

# HPC<sup>®</sup> COATING

- Replaces Wrap and Jacketing
- Eliminates CUI
- Applies while operating up to 1250°F (676°C)
- Easy to Repair



Maximize energy efficiency with a coating designed to insulate every surface.





# HPC® COATING

## Maintain Optimum Temperatures and Insulation Performance



*HPC® Coating retains heat over longer distances than traditional insulation systems, effectively reducing emissions and promoting energy efficiency.*

*HPC® Coating is a cost-effective, adaptive solution for industries because of its ability to conform to valves and elbow joints of many systems.*

For industries that depend on optimum heating systems, HPC® Coating presents an innovative and efficient solution. HPC® Coating is formulated to prevent the loss of conductive and convective heat from pipe and vessel surfaces.

This capability increases the overall heat of any fluid or gas within a pipe or vessel and allows the process to operate more efficiently. HPC® Coating will hold heat

in a “transmission pipe” for longer distances than traditional insulation systems and will effectively will hold interior temperatures and reduce emissions for a hotter burn.

HPC® Coating can be applied to a variety of surfaces with temperatures up to 1250°F (676°C) – in some cases higher – such as steam pipes, hot gas pipes, and oil or gas transmission pipes.

HPC® Coating replaces fibrous

wraps and blankets and stops CUI from ever developing.

In today’s age of increasing energy efficiencies, industries need innovative, high-heat solutions that will stand the test of time. Implement the performance capabilities of HPC® Coating in your systems today, and see why so many industries are choosing to switch to HPC® Coating to reduce energy and maintenance costs for the foreseeable future.

## HPC® COATING VS. TRADITIONAL PIPE INSULATION

### HPC® Coating

HPC® Coating has been designed with light weight, low-density ceramics developed in cooperation with NASA in the early ‘90’s. This composition gives HPC® Coating a unique ability to reduce heat loss in a variety of industries that depend on high-heat efficiency. Traditional pipe insulation presents numerous inefficiencies and only slows

the conductive heat transfer process because it contains small pockets of air. With HPC® Coating, heat loss is controlled by the light weight, low-density ceramics which results in more heat being held on the surface and increased temperature/pressure on the inside the pipe or vessel.

### Traditional Pipe Insulation

Traditional pipe insulation continually suffers from costly

maintenance in large industrial piping systems. By absorbing air and moisture, traditional pipe insulation systems deteriorate rapidly, lose insulation performance, and cause CUI. In addition, the inability of traditional pipe insulation to cover and seal the joints and elbows of various systems also presents gaps in protection for industries that depend on high heat efficiency.

## REPLACE WRAP AND JACKETING WITH HPC® COATING AND STOP CUI

	Rockwool/Fiberglass	HPC® Coating
Installation	Shut down during install and repair.	Applied while operating. No shut down required.
Insulation Effect	Deteriorates when wet. Valves and elbows not wrapped effectively.	Insulates permanently. Insulates valves and elbows.
Crack Detection	Entire jacket must be removed.	Inspected directly on spot. Easily repaired.
Condensation	High due to wetting of Rockwool/Fiberglass.	No condensation from HPC® Coating.
Corrosion	Allows air and moisture penetration. CUI develops rapidly.	Applied directly to and seals surface. Eliminates CUI.
Repair and Maintenance	High maintenance. Must shut down. High cost of repair and loss of production time.	Low maintenance. Applied without shut down. Only affected area needs repair.





# HPC® COATING

The solution for preventing Corrosion Under Insulation (CUI)



**C**orrosion will always develop under insulation with a wrap and cladding, blanket, or metal jacketing system. Chlorides (salts) are present within the raw material makeup of the wrap itself, and these salts promote corrosion. Metal jacketing was “never” air tight or moisture resistant. As a result air, humidity and moisture absorb into and penetrate through the wrap destroying its insulation performance and causing

corrosion to develop on the metal surface under the wrap – a condition that is consistently seen in the field.

HPC® Coating is sprayed directly on the surface of the pipe, tank, valve or elbow (virtually any configuration) to completely seal and insulate 100% of the surface without leaving air gaps between the insulation and the surface that allows air and moisture penetration and causes corrosion. HPC® Coating is a water-based, non-toxic

coating that insulates up to and beyond 1250°F (676°C) and is applied while the pipe or tank is operating without a shutdown. HPC® Coating seals the surface from air and moisture and eliminates corrosion development.

Traditional insulation systems allow all of the heat on the surface to be absorbed into and migrate through the insulation material and escape into the surrounding atmosphere – an antiquated concept that does not meet

the requirements of a true insulation.

HPC® Coating is designed to HOLD heat on the surface and to BLOCK heat loss causing the internal temperature or the pressure of the pipe or tank to increase. Holding heat on the surface increases energy efficiency by as much as 80% and eliminates CUI, which is the most costly maintenance problem around the world.



# HPC® COATING IN ACTION

HPC® Coating is used all over the world across a wide variety of industries. It's application process helps industries see immediate results upon adoption. With HPC® Coating, you can refurbish and renew systems in need of serious repair.

See how the companies represented here have made simple improvements with HPC® Coating that continue to make all the difference.

## LG Chemical



*Incinerator before HPC® Coating application was 180°C (356°F).*



*Incinerator after HPC® Coating application was 50°C (122°F).*

## Gazprom Oil



*Before HPC® Coating application 463°C (865.4°F).*



*After HPC® Coating application 36°C (96.8°F).*

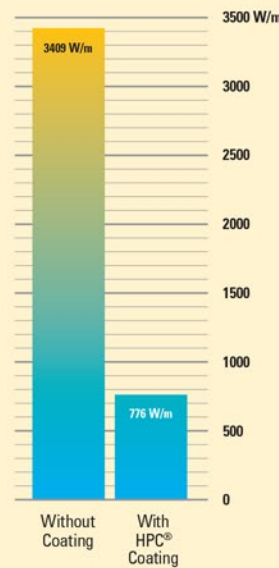


*This pipe surface was 467°C (872°F) before coating. These men were able to touch the pipe after only 25mm (1") of HPC® Coating was applied.*

## Siberian Winter Experiments

- Without coating, heat loss reached 3409 W/m.
- With HPC® Coating applied, heat loss diminished to 776 W/m, a decrease of 77.3%.

*Heat Loss from Un-Insulated v. HPC® Coating Insulated Surface*



## Cold Testing

- HPC® Coating was tested under rigorous cold temperatures for 12 hours with no main heat source.
- Surface temperatures after HPC® Coating was applied increased to 838°F.

## Steel Factory Testing

- Original surface temperatures before HPC® Coating were 500°F.
- After HPC® Coating was applied surface temperatures increased to 838°F. This shows how well HPC® holds the temperature on the surface of the pipe and increases the pipe surface and interior temperature of the pipe by +338°F. This is the amount of heat loss that traditional insulation would allow to quickly absorb, leave the surface and flow through the air pockets to escape. Losing 338°F is huge when the operation is based on certain heat levels being maintained. This is

## Top Companies using HPC® Coating

- LG Chemical
- Drydocks World
- Vancouver Shipyards
- Gazprom Oil
- Ecopetrol
- Saipem, S.P.A.
- Pemex Oil
- Formosa Plastics Corporation



*HPC® Coating has been designed with low-density ceramics developed in cooperation with NASA.*



*HPC® Coating prevents the absorption of air and moisture, effectively blocking corrosion in ways that traditional insulation cannot.*



# HPC® COATING CASE STORY

Italian Petrochemical Plant



*Exposed antiquated insulation.*



*Pipe system before HPC® Coating, extensive CUI.*



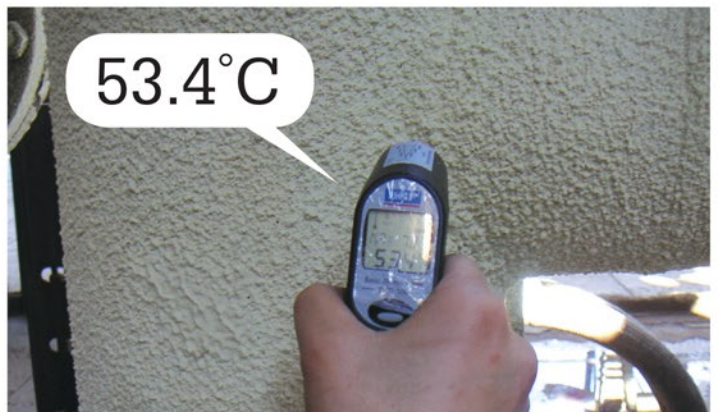
*Temperature on the pipe before HPC® Coating was 415.4°F.*



*Phase of HPC® Coating application.*



*Finished multi-shared HPC® Coating application.*



*Temperature after HPC® Coating application 128.12°F.*