economies are."

Significant advantages for the Applicator

"There are a couple of things that make liquid Teflon® Ruby Red attractive to me as an applicator," Bunner explains.

"One, it's a water-based coating. With environmental laws getting stricter and stricter all the time, that's an important thing. It lets us grow our business without adding on a lot more expensive environmental or pollution control technologies. That's probably the biggest benefit we see to it."

"The other benefit that we see is that when we apply it we're able to apply it at a thickness of about 10 mils per coat, compared to about three mils per coat with other kinds of coating systems. The thicker you can apply each coat, the less labor and oven time you have. So we realize significant production cost savings."

Based on their initial successes, Electro Chemical has sold Teflon® Ruby Red in a number of other applications. "It's allowing us to get some solid, real-field data," Bunner says. Electro Chemical is also conducting ongoing research in their in-house laboratories. "We're doing a series of tests in our lab, testing the Teflon® Ruby Red in a whole host of different environments. So far the results are very encouraging. I think it's an exciting product."

"DuPont's working on some enhancements and they've been very good about listening to us. It's developed into a good partnership. And a new, bigger market for our PFA coatings than ever existed before."

Teflon® Industrial Coatings
Wilmington, DE 19880-0702
Tel: 800-441-7515 Fax: 302-366-8602
www.Teflon.com



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