

Power generation

Comprehensive asset protection for power generation stations



SOLUTIONS FOR POWER GENERATION SINCE 1947

Carboline manufactures coatings, linings, and fireproofing materials that extend the service life of critical power generation assets while keeping workers safe.

Product types

- > Corrosion protection linings
- > Surface- and moisture-tolerant coatings
- > Safety coatings
- > Low-temperature and quick-cure coatings
- > Ultra-weatherable finishes
- > Chemical-resistant linings
- > Secondary containment coatings
- > High-temperature coatings
- > Coatings under insulation

Certifications and listings

- > Nuclear Regulatory Commission level 1
- > Underwriters Laboratories
- > National Sanitation Foundation
- > American Bureau of Shipping
- > Det Norske Veritas
- > NORSOK
- > Lloyd's Registry
- > ISO

Affiliations



Case history snapshot

The projects listed below demonstrate the versatility of Carboline's product portfolio, which is developed to provide premium corrosion protection and fire resistance to equipment and facility infrastructure anywhere in the world.

SOURCE	NAME	OWNER	ASSET(S) PROTECTED
FOSSIL FUEL	TIGAS Natural Gas Plant	Turkmengas	12,000 energy storage gas bags
	Birdsboro Power	EmberClear Corporation	Carbon steel tank shells
	Keys Energy Services Plant	Florida Municipal Power Agency	6,500 ft ² ferrous metal exterior stack components
	Shamokin Dam	Panda Power	Generators & stacks, electrical room floor (concrete), water building, chemical unloading pads (concrete), secondary containment in demineralized water building (concrete)
	La Cygne Power Plant	KCPL	2 ferrous metal condensation tanks (int + ext)
	Barney Davis Power Plant	Topaz Energy	10,000 ft ² steel exterior
	Bobby C. Smith Energy Facility	Oglethorpe Power - Effingham County Power	Concrete cooling water tower basin
	Khor Alzubair Power Plant	Ministry of Electricity	1,000 m ² carbon steel piping
	Alabama Power - Martin Lake	Southern Company	Steel stoplogs and dam gates
	Camden Power Station	Eskom	2,000 m ² carbon steel piping
NUCLEAR	Atucha Nuclear Power Plant (Units I & II)	Comisión Nacional de Energía Atómica	1,000-liter steel tanks 25,000 m ² exterior steel, 35,000 m ² concrete walls, piping, equipment, floors
	DTE Fermi II Nuclear Facility	DTE	Facility floors and walls
	Alvin W. Vogtle Electric Generating Plant	Georgia Power	2 steel nuclear reactors (units 3 & 4)
	Haiyang Nuclear Power Plant	Shandong Nuclear Power Company Ltd	Steel & concrete pressurized water reactors
	Ameren Callaway Nuclear Plant	Ameren Energy	20,000-30,000 ft concrete floor
	Exelon Nuclear Power Plant	Exelon Corp	300,000 ft ² concrete exterior holding ponds
HYDROELECTRIC	(El Chaparral) Central Hidroeléctrica 3 de Febrero	ENEL	1000 m ² ferrous metal piping
	Keeyask Super Structure	Manitoba Hydro	Structural carbon steel
	Iwaya Dam	Chubu Electric Power Co., Inc.	300 m ² steel penstock
	Little River Dam	City of Durham, NC	Steel exterior coating
	California Aqueduct	DWR & Kern County Water Agency	Interior/exterior steel cofferdam
	Somerset Dam Power Station	Seqwater	8 steel sluice gates, steel tunnel

ATMOSPHERIC EXPOSURES

Structural steel, piping, and equipment

Product series described below are suitable for all power plant structural steel, plus piping and equipment operating up to 250°F (121°C) and exposed to a variety of pollutants, normal weathering, and ultraviolet radiation.

Corrosion-inhibitive and chemical-resistant coatings

Carbozinc® series zinc-rich coatings offer outstanding performance in power plant environments, demonstrating excellent galvanic corrosion protection and longevity to match the life of the structure.

The **Armorlast**® two-coat inorganic corrosion protection system for structural steel meets or exceeds the performance of galvanizing and metalizing while generating significant cost and schedule savings.

Carbomastic® series surface-tolerant epoxies apply well over marginally prepared substrates, can be applied over damp surfaces, and some can cure at low temperatures for year-round painting in challenging conditions.

Rustbond® series surface-tolerant epoxy primers/sealers feature excellent wetting properties and demonstrate outstanding adhesion to existing coatings. They accept a variety of topcoats.

Carboguard® series epoxies feature excellent barrier properties and strong chemical resistance. These flexible solutions are easy to apply and are suitable over zinc-rich primers, or applied directly to metal or cementitious substrates.

Durable finish solutions

Carbothane® series high-performance urethane finishes offer long-term weather resistance, excellent color and gloss retention, and chemical resistance to splashes and spills.

Carboxane® series polysiloxane finishes are ultra-weatherable and provide outstanding long-term color and gloss retention owing to UV-resistant formulas.

Novel emergency maintenance hybrid coating

Carboline's **Carbothane DTM Mastic** is a hybrid urethane formula with mastic properties developed specifically for emergency maintenance or rapid-turnaround coating projects. It applies directly to metal, including marginally prepared surfaces, while also demonstrating good weathering and UV resistance.



Piping and process equipment

Product series below are suitable for a wide range of service exposures and operating temperatures ranging from ambient up to 1,000°F (538°C).

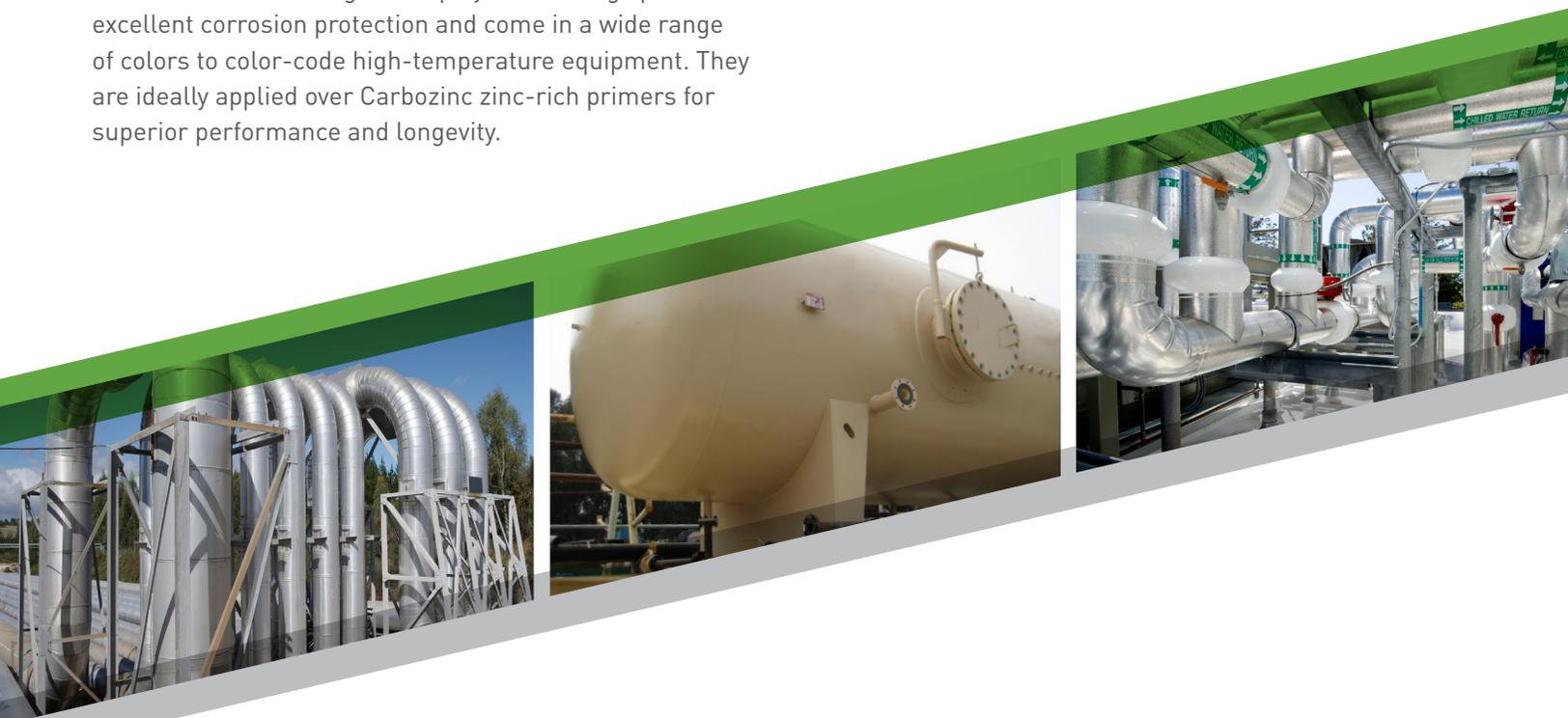
Uninsulated steel up to 1,000°F (538°C)

Carbozinc series coatings offer exceptional corrosion protection and are stable at very high temperatures. They perform very well over steel substrates during downtime or thermal cycling events where the risk of corrosion of unprotected steel is very high.

Thermaline® series high-heat polymer coatings provide excellent corrosion protection and come in a wide range of colors to color-code high-temperature equipment. They are ideally applied over Carbozinc zinc-rich primers for superior performance and longevity.

Worker protection and insulation up to 350°F (177°C)

Carbotherm® series composite coatings feature temperature-resistant epoxy or acrylic binders and are ideal for providing heat barriers that protect workers in proximity to hot surfaces. They also inhibit transfer through surfaces to reduce energy consumption.



Coatings under insulation

High-temperature piping or equipment is often insulated to protect workers or conserve energy. But moisture or chemicals are likely to eventually breach the insulation and accelerate corrosion unless the underlying asset is protected. Under-insulation coatings described below are formulated to resist aggressive chemicals as well as thermal and wet-dry cycling.

Insulated metal up to 300°F (148°C)

Carboguard series epoxies demonstrate outstanding barrier properties against moisture and are moderately chemical-resistant.

Carbomastic aluminum pigment coatings are ideal for application over marginally prepared surfaces and provide excellent moisture and chemical protection to insulated steel.

Insulated metal up to 1,200°F (650°C)

Thermaline series coatings provide ultimate chemical resistance and corrosion under insulation (CUI) protection in thermal cycling or wet-dry cycling events. This versatile series includes modified epoxy phenolic, glass-flake reinforced epoxy novolac, inorganic polymer, silicone, and zinc-rich technologies.

LININGS AND SECONDARY CONTAINMENT

Protecting tanks and pipe infrastructure

Protecting the storage tanks and piping common across all power generation plants is crucial to providing reliable energy supplies. Product series described below are lab-tested and field-proven to protect these essential assets.

Resisting water, fuels, and harsh chemicals

Carboguard series epoxy linings perform well in tanks or pipelines that carry moderately corrosive fluids like water or mild chemicals at near-ambient temperatures.

Phenoline® series epoxy and modified epoxy linings offer excellent protection against a wide variety of contents including demineralized water, fuels, caustic solutions, and more.

Plasite® series specialty high-performance linings protect against severe and aggressive chemical exposures in high-pressure and higher-temperature service conditions. Single-coat, high-build, solvent-free, and fast-cure variants are available for rapid-return-to-service.



Concrete repair and secondary containment

Secondary containment of chemicals, wastewater, fuels, or other compounds in power plants is required by law, presenting owners with the challenge of protecting concrete substrates in the event of a spill. Series described below were developed especially for these complex scenarios.

Semstone® series products consist of epoxy- and vinyl ester-based technologies forming the backbone of aggregate-filled or other reinforced systems that withstand aggressive chemical exposure and mechanical abuse.

Reactamine® series elastomeric polyureas and hybrids feature excellent elongation and crack bridging properties and offer outstanding protection against a wide range of fuels, chemicals, and wastewater.

Structural steel fire protection

Passive fire protection is instrumental to protecting people and infrastructure in the event of a fire. Carboline manufactures both epoxy intumescent and cementitious fire resistive materials with hydrocarbon pool and jet fire ratings suitable for rapid-rise and overpressure scenarios.

Cementitious

Pyrocrete[®] series medium- and high-density, exterior-grade cementitious fire-resistive materials withstand hydrocarbon pool and jet fires, and additionally provide cryogenic spill protection for assets in proximity to liquefied natural gas (LNG).

Intumescent

Thermo-Lag[®] series epoxy intumescent products meet the power industry's required hydrocarbon fire ratings for structural steel in a lower-build, lower-weight, and more visually appealing alternative to cementitious materials.



GLOBAL COATINGS LEADERS™

RIGHT PEOPLE • RIGHT PRODUCTS • RIGHT LOCATIONS

Exceptional products.
Superior technical guidance.

Advancing a more durable, resilient, and sustainable built environment since 1947.

1947

Since 1947, we have been dedicated to delivering innovative coatings, linings, and fireproofing products. We are driven to provide the best solutions, service, and quality to our customers.



Our customers can be confident that behind every sale is a team of some of the most well-respected members of the industry, dedicated and determined to make your project a success.



Our global network of industrial service centers and distribution points are strategically located around the world to provide the highest level of service and support for your project.



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