PPG PITT-CHAR® NX

Our next generation flexible fire protection and cryogenic spill protection system

Trusted and proven technology that is safer, tougher, thinner, lighter, faster.

Enhanced durability verified by doubling UL 2431 conditioning environment exposures, without topcoat

PPG PITT-CHAR® NX

Proven and durable technology

PPG PITT-CHAR NX is our trusted flexible epoxy intumescent Passive Fire Protection (PFP) coating system designed to resist severe hazards such as cryogenic spills, hydrocarbon pool fires, jet fires and explosions. Exceptionally tough, it is resilient to the extremes of both onshore and offshore environments while being thin and lightweight, reducing costs and allowing significantly faster application.

Flexible, even at low temperatures, PITT-CHAR NX eliminates the risk of cracking and delamination during fabrication, transportation and construction. Tough and dependable performance against weathering with outstanding corrosion protection throughout the asset's lifetime.

Building on proven technology and expertise

Owners and operators of oil, gas and petrochemical facilities require durable and effective fire protection solutions that can be relied upon to provide the required protection throughout the operating life of the plant. For over 35 years, PPG's PITT-CHAR technology has been trusted to safeguard personnel, structures and equipment in hazardous environments around the world.

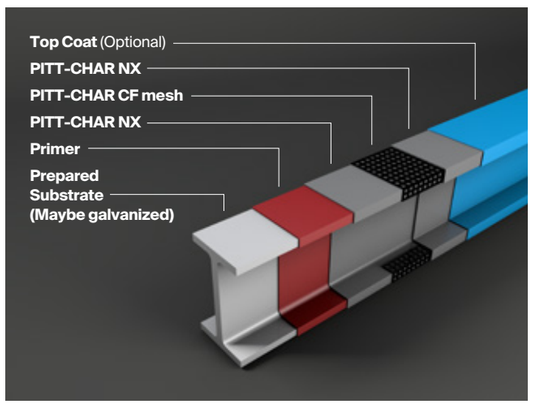
Building on this track record and developed in our state-of-the-art laboratories, PITT-CHAR NX will continue to help protect safety and environmentally critical elements, while bringing value and efficiencies to your project.

Meeting the challenges of today's project requirements

The oil and gas industries are facing ever more complex fire scenarios that can potentially involve cryogenic spills, pool and jet fires and explosions in both onshore or offshore environments. New test standards and more stringent testing requirements are continually being developed, requiring products that are safer and tougher to be developed.

The emergence of the Liquefied Natural Gas (LNG) market has brought new challenges and requirements for PFP products as they are now expected to provide cryogenic spill protection (CSP) as well. PITT-CHAR NX has been extensively tested and is certified to the latest ISO 20088 standard, meaning one system can provide complete protection for these projects.

Additionally, off-site fabrication is quickly becoming the popular approach for construction. While this is generally more cost-effective, it does add unique challenges. Before they are assembled on-site, pre-fabricated steel sections travel long distances, sometimes across continents, and in vastly varying climatic conditions. Any damage to the PFP coating can impact its ability to perform effectively when the structure is in service or result in expensive repairs and potential delays to start-up.



PPG PITT-CHAR NX System

PITT-CHAR NX offers the solution. Not only is it fast to apply and capable of protecting against the full range of hydrocarbon hazards, its flexibility prevents the cracking and delaminating risks associated with traditional PFP coatings such as concrete, "lightweight" cementitious systems and rigid epoxy coatings. This unique flexibility, being tough yet flexible, also reduces impact and abrasion damage during installation and commissioning. Once in service, it provides long-term durability, even under severe temperature cycling and mechanical stresses, ensuring its performance is maintained throughout the life of the asset.

PITT-CHAR NX system: How it works

When exposed to the high temperatures of the fire, PITT-CHAR NX expands to form a robust, insulating char that significantly reduces the rate of heat up of the protected item. The insulation maintains steel integrity, and hence buys crucial time for personnel to escape and safety critical structures and equipment to function on demand.

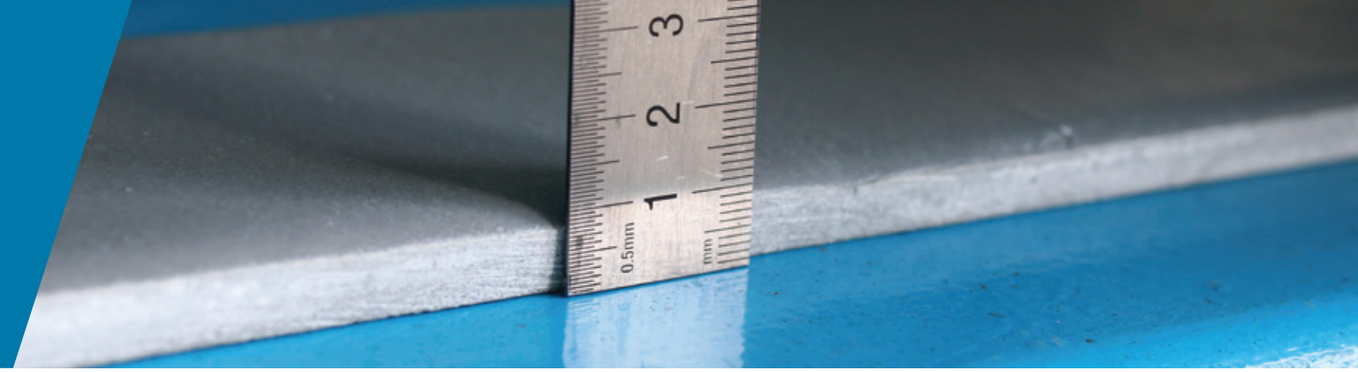
PITT-CHAR NX tested to resist highly erosive jet fires

By utilizing PITT-CHAR CF carbon scrim mesh, the coating system turns into a composite, greatly enhancing its toughness and significantly improving its fire resistance performance under extreme and accidental load conditions.

The incorporation of the carbon fiber scrim mesh not only reduces the weight of the coating system, but also improves the crack and damage resistance throughout all phases of the project, making the system even safer and tougher in the harshest environmental conditions.

PPG PITT-CHAR® NX

Safer, tougher, thinner, lighter, faster



Safer

PPG PITT-CHAR NX protects against the full range of hydrocarbon hazards. You no longer need to choose between jet fire or pool fire protection for the optimized PFP solution – this product does both and resists severe explosions and impact without affecting performance. The system even provides resistance against LNG cryogenic spills, often requiring little or no extra thickness.

For further peace of mind, this system is comprehensively tested and certified to comply with internationally recognized fire test standards, such as UL1709, BS 476 hydrocarbon fires and ISO 22899-1 jet fires, for all types and sizes of structural steel and safety-critical equipment. PITT-CHAR NX is also tested and certified to the IMO FTP Code and the latest ISO 20902 standard for fire rated divisions such as decks and bulkheads. Extensive CSP testing has been carried out in accordance with the ISO 20088 standard parts 1 and 3 on a range of steel specimen sized and shapes, durations and limiting temperature drops allowing comprehensive design solutions.

Developed in our dedicated and UL-certified Global Fire Protection Technology Center, PPG's proven and evolutionary technology brings major advantages to owners, engineers, fabricators and applicators.

Tougher

Enhanced durability verified by doubling UL 2431 conditioning environment exposures, without topcoat

Verified by UL, PITT-CHAR NX has been proven to be extremely tough – with the product passing double exposure conditions for UL2431, the latest internationally recognized durability test standard as part of UL1709 Edition 5 certification.

This gives greater confidence over and above the requirements of certification, that it will more than withstand stresses and strains without cracking or delamination during fabrication, erection, transportation and construction in vastly varying climatic conditions.

Once in service, PITT-CHAR NX will provide dependable performance throughout the asset's lifetime. It will not only flex with the steel structure, but also resist vibration, impact and extreme environmental conditions. Extensive testing has proven that this product is suitable for industrial, marine and offshore exposure without any degradation in fire resistance – without the need for a topcoat.

It is extensively tested by third parties to the toughest and latest standards, including:

- UL 2431 Category I-A Outdoor, Heavy Industrial environment
- NORSOK M501 Revision 6 – System 5a
- ISO 12944-9: 2018 Category CX
- ISO 20340 Category C5-M
- European Assessment Document EAD 350402-00-1106, Environmental Category X

Thinner

Lighter

PITT-CHAR NX is also noticeably thinner and lighter than alternative PFP systems. For example, based on our UL 1709 Edition 5 two-hour fire rating, PITT-CHAR NX is only 7.81mm (306 mils)**. The coating system is typically 15% lighter than alternative epoxy PFP systems and so-called 'lightweight' cementitious systems are typically three times heavier.

Fully tested and certified using multi-section/multi-temperature assessment methodologies allowing precise optimisation of thickness for every structure, ensuring the lowest weight with a safety assured design. PPG provides optimisation calculations using state of the art computational software.

In addition to the substantial material savings from using PITT-CHAR NX, the reduction in PFP weight on topsides and steel structures also reduces both transport and construction costs.

PITT-CHAR NX is only 7.81mm (306 mils) thin for 2 hour UL 1709 applications

Faster

Thanks to the thinness of the coating, excellent sagging resistance and fast cure characteristics of PITT CHAR NX, the complete coating system can typically be applied in just one day, offering up to 60% savings in application time. This greatly enhances productivity, increasing throughput and reducing construction schedules and application costs – whether applied on-site or off-site.

* All testing carried out without topcoat
** See UL design XR658 for details

PPG PITT-CHAR® NX

Comprehensively tested and certified

Pool Fire Resistance

Tested and certified by UL
- Fully tested to the very latest Edition 5 of the ANSI/UL 1709 standard
- Full multi-temperature/multi-section assessment per designs XR658, XR668 and XR673
- Fire rating from 30 minutes to 5 hours
- UL Verification of double exposure to environmental conditioning tests

Type Approved by international Class Societies
- Tested to hydrocarbon fire curve per BS 476-20 Annex D/ EN 1363-2/ ISO 834-3 standards
- By section type:
  - I & H shaped beams and columns,channels and angles
  - Hollow sections (CHS, SHS, RHS)
- Full range of section sizes from 30/m to 340/m Hp/A
- Fire Durations from 15 minutes up to 5 hours

Hydrocarbon Rated Divisions – Decks & Bulkheads
- Independently tested to hydrocarbon fire curve per BS476/ EN 1363-2/ ISO 834-3
- Tested in accordance with IMO FTP Code 2010 and the ISO 20902-1: standard
- Meets requirements for resistance, integrity and insulation (REI)
- Decks up to H-180 Class; Bulkheads up to H-120 Class
- Certified by ABS, DNV and Lloyd's Register

Jet Fire Resistance

- Fully tested to the ISO 22899-1: standard
- Jet fire tested for up to 4-hours
- Erosion factors for full range of CCT's: 200°C to 600°C (392°F to 1112°F)
- Tested in configurations for divisions, structures, piping and vessels
- Certified by UL and leading international Class Societies
- Tested in conjunction with thermal insulation systems or direct to substrate

Explosion Resistance

- Capable of withstanding over-pressure and drag-loads generated by explosions up to 5 barg
- Withstands the deflection stresses and strains of the item being protected as well as withstanding potential impact from debris
- Tested on full range of substrates:
  - I sections for beams and columns
  - Hollow sections for pipes and vessels
  - 5mm and 10mm plate for bulkheads and decks

Cryogenic Spill Resistance

- Meets requirements of NFPA 59A *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*
- Resistant to liquid pool and liquid jet releases
- Tested to ISO 20088 standard parts 1 and 3
- Type Approved by DNV

Summary

Safer
Protects personnel and assets against extreme hydrocarbon hazards, including cryogenic spills, pool and jet fires and explosions, in both onshore and offshore environments. Tested to comply with the latest internationally recognized test standards.

Tougher
Increased durability through proven and patented technology, which is tested to UL 2431 and NORSOK M501 Rev 6 standards, without topcoat. Unique flexibility allows the PFP coating to withstand stresses and strains without cracking or delamination during construction, transportation and in service.

Thinner
Only 7.81 mm (306 mils) required to meet two-hour UL 1709 fire rating per UL design XR658.

Lighter
Typically 15% lighter than alternative epoxy PFP systems; and less than a third of the weight of "lightweight" cementitious systems.

Faster
The complete coating system can typically be applied in a single shift, providing up to 60% savings in application time for greater productivity.

Enhanced durability verified by doubling UL 2431 conditioning environment exposures, without topcoat

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We protect and beautify the world™