

# Low-Surface-Energy Gives Curran Coatings Superior Anti-Foul Performance

## Low Surface Energy Means Less Build-Up

The anti-foul performance of Curran International heat exchanger coatings is found in the application of a low-surface-energy film onto the tube surface. This maximizes the contact angle of the fluid interface at the tube, improving hydrophobic and oleophobic performance.

Combined with an inherently low-surface roughness, these Curran Coatings reduce surface energy of carbon steel to more than three-times compared to new, uncoated carbon steel.

Over time, the performance gap widens as precipitates and oxides attach to uncoated tube ID and increase surface tension six-times compared to when tube was new. Fouled tubes lead to hydro lance tube cleaning!

This superior performance is delivered in a thin film application (5 to 38 microns) with minimal added impact to thermal design. These coatings also can be used for in-kind replacement exchangers where operating parameters demand maximum heat-transfer performance.

## A Wide Portfolio, Applied Worldwide

Refinery and petrochemical plants can select from a wide portfolio of Curran Thin Film Coatings, suited for all sources of cooling water and hydrocarbon streams to temperatures of 750F. This class of coating materials – known as preceramic polymers – offers high thermal stability and chemical resistance.

Applications have been installed at several refinery locations:

- FCCU Feed
- Vacuum bottoms
- Crude Pre heat Exchangers
- Feed Effluent Exchangers
- Crude Stabilizer Feed Bottoms

## Proven Performance

The results have been significant. For example, 36 months of continuous operations was achieved where annual cleaning was formerly required; and improved heat transfer (HT) performance was sustained, extending run times three-times longer than uncoated steel.

## 25-Plus Installations and Counting

Curran has more than 25 installations of coated process critical exchangers at major refinery manufacturing sites globally. The Curran Coating portfolio offers a wide range of silicone, ceramic, and hybrid materials for applications to carbon steel, SS, CuNi, and titanium alloys.

Curran's low-surface-energy coating portfolio complements Curran International's cooling water exchanger tube coating. Specifically, Curran 1000T is a highly-functional epoxy that provides a durable corrosion barrier, and delivers proven anti-foul performance.

**Contact Curran International** to find out more about its exchanger anti-fouling and corrosion resistant coating solutions, Alex Barre, [abarre@curranintl.com](mailto:abarre@curranintl.com); 281.339.9993. [www.curranintl.com](http://www.curranintl.com).



Curran installation of anti-foul coated tube; OD applications require precoating tubes prior to bundle fabrication.

# Refinery Hot-Swap Needed Curran's Hotshot Turnaround

## An Unexpected Discovery

During a swap-out of an exchanger bundle the refinery maintenance crew found general pitting and corrosion across the channel internal surfaces. Before reinstalling channel, the reliability engineer decided to send the equipment to a fabricator for repairs on a critical path, expedited schedule.

The fabricator replaced the pass partition plates and performed weld build-up at the gasket surfaces. Following shop hydro, the channel and cover were hotshot to Curran International for coating application to all wetted surfaces. For this application Curran 1500 was used.

## Curran 1500

Curran 1500 is an advanced epoxy for high temperature immersion service- to 365F. The first coat encapsulated and filled pits about the channel and nozzle IDs. The second coat completed the application to 46 mils total dry film thickness (DFT). A holiday test confirmed 100 percent coverage. Curran force-cured the equipment in Curran's shop oven, making the piece ready for immediate installation at the refinery.

## A Complete, Expert Shop

Curran's shop provides fast-turn coating with the discipline to expertly meet the recommended procedures of all coating manufacturers. The shop, which is convenient to all Gulf Coast refineries, also offers NACE-trained coating inspectors.

Make Curran International a part of your fixed equipment coating strategy; visit [www.curranintl.com/corrosion-resistant-coatings-applications](http://www.curranintl.com/corrosion-resistant-coatings-applications), or contact Ed Deely, [edeely@curranintl.com](mailto:edeely@curranintl.com), 281.339.9993.



Channel, with new pass plates welded-in, masked, and ready for Curran surface prep and coating.



Contrasting images of before and after Curran coating, generalized pitting found across channel and nozzle IDs.

# Curran Solutions Drive Efficiency, Reliability & Extend Valve Body Life

## More ID Coatings for All Process Environments

Curran International has seen an uptick in valve ID coatings. Clients are turning to Curran to provide internal protection to valve bodies and extend the life of the valve bodies. Curran offers a wide range of coatings equipped for all process environments.

## Machinable Coatings

Curran offers machinable coatings that mitigate erosion caused by flow velocity and turbulence. The application of these coatings, creates a sacrificial layer that protects the internal walls of the housing- prolonging the valve life. These coatings reduce turnaround downtime and valve replacement costs because the coatings can be reapplied during maintenance outages, saving time and money. These coatings restore the valve body internal walls that have been pitted and/or washed-out back to their original dimensions.

## Longer Life. Less Maintenance.

Curran thin-film coating systems eliminate the need to upgrade valves that see harsh corrosive services. Applying Curran's proprietary thin film coating creates a barrier that protects the ID from the corrosive effects of the process, while maintaining functionality of the valve. These coatings have had successful results in caustic/corrosive service-extending valve life and lengthening maintenance intervals.

Clients are also turning to Curran International for foul release coating of valve assemblies. With Curran's foul release applications, clients are seeing less restriction and product build-up due to the reduction of surface tension and lack of adhesion within the valve assembly. The application of these Curran Coatings maintains flow rates, creating efficiencies in production while reducing energy consumption throughout their systems.

Curran's solutions are helping clients maintain production rates, extend their equipment life cycles, reduce energy consumption, while also having a positive effect on the bottom line. With solutions for a range of harsh environments, Curran International has you covered.

**To Learn More** about Curran protective coating applications for valves, and other fixed equipment for refinery and petrochemical industries visit [www.curranintl.com/pressure-vessel-coating](http://www.curranintl.com/pressure-vessel-coating), or contact Thomas Briza, [tbriza@curranintl.com](mailto:tbriza@curranintl.com), 281.339.9993.



# Navigating Field Resources in the Times of Covid...and Post Ida...

## Adaptability. Agility. Persistence.

Being adaptable and agile helped Curran weather the season, as plant outages have been adjusted from planned schedules. On the Gulf Coast, recovery from seasonal tropical weather has shifted turnaround schedules, adding to the challenges of field staffing in this post-pandemic, re-catalyzed economy.

Hurricane Ida left many living in Louisiana with overwhelming obstacles to getting their lives back on track. Damage to some areas was devastating, and recovery will be measured as incremental progress, one day at a time.

## People – Good People!

The high demand for skilled labor and craft support cannot be understated. All contractors are feeling the effects of immediate demand for headcount in a labor market that is short on supply.

Curran has been on a mission to add to its field operations team:

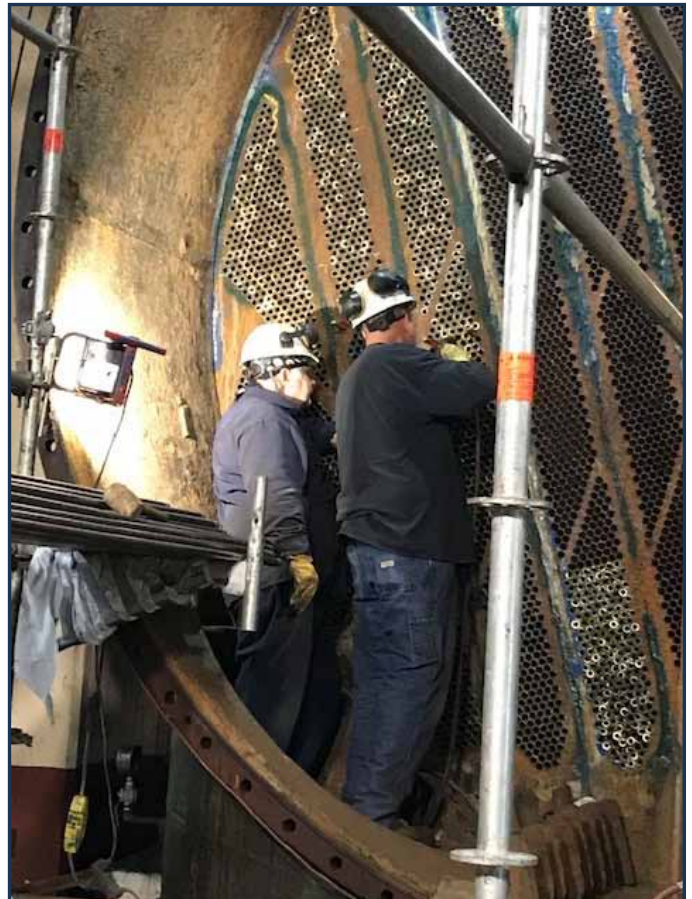
- Increased hiring campaigns since July, holding Curran Tools and Tech training days in August and September for newly hire technicians are part of this effort.
- Sponsoring employee industry training; supplemental OSHA training; Curran Safety Training continue.
- Cross-trained “contract” employees with industry partners has added additional personnel.
- Offering upgraded lodging arrangements for all field employees has been an effective incentive.

## Senior Management Focus

Curran management and the senior operations team have worked collectively day-to-day to optimize field deployments, and manage resources within the framework of existing contract agreements.

“It continues to be a highly-managed situation,” notes Alex Barre, Curran corporate vice president. “We are balancing the workload to support safe and productive field teams while meeting customer schedules. It’s an industry-wide challenge.” Mr. Barre continued, “Recruitment and training are ongoing!”

**To learn more** about Curran International field services, visit [www.curranintl.com](http://www.curranintl.com) or contact Ed Deely, [edeely@curranintl.com](mailto:edeely@curranintl.com), 281.339.9993.



OJT: Curran lead tube technician demonstrating techniques of power plant condenser retube

## Catch Curran

### We're Back!

To learn more about Curran Coatings and heat-transfer services that increase productivity and reduce downtime, please visit at these upcoming shows.

- AMPP Annual Conference + Expo 2022, March 6th to 10th, Henry B. Gonzalez Convention Center, San Antonio, Texas
- API 2022 Inspection & Mechanical Integrity Summit, August 9th to 11th, Henry B. Gonzalez Convention Center, San Antonio, Texas

See you soon!



American  
Petroleum  
Institute