



VALUE-ADDED HEATING SOLUTIONS FOR MINING AND MINERAL PROCESSING

More than ten million years ago heat was the catalyst, together with intense pressure, that formed precious deposits in the earth's crust. Today, heat plays a vital role in the mining and extraction of these minerals.

Chromalox provides advanced thermal technologies for more processes throughout the world than anyone, with the broadest product line and experience unmatched in the industry. We furnish full design and engineering for virtually any electric process heat and control operation. We complete the package with customized services ranging from startup and training, to ongoing maintenance diagnostics, to emergency response — all based on complete knowledge of your components, parts, and systems.

Let Chromalox be your catalyst for putting heat exactly where you need it.

- ▶ We are the only company that can deliver both temperature management solutions and process heating solutions.
- ▶ We have experience with more industrial processes than any other company, both with end markets and applications.
- ▶ We are more vertically integrated than any other company. From component technologies up through site services, there is more Intellectual Property and know-how delivered organically by Chromalox than anyone.
- ▶ Chromalox has the largest team of localized technical sales engineers providing customers with individualized custom heating solutions.



CHROMALOX WORLDWIDE LOCATIONS



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- Manufacturing Facilities

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MINING AND MINERAL PROCESSING

1 SOLVENT EXTRACTION / SEPARATION TANKS

Flange and screwplug style immersion heaters are used to warm process fluid to float precious metal for process separation.

2 ACIDS, CAUSTIC, AND AMINE SOLUTIONS

Tank heaters and silicone heaters are used to externally heat corrosive solution for freeze protection.

3 RAFFINATE, CYANIDE, AND COPPER SULFIDE

Replaceable element LTFX and STFX tank heaters are used to maintain proper process temperatures of aqueous solutions.

4 WATER CALORIFIERS

Flanged immersion heaters are used to heat potable water for onsite utilities such as showers or wash down systems.

5 HOPPER MOISTURE MITIGATION

Side heating hopper heaters are used to reduce moisture to ensure free flow of materials.

6 CRANKCASE / MOTORS / STANDBY GENERATORS

Silicone laminate and cartridge heaters warm lubricating oils in engine components and rolling mills for proper operation during startup.

7 MOISTURE REMEDIATION / FREEZE PROTECTION

Panel enclosure heaters prevent moisture collection from cold climate environments in control panels, switchgear, equipment housings, storage sheds, and compressor enclosures.

8 BUILDING ROOF DE-ICING / SNOW MELT

Heat trace prevents accumulation of snow on roofs of housing, warehouses, truck shops, and fabrication shops.

9 WASHING / TRANSPORTATION STATIONS

Embedded mineral-insulated cable prevents ice formation on cement floors for safe truck travel.

10 STEAM PIPING NETWORK

MI cable maintains temperature on high temperature steam piping.

11 PIPELINE FREEZE PROTECTION

Heat trace and MI cable provides pipeline freeze protection for waste water, potable water, and process piping lines.

12 SLURRY MIXTURES

Long-line heat tracing and skin-effect heating provides long-line freeze protection to send mixtures to processing plant.

13 WORKER ON-SITE HOUSING

Blower, convection, and radiant heaters provide comfortable temperatures for living and work quarters.

14 MOISTURE REMEDIATION / FREEZE PROTECTION

Industrial unit and radiant heaters prevent moisture and ice formation on conveyor systems.

15 PERSONNEL COMFORT HEATING

Comfort and radiant heaters provide personnel warming in open-air like shops, warehouses, and loading ramps.

16 SHAFT INTAKE AIR

In-line duct heaters are used to dry out and warm air for circulation throughout the mining complex.

17 HOT GAS GENERATION

Duct and radiant heaters are used to heat air for drying out of minerals such as apatite, copper concentrate, coal, or other aggregates.

18 ROTARY DRYER AND JACKETED VESSELS

Heat transfer systems drive off moisture from slurry mixtures such as molybdenum and prepare the ore for further processing.

19 FUEL GAS HEATING

Circulation heaters provide rapid heat up for start-up on natural gas and liquid fuel-fired power generator turbines.

20 STEAM COILS

Electric boilers are used to quickly generate steam for heating coils and auxiliary steam supplies.

21 SERVICE AND MAINTENANCE

Regular service visits ensure optimal operating conditions and help predict needed replacements.



IMMERSION HEATERS

Immersion heaters can be installed directly in process media such as water, oil, solvents, viscous solutions, and gas streams. Units operate at nearly 100% efficiency and offer a compact heating solution. Common heater installation methods are flanged, threaded, or over-the-side designs, with a wide selection of materials such as copper, carbon steel, stainless steel, or INCOLOY®. Moisture- and explosion-proof terminal enclosures along with IEC, ATEX, and CSA are also options.

HEAT TRACE AND CONTROLS

Provides freeze protection and counteracts heat loss from process equipment and piping, and prevents increase of product viscosity. Complete line of heat trace cable and installation kits available. Temperature control solutions include programmable, microprocessor-based, 1- to 72-circuit systems, and fully integrated wireless sensing and remote circuit monitoring and management of up to thousands of circuits across multiple panels.

CONTROL SYSTEMS

Chromalox is the only electric heating equipment producer offering a complete line of discrete temperature and advanced SCR power controllers, and sophisticated control panel systems and accessories to efficiently manage the most basic to the most complex and demanding heating applications. Our C2i™ technology integrates and manages these controls as part of an enterprise-wide intelligent network of temperature sensing, process heating, and temperature management.

DIRECTCONNECT™ MEDIUM VOLTAGE SYSTEMS

Chromalox DirectConnect™ medium voltage electric heating systems (up to 7,200 V) for heating applications greater than 1,000 kW (3.4 MMBtu/h). Reduces installation costs by up to 90%. Provides heater efficiency to nearly 99%. Controls heat to within 1° F. Minimizes yearly maintenance to a few hours. Available in many of our process heaters, control panels, boilers, and heat transfer systems.

HAZARDOUS-LOCATION AIR HEATERS

Fan-forced and convection air heaters provide fast, efficient, economical heat for hazardous areas cleanly and safely. Heavy-duty construction for long, dependable service. Selections from our XtremeDuty™ platform are designed for particularly harsh areas. Units are offered with multiple third-party certifications and can be wall- or ceiling-mounted.

LARGE-TANK HEATING SYSTEMS

Chromalox offers four electric heating systems for above- and below-ground storage tanks. They feature a unique replaceable-element design whereby the heating elements can be removed and replaced without draining the tank. Very little upkeep is required, making them practically maintenance-free. When combined with temperature controls, power controls, and safety monitoring they provide complete tank heating systems.

