

Transportation centres

Our coatings make transportation hubs safer and more robust



Connecting you to advanced protection

Ever smarter infrastructure powers our cities, connects industries and provides safe and secure places for us to live, work and play. This infrastructure operates in many challenging environments.

Structures, such as bridges, transportation hubs and buildings are constantly under attack from their surroundings, including water, oxygen, sunlight, heat and chemicals. Since 1915, Hempel has been successfully innovating, manufacturing and distributing proven protective coatings to protect assets against these elements all around the world.

Our people are experts and uniquely positioned to provide you with professional support that ensures the smooth running of your coatings project; from planning to completion, specification to application.

Giving you tailored coating solutions

Our range of high performance protective coatings are engineered to protect transportation centres in many ways.

Our coatings have been designed using advanced technologies to ensure they are effective, durable and retain their good looks.

They can be confidently specified as part of your ongoing maintenance programme and can extend intervals between recoating.

We offer tailored systems to address:

- abrasion and corrosion resistance
- weather resistance
- good gloss and colour retention
- easy to clean and maintain
- fire protection properties

Technical support

Our customers receive the exact application advice for their project and conditions from our 600+ FROSIO/NACE certified coating advisors around the world.

We analyse your project for specific requirements and our experienced technical service teams deliver systems that will protect against changing temperatures and humidity, to the aging of the structure and the threat of fire, whilst ensuring every application procedure is as fast and efficient as possible.

Our coating ranges include:

- Hempacore® and Hempafire® intumescent coatings for passive fire protection, proven to give you consistent, durable and efficient results
- Avantguard®, the activated zinc technology locked in to our Hempadur range of coatings giving you advanced corrosion protection

Our coatings meet the most stringent global standards, so you can specify Hempel with confidence whatever your transportation centre coating needs.

Cellulosic passive fire protection

Uncompromising safety, unbeatable efficiency

From the world's most impressive stadiums to the tallest skyscrapers, our solutions are constantly relied upon to protect against fire and corrosion in difficult and challenging environments.

Our established PFP products, Hempacore One and Hempacore AQ, offer 30-120 minutes of fire protection to almost all section types and are still in global use after many years.

Our new Hempafire product range ensures that we and our customers continue to develop and grow the passive fire protection market. Hempafire Pro 315 and Hempafire Pro 400 provide 60 minutes and 90 minutes of fire protection respectively, with unrivalled dry film thicknesses (DFTs). While Hempafire Optima 500 offers 90 and 120 minutes of waterborne fire protection, with higher application efficiency and reduced VOC emissions to meet sustainability requirements.

Our intumescent team offers global support to ensure that whatever or wherever your building is, our fire protection solutions are optimised, fit for purpose and suitable for all your project needs. We can also provide a full estimation and fire engineering service and bespoke project advice to ensure uncompromised asset protection at a lower total cost.

Increase productivity with faster processes and fewer coats to apply

Critical to intumescent painting application, faster drying times give you shorter intervals before overcoating. When coupled with higher DFTs per coat, this allows you to deliver the required protection in fewer coats, reducing project times both on and off site.

Reduced complexity

Having multiple products for different steel profiles increases project complexity. Our range includes one product solutions that can cover all profiles, from thin wall hollow sections to large open and cellular beams. This simplifies project execution and reduces the risk of incorrect application, maximising safety.

Reduce cost, increase efficiency

Our products help your teams and facilities deliver higher turnover and profitability. Lower loadings mean less paint consumption and reduced material costs. Higher DFTs per coat mean less coats to apply and faster project completion. Combined, the benefits are significant.

For project efficiency, Hempafire Pro 315 and Hempafire Pro 400's exceptionally low loadings significantly reduce paint consumption compared to similar products.

Ease of application

Time is valuable. For maximum efficiency, products need to adapt to the project. That's why we create robust solutions that can be applied in a wide range of conditions. Combined with our comprehensive range of primers and topcoats, and the advice of our experts, we can help you find the perfect system for your needs – to save you time and ensure even the tightest project deadlines can be achieved.

Hempafire Pro 315, Hempafire Pro 400 and Hempacore One, for example, can be applied anywhere, either in-shop or onsite, and in a wide range of temperatures and humidity. In addition, product application can be adjusted to maximise process speed and minimise application costs, giving you better efficiency all round.

Lasting performance, enhanced appearance

Hempel's intumescent protection coatings protect and beautify over the long term. They provide optimal steel protection from fire and corrosion, and dry evenly to provide a superior finish in the most demanding scenarios. This extends your building's lifetime, ensuring that its safety and appearance stand the test of time.

Our products are developed to withstand a variety of climatic and exposure conditions. They are tested according to the rigorous requirements of international standards and third-party certifications, including CE marking, Certifire and ApplusFire.

Durability is a key element, tested accordingly in different types of accelerated weather and corrosion tests, and assessed through real exposure tests in different locations around the world.

As every exposure condition has different technical requirements, our complete coatings range and advice of our experts ensure you get the most suitable solution for your project's specific needs.

Our Hempacore and Hempafire products are proven in the field. Our intumescent systems have shown to maintain their aesthetics and corrosion resistance after many years in service – and, on occasions when fire has occurred, they have protected the steel structure as specified, helping safeguard both property and lives.

Avantguard®

Superior corrosion protection

Here at Hempel, we strive to develop coatings that are ever stronger to protect our customers' assets around the world against the corrosive effects of industry and nature alike.

Avantguard is our innovative, award winning¹ anti-corrosion technology, based on activated zinc. Our patented Hempadur Avantguard coatings have been proven to deliver superior corrosion protection compared to competitor zinc rich epoxy products².

Avantguard technology uses a new combination of zinc, hollow glass spheres and a proprietary activator. This activates the zinc, increasing its protective capabilities.

Improves full systems

Strengthening the system at its core, Avantguard gives the full coating system enhanced corrosion performance.

Redefines protection

Avantguard shows superior anti-corrosive performance in salt spray tests (ISO 12944-6)², as well as reduced rust creep and better corrosion protection in cyclic corrosion testing (ISO 12944:2018 Part 9) and NORSOK M501 revision 6.

Redefines durability

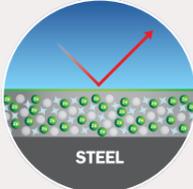
Avantguard displays improved mechanical strength in the protective coating with significantly improved crack resistance. The NACE cracking test (Thermal Cycling Resistance test) and Hempel's welding test have proved that Avantguard substantially reduces cracking at both low and high DFT.

Redefines productivity

Avantguard is fast drying with best-in-class³ overcoating intervals. The products are easy to apply, even in high temperatures and humidity as shown in exposure tests. There is less rework due to cracking, as the coating is more tolerant, even with high DFTs.

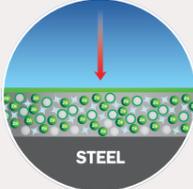
These activated zinc primers reduce the effects of corrosion, offering advanced protection and increased durability for all-round performance. Unlike standard zinc epoxies, Avantguard is effective using all three methods of anti-corrosive protection.

1. Avantguard won the prestigious 2014 European Frost & Sullivan Award for New Product Innovation and NACE's MP Corrosion Innovation of the Year Award 2015.
 2. This superiority has been independently proven by third party laboratory neutral salt spray tests according to ISO 9227. In this test, steel protected with Avantguard produced a lower evolution of rust creep, assessed according to ISO 12944-6, when tested up to 3x the duration for C5 high environments.
 3. Avantguard's overcoating interval is a minimum of 33% faster than competitor zinc-rich epoxies when comparing product data sheets.



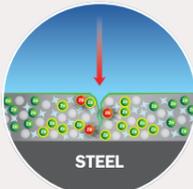
Barrier

Improved barrier properties
 Avantguard displays low water permeability. The salts produced by the unique zinc activation process fill any space within the film, sealing it and enhancing the barrier properties of the coating.



Inhibitor

Inhibition effect for improved protection
 The zinc salts formed contain high levels of chloride ions that are captured as they are diffused from the environment through the film. This reduces the concentration of corrosive agents that reach the steel surface.



Galvanic

Activated zinc gives excellent anti-corrosive properties
 In the presence of oxygen, water and salt, zinc reacts faster than steel. This delays the corrosion process for much longer.

“Avantguard has a self-healing effect on micro cracks, which is something that we've never seen before. The insoluble salts which are created in the unique zinc activation process actually occupy the space left by the microcrack, further preventing the development of a more serious crack.”

Josep Palasi
 Hempel Strategic Technology Director

Hempadur Avantguard 550

Anti-corrosive performance in compliance with ISO 12944 C5 high, which is faster curing and easy to apply.

Complies with the requirements for level 3, type II in SSPC paint 20, 2002.

Utilises ASTM D520, type II zinc dust.

Parameters	
DFT range (min and max)	50 – 100 micron
Curing time – dry to handle (20-25°C)	1 hour 30 mins
VS%	65
VOC (g/L)	319
Pot life (20°C)	3 hours
Min. overcoating intervals with epoxy (20°C)	1 hour
Application equipment	Airless spray, air spray, brush

Hempadur Avantguard 750

Anti-corrosive performance in compliance with NORSOK M-501 which is faster curing, easy to apply and retains its properties even at excessive application.

Complies with NORSOK M-501 Ed. 6 (ISO 12944:2018 Part 9) and Level 2, type II in SSPC paint 20, 2002.

Utilises ASTM D520, type II zinc dust.

Parameters	
DFT range (min and max)	50 – 100 micron
Curing time – dry to handle (20-25°C)	1 hour 30 mins
VS%	65
VOC (g/L)	316
Pot life (20°C)	4 hours
Min. overcoating intervals with epoxy (20°C)	1 hour
Application equipment	Airless spray, air spray, brush

Hempadur Avantguard 860

The first of its class, specifically developed to overcome the problems experienced with zinc silicate primers application, without compromising corrosion protection and boosting productivity.

Complies with NORSOK M-501 Ed. 6, System 1 (ISO 12944 C5 high and ISO 12944:2018 Part 9) and Level 2, type II in SSPC paint 20, 2002.

Parameters	
DFT range (min and max)	50 – 100 micron
Curing time – dry to handle (20-25°C)	3 hours
VS%	66 ± 2
VOC (g/L)	302
Pot life (20°C)	6 hours
Min. overcoating intervals (20°C)	1 hour
Application equipment	Airless spray, brush, roller

Queensferry Crossing

Scotland

The Queensferry Crossing is a stunning piece of modern engineering. Spanning the busy Forth Estuary near Edinburgh on the east coast of Scotland, it has a total length of 2.7 kilometres, making it the longest three-tower cable-stayed bridge in the world. The crossing's road deck is made with over 35,000 tons of steel, that was manufactured in China and the UK and transported to Scotland by sea.

Products

Exterior: Hempadur Zinc 17360,
Hempadur MIO 47950,
Hempathane HS 55613

Interior: Hempadur ZP 47940

Bolted connections:
Hempel's Galvosil 15700

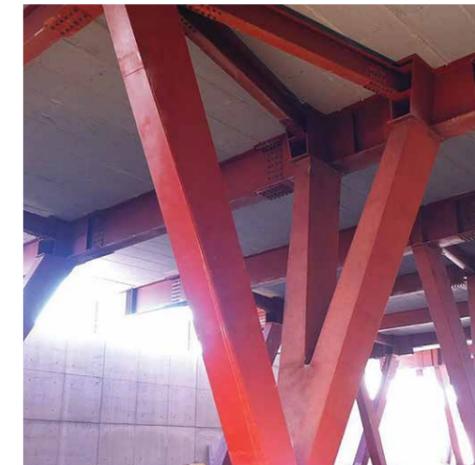


Vienna International Airport

Austria

Vienna International Airport's new Hangar No. 7 is protected against fire with the help of Hempacore. An impressive 7,000 square metres this new hangar is a busy travel centre.

The building contractors not only wanted to be sure of a durable protective coating that would meet fire safety regulations but be easy to maintain and give a smart, long lasting finish. By choosing our tailored three coat system, they also achieved fast and efficient application, allowing Hangar No. 7 to be fully operational in less time.



Products

Hempadur Fast Dry 17410

Hempacore One FD 43601

Hempathane Topcoat 55210

Vigo High Speed Train Station

Spain

The Southern Terminus at Vigo will serve the AVE high speed trains running along Galicia's Atlantic seaboard. Safety and environmental protection are key considerations in its construction.

Built on a number of levels, the terminus is underground with 180 retail outlets overhead. The customer chose Hempel to provide reliable, protective coatings solutions for the structure's 8,000 square metres of steel, guaranteeing long lasting protection against the corrosive elements of the weather and city centre pollution and helping to protect thousands of commuters in case of fire.



Products

Epoxy Primer

Hempacore 43600

Hempathane HS 55810

Beijing International Airport T3, China

Beijing Capital International Airport Terminals T3A and T3B were the auxiliary projects of Beijing Olympic Games 2008. The construction area is 387,000 square metres. The airport construction used over 8,000 tonnes of steel, much of this is coated with Hempel.



Products
Hempaxane Classic 55000
Hempadur Zinc 17360
Hempadur Mastic 45880

Mekkah Metro, Mekkah, Kingdom of Saudi Arabia

The Mekkah Metro C-Line Stations envision the unique fusion between the ultra-modern technology of the metro system and the historical richness of Mekkah. The metro is capable of transporting 72,000 passengers per hour.



Products
Topaz SB Primer 26630
Topaz Exterior Filler 38900
Contex Smooth 46600
Hempadur Sealer 05990
Hempadur 45881
Hempathane 55210

Kunming New International Airport, China

On completion, the Kunming New International Airport became the fifth largest airport centre in China, becoming the gateway to South East and South Asia and serving 30 million passengers every year. 40,000 tonnes of steel were used in the construction of the iconic airport building, much of which is coated and protected by Hempel.



Products
Hempadur Mastic 45880
Hempathane Enamel 55100

Selected references

Project	Location	Products	Year
Queensferry Crossing	Scotland, UK	Exterior: Hempadur Zinc 17360, Hempadur MIO 47950, Hempathane HS 55613 Interior: Hempadur ZP 47940 Bolted connections: Hempel's Galvosil 15700	2017
Warsaw Metro	Warsaw, Poland	Hempacore 43601 Hempathane HS 55610	2015
Metro Bus Shelters	Buenos Aires, Argentina	Hempadur 17360 Hempathane HS 55610	2014
Mekkah Metro C-Line	Mekkah, Kingdom of Saudi Arabia	26630 Topaz SB Primer, 38900 Topaz Exterior Filler, 46600 Contex Smooth, Hempadur Sealer 05990, Hempadur 45881, Hempathane 55210	2014
Domestic Terminal, Adnan Menderes Airport	Izmir, Turkey	Hempadur Fast Dry 17410, Hempadur Fast Dry 45410	2014
BTS Airport	Bratislava, Slovakia	Hempadur Fast Dry 17410, Hempadur Mastic 45880, Hempathane HS 55610	2010-2011
Guangzhou Railway Station	Guangzhou, China	Hempadur Zinc 15360, Hempel Mastic Epoxy Paint 4588P, Hempel's Fluorocarbon Paint 559CN	2010
Chengdu Terminal 2	Chengdu, China	Hempadur Zinc 17360, Hempadur Mastic 45880, Hempel's Fluorocarbon Paint 559CN	2009-2012
Kunming New International Airport	Yunnan Province, China	Hempadur Mastic 45880, Hempadur Mastic 45880, Hempaxane Classic 55000	2009-2012

As a world-leading supplier of trusted coating solutions, Hempel is a global company with strong values, working with customers in the protective, marine, decorative, container and yacht industries. Hempel factories, R&D centres and stock points are established in every region.

Across the globe, Hempel's coatings protect surfaces, structures and equipment. They extend asset lifetimes, reduce maintenance costs and make homes and workplaces safer and more colourful. Hempel was founded in Copenhagen, Denmark in 1915. It is proudly owned by the Hempel Foundation, which ensures a solid economic base for the Hempel Group and supports cultural, social, humanitarian and scientific purposes around the world.

Hempel A/S

Lundtoftegaardsvej 91
2800 Kgs. Lyngby
Denmark

Tel: +45 4593 3800
Email: infrastructure@hempel.com
[infrastructure.hempel.com](https://www.infrastructure.hempel.com)