

Curran International's New Website

You can learn about Curran's innovative solutions for efficient and reliable operations of heat exchangers.

You can also learn about:

- Quick Turnarounds
- Sleaving
- A Complete Array of Coatings
- Grit-blast ID Tube Cleaning
- Curran's Worldwide Services

To begin learning, [click here](#).



Catch Curran

API 2019 Inspection and Mechanical Integrity Summit

January 28-31

Galveston Island Convention Center, Galveston, TX



NACE Corrosion 2019 Conference and Expo

March 24-28

Music City Center, Nashville, TN



Curran Clean™ Exchangers for Predictable NDE and No Rework

Curran Clean is tube ID surface prep for NDE readiness

Curran Clean enables high-quality data collection for IRIS, RFT and ECT methods of exchanger inspections.

Curran Clean is vacuum-tight containment solutions that eliminate nuisance dust and waste.

Curran Clean means no tube cleaning rework!

For over 15 years, clients have used Curran dry-grit tube cleaning that ensure their exchangers pass the most rigid inspections.

A Midwest utility was having issues with a heavy and hard to remove layer of calcium carbonate (calcite) which had accumulated on the wall of their condenser tubes. Other companies, all using standard mechanical tube cleaning methods, had failed in numerous attempts to adequately clean this utility's condenser tubes.

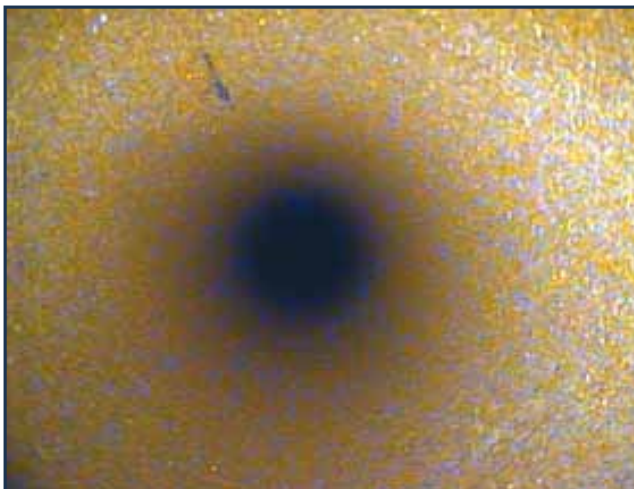
Curran's grit blasting technology put Midwest utility's condenser tubes back into operation, quickly- with an 85% cleanliness factor.



Tubes Before Curran Clean



Tubes after scraper cleaning



Tubes after media blasting

Customer Comments:

When asked about Curran's work, the utility's Plant Manager said, "The Curran crew was excellent. The scope inspection showed a good removal of the carbonate scale. I can't wait to see how back-pressure measurement will look."

Cleaning tubes for NDE in *First-Third*

Every year, Curran expends thousands of project-hours working plant turnarounds and maintenance projects. Tube cleaning for NDE prep in *First-Third* of turnaround schedule is a common expectation of Curran crews. It's in the *First-Third* of turnaround schedule to have quantified exchanger *discoveries* threatening reliability.

Curran has experience with air coolers, shell and tube exchangers, reactor boilers, sulfur condensers, waste heat boilers, tail gas units and steam condensers. Using proven procedures, Curran helps eliminate risk to fixed equipment integrity and helps ensure worker safety.

Tube cleanliness also contributes to return of heat transfer duty. The Curran Clean Method provides the best ID cleanliness for installation of full-length alloy liners. Curran Clean Method also provides NACE 1 *white metal* cleanliness for tube ID restoration coating application.



White metal clean ID; corroded exchanger tube in cooling water service

To learn more about Curran exchanger tube cleaning, please contact Ed Deely 281.339.9993; edeely@curranintl.com; www.curranintl.com

You Deserve Coatings that Last and Last

Curran Coatings

Too often plant fixed equipment suffers the consequences of short service life from a protective coating.

Discovery corrosion of exchanger channels, heads and bonnets as a result coating blisters, de-lamination, oxidation and under-deposit pitting, risks plant operating integrity.

Don't surrender, expect more!

Unplanned maintenance adds tasks to an outage schedule, and costs for repairs are commonly at expedited rates. Surrendering to the expectation that a coated component only will survive a single *turnaround* to *re-coat* is a low expectation and poor economic payoff.

Elements contributing to coating failure:

- Equipment operation outside of the coating's functional design
- Coating surface prep, application and inspection
- Subjecting uncured coating to immersion service

Know conditions, no early failure!

Selecting a coating to meet and exceed the functional requirements of all operating and maintenance conditions is the initial step to improving integrity of the application and service life. Unit on-line steam cycling and operations chemical cleaning must be considering for a coating to survive *all* conditions.

Another step is surface-preparation. Coating professionals attribute 70% of application success to surface prep. The coater must have the discipline to satisfy surface prep to NACE 1-clean blasted steel, ensure surface contaminants have been remediated, and reach the required anchor profile.

Even a well-applied coating will fail if returned to service before fully-polymerized.

While many coatings are tack-free to touch in less than four-hours, most epoxy coatings require more than 5 days to fully-cure at 70F.

Global client references

Curran high-functionality 100% solids novolac and hybrid coatings have been used in all cooling water services for many years. Curran experts are available for field or shop applications, and Curran coatings are available for industrial contractors' use.

Curran Coatings Selection Guide:

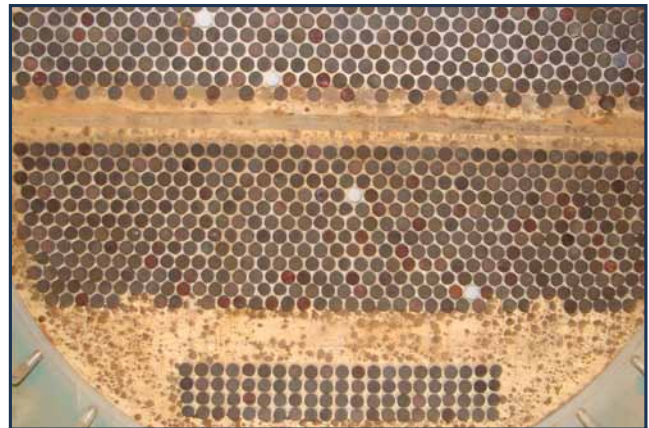
Curran 500 – Suitable for all power plant and chiller cooling water systems. Advanced two-part 100% solids epoxy, with versatile formulations. This high-build trowel applied material, can also be sprayed, and brush and roll-coated.

Curran 1000R – For high-temperature immersion service in cooling water, hydrocarbons and process streams. A cutting-edge, proven two-part 100% solids novolac epoxy, that can be brushed or rolled. Temperature-resistant in water, steam to 365F; tolerates excursions/steam outs to + 400F. Suitable for exchanger tube sheets.

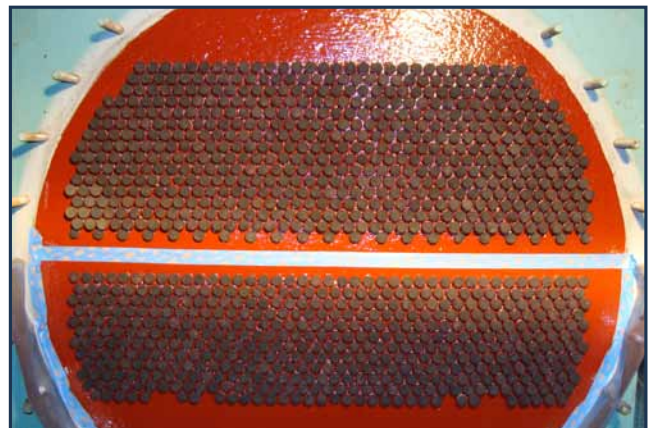
Curran 1200 – May be used in tanks and vessels in hydrocarbon and solvent services, water/steam immersion temperature resistance to 365F. A two-part 100% solids novolac epoxy formulated for high-volume coating applications. A single coat can be spray applied to 20-24 mils.

Curran 1500 – Used to repair corroded steel, formulated to provide resistance in *cold wall* services, pressurized Atlas Cell tested in DI water at 365F. When fully cured, 1500 is a machinable coating. A 100% solids hybrid novolac epoxy. Suitable for uninsulated vessels, channels, bonnets, restoration of flanges.

Contact Curran International, 281.339.9993. For US domestic, Ed Deely, edeely@curranintl.com. For Canada and outside of US Alex Barre abarre@curranintl.com.



Tubesheet before Curran 500 Coating.



After Curran 500 Coating; tubesheet is protected from galvanic corrosion, with tube and tubesheet crevice joints sealed.



Exchanger cooling water channel, protective coating was used to augment the use of anodes in corrosive cooling water service. Channel coating selection should consider *cold wall* risk, and exposure to high temperature excursions and steam out.

Curran Offers Broad and Deep Expertise

Curran Provides Cool-Headed Project Execution for Combustion Spraying of Alloy Coatings – more commonly known as Thermal Spray Applications (TSA).

While TSA is widely used for the protection of mild steel in atmospheric services, Curran has focused its TSA effort on internal coating of fixed equipment.

Using nickel, chrome, and precious metal alloys Curran has performed in-situ applications on tanks, drums and exchanger channels.

Electric Arc Application

Curran is skilled at electric arc application, in which a high AC voltage and amperage current similar to arc welding is used. Alloy wire is dual-fed to a combustion nozzle, where the wire is atomized into fine particles and sprayed onto the substrate using compressed air.

This method atomizes wire at higher temperatures and results in a denser deposition onto substrate. This creates a high-tensile adhesion strength.

Restoring Bearing Shaft

A recent application called for restoration of a 5-inch shaft, severely damaged when a bearing journal failed, leaving deep circumferential grooves. The client could not remove the shaft easily, and repairs were required in-situ. Challenges including

maintaining a contained hot-work area, sealing and protecting adjoining components from surface prep and overspray, and cleaning areas to be coated with operational lubricants.

After precleaning lubricants from the shaft and satisfying cleanliness inspection, grit blast surface prep achieved NACE 1 clean white metal surface prep – a requirement for all thermal spray applications.

The application called for 40-50 mils of a nickel / chrome / aluminum alloy as a finished repair coating. This material offers superior adhesion and surface hardness, and it is a machinable coating.

Teamwork to Coat and Machine

The Curran crew and a machining contractor worked together to complete multiple alloy applications and re-machining to satisfy dimensional specifications for the shaft repair. Work required hour-to-hour coordination to facilitate each unique discipline. The final step was polishing the repaired area.

Curran Can Meet Your Coating Specification for Shop and Field Thermal Spray Applications

Contact your Curran International sales rep to discuss your corrosion challenges and thermal spray coating applications and materials.

Please contact Ed Deely 281.339.9993; edeely@curranintl.com; www.curranintl.com



Shaft, circumferentially scored



Electric arc alloy applied



Application, machined and polished

Catch All the Exchanger Services in Curran's Brochure!

Curran is excited to announce a new capabilities brochure, in which you can learn about Curran's worldwide services, packaged coating products, and more.

[Here](#) is a downloadable file.

For a hard copy, please contact Ed Deely 281.339.9993, edeely@curranintl.com

