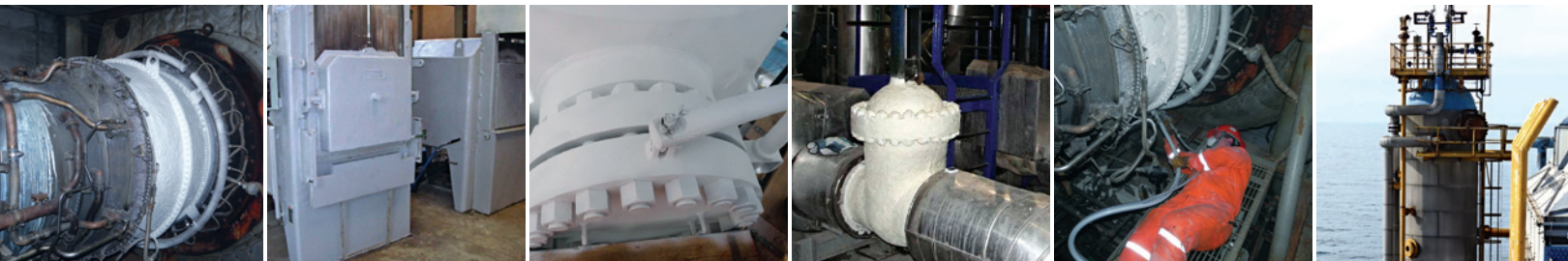


HPC[®] COATING

- Replaces Wrap and Jacketing
- Eliminates CUI
- Applied While Operating up to 900°F (482°C)
- Easy to Repair



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



HPC® COATING

The solution for preventing Corrosion Under Insulation (CUI)



Corrosion 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 seen consistently 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. With HPC® Coating, there are no air gaps between the insulation and the surface to allow air and moisture penetration causing corrosion. HPC® Coating is a water-based, non-toxic coating that insulates up to 900°F (482°C) internal temperatures. It is applied while the pipe, tank or vessel is operating, without need of a shutdown. HPC® Coating can be applied at the required thickness

necessary to reduce the surface temperature of the coating to 140°F (60°C), thus providing safety protection. HPC® Coating (with an approved topcoat) seals the surface from moisture infiltration and eliminates CUI development, which is currently the most costly maintenance problem around the world.

Traditional insulation systems allow all of the heat on the surface to be absorbed into and migrate through the insulation material and to 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 hot surface and BLOCK heat loss. HPC® Coating maintains the desired temperature “inside” the pipe, vessel or unit being coated. After application, the coated external skin temperature increases and will closely match the internal temperature. Maintaining the skin temperature greatly reduces the loss of heat and can increase energy efficiency by as much as 80%. HPC® Coating can also insulate cold surfaces to keep heat out with the use of proper application procedures.

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 solution for industries because of its ability to conform to and insulate valves and elbow joints.

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 maintains 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 maintain interior temperatures and reduce emissions for a hotter burn.

HPC® Coating can be applied to a variety of surfaces with interior temperatures up to 900°F (482°C), such as steam pipes, hot gas pipes, hot storage tanks 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 was designed with lightweight, low-density ceramics developed in cooperation with NASA in the early '90s. These unique materials give HPC® Coating the 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 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 valves, joints and elbows of various systems also creates gaps in protection for industries that depend on high heat efficiency.

REPLACE WRAP AND JACKETING WITH HPC® COATING AND ELIMINATE CUI

	Rockwool/Fiberglass	HPC® Coating
Installation	Shutdown during install and repair	Applied while operating; no shutdown required.
Insulation Effect	Deteriorates when wet. Valves and elbows not wrapped effectively	Does not deteriorate in normal usage. Insulates valves and elbows.
Crack Detection	Entire jacket must be removed.	Inspected directly on spot; easily repaired.
Condensation	High due to absorption and trapping of moisture	No condensation with HPC® Coating.
Corrosion	Allows air and moisture penetration; CUI develops rapidly.	Applies directly over hot surfaces creating a “fully adhered” casting which eliminates CUI
Repair and Maintenance	High maintenance, must shutdown; high cost of repair and loss of production time.	Low maintenance; inspections performed without shutdowns; easy to maintain and repair.



HPC® COATING CASE STORY

Italian Petrochemical Plant



Exposed traditional wrap and cladding insulation



Pipe system before HPC® Coating application, showing extensive CUI



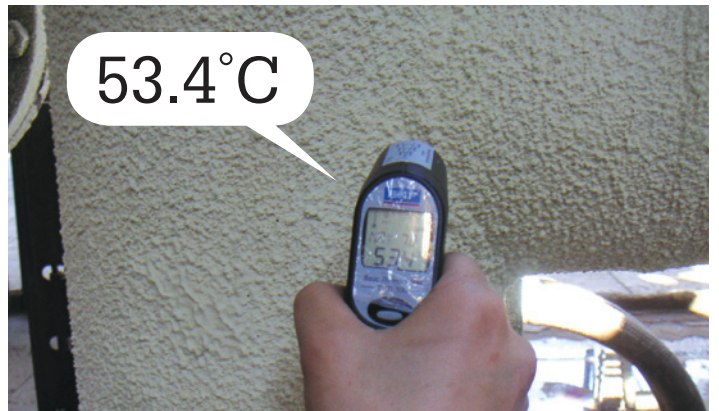
Temperature on the pipe before HPC® Coating was 415.4°F



Phase of HPC® Coating application



Finished HPC® Coating application



Temperature after HPC® Coating application was 128.12°F

HPC® COATING IN ACTION

HPC® Coating is being used all over the world across a wide variety of industries. The results are immediate with HPC® Coating because the application process is quick and easy. 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 produce long-term benefits.

LG Chemical



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



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

Gazprom Oil



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



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

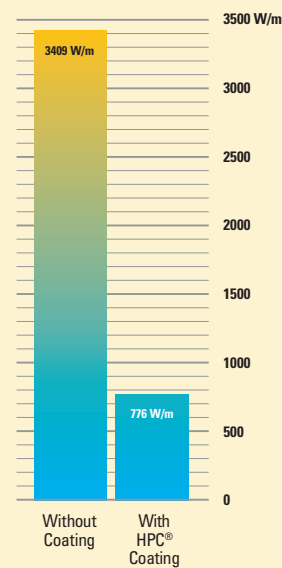


This pipe surface was 872°F (467°C) before coating. These men were able to touch the pipe after only 25mm (1") of HPC® Coating was applied. Additional coating thickness was added to complete the project for long-term performance and durability.

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® Coating held the temperature on the surface of the pipe and increased the pipe surface and interior temperature by +338°F. This is the amount of heat loss that traditional insulation would have allowed to quickly absorb, leave the surface and flow through the air pockets to escape. Losing 338°F is significant when the operation is based on certain heat levels being maintained. This is the point about using HPC® Coating to replace traditional air pocket systems that allow heat to immediately escape off the surface.

Top Companies using HPC® Coating

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



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

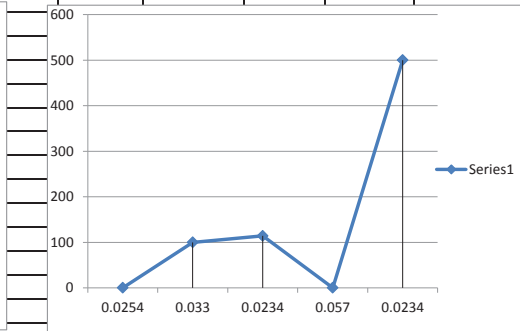
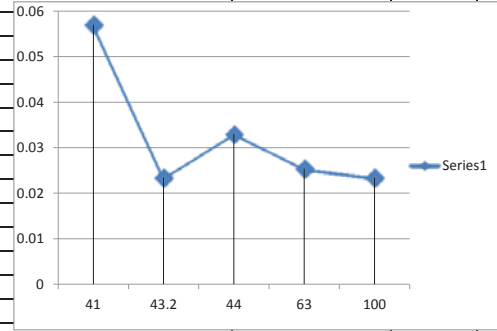


HPC® Coating prevents the absorption of air and moisture, effectively blocking corrosion in ways that traditional insulation cannot.

Коэффициент теплопроводности материалов SPI по результатам применения в России.

Conductivity coefficients of SPI products by results of usage in Russia

Наименование объекта	Предмет изоляции	Материал	Ди, мм	Токр.ср.	Тнеизол.	Тиз., °C	Биз.,мм	λ, (Вт/(м°C))	ΔТ, °C
Name of the company and city	Object of insulation	Insul. Mat.	OD, mm	T amb., °C	T no ins., °C	T ins., °C	δ ins., mm	λ, (W/(m°C))	ΔT, °C
Магнитогорск, МП "Трест Теплофикация", котельная	Трубопровод	HSC	500	20	97.3	54.1	3	0.0234	43.2
Magnitogorsk, MP "TT", boiler plant	Pipeline	HSC	500	20	97.3	54.1	3	0.0234	43.2
ОАО "УралХимМаш", котельная	Трубопровод	HSC	114	19.5	164	64	5	0.0234	100
OAO "UralChimMash", boiler plant	Pipeline	HSC	114	19.5	164	64	5	0.0234	100
Тепловой узел Кагальницкого молзавода, Ростов	Трубопровод	HSC	32(50)	26.9	125	62	4	0.0254	63
Kagalnitskii milkfactory, Rostov	Pipeline	HSC	32(50)	26.9	125	62	4	0.0254	63
Новошахтинск, ГБ № 1	Трубопровод	HSC	100	0	59	15	4	0.033	44
Novoshachtinsk, GB № 1	Pipeline	HSC	100	0	59	15	4	0.033	44
Газпром добыча Ямбург	Фасонные части	HPC	-	25	151	71	7.5	0.0376	80
Gazprom, Yamburg	Different Vessels	HPC	-	25	151	71	7.5	0.0376	80
Газпром Трансгаз, Самара	Фасонные части	HPC	-	98	394.4	140	7	0.011	254.4
Gazprom Transgas, Samara	Different Vessels	HPC	-	98	394.4	140	7	0.011	254.4
Газпром Трансгаз Самара	Фасонные части	HPC	-	98	394.4	110	20	0.0075	284.4
Gazprom Transgas, Samara	Different Vessels	HPC	-	98	394.4	110	20	0.0075	284.4
Астрахань	Трубопровод	HSC	159(5)	3	68	27	5	0.057	41
Astrakhan	Pipeline	HSC	159(5)	3	68	27	5	0.057	41



SUPERIOR PRODUCTS INTERNATIONAL PRESENCE

Asia	Europe	Middle East	South America	Central America	Africa	Australasia	North America
China	Azerbaijan	Oman	Argentina	Panama	Angola	Australia	Canada
India	Belgium	Saudi Arabia	Brazil	Puerto Rico	Egypt	New Zealand	Mexico
Indonesia	France	UAE	Chile		Nigeria		U.S.A.
Japan	Germany		Colombia		South Africa		
Korea	Greece		Venezuela		Tanzania		
Malaysia	Italy						
Singapore	Netherlands						
Taiwan	Poland						
	Russia						
	Spain						
	Turkey						
	Ukraine						



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