Transportation centres

Making the world's transportation hubs more robust, safer and beautiful

World-leading coatings supplier

Hempel was founded in 1915 and is today one of the worlds leading manufacturers and suppliers of coating solutions. Our advanced protective and decorative coatings can be found on millions of surfaces around the globe.

From the world's longest bridges and tallest skyscrapers to airports, sports stadia and civil structures our coatings protect your assets against corrosion in many different and challenging environments.

Our history is rooted in protective coatings for the extreme conditions experienced in the Marine, Decorative and Protective industries, so you can be assured that we offer trusted technology, expert technical service and reliability.

With our vast expertise and knowledge, you know that by choosing Hempel, you are choosing a brand you can trust.

Transportation centres

Global service

We want to give you the right products on site, on time, every time. With the support of our 28 manufacturing plants and over 150 stock points worldwide, we offer a flexible service to all our customers. A service that we believe is second to none.

Proven performance

Our range of high performance protective coatings offer advanced protection and optimised application for a durable finish that looks good for longer, in even the most challenging climates. With a proven track record, we are a trusted protective coatings partner for our customers in the construction industry around the world.

Professional support

Our customers know that specifying the right products is crucial when designing structures, to ensure corrosion and fire protection, good appearance and minimum maintenance. Our multinational, globally based teams are uniquely positioned to ensure the smooth running of your project. From planning to completion, specification to application, we have key people to support you both off and on site.

Innovative solutions

With 15 global research and development facilities, we work locally with you to provide the right solution for your project. Our research and development teams are committed to continuous development of innovative and effective speciality coatings to give you durable protection whilst ensuring environmental responsibilities are met.

Tailored coatings solutions

Our range of high performance protective and decorative 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.

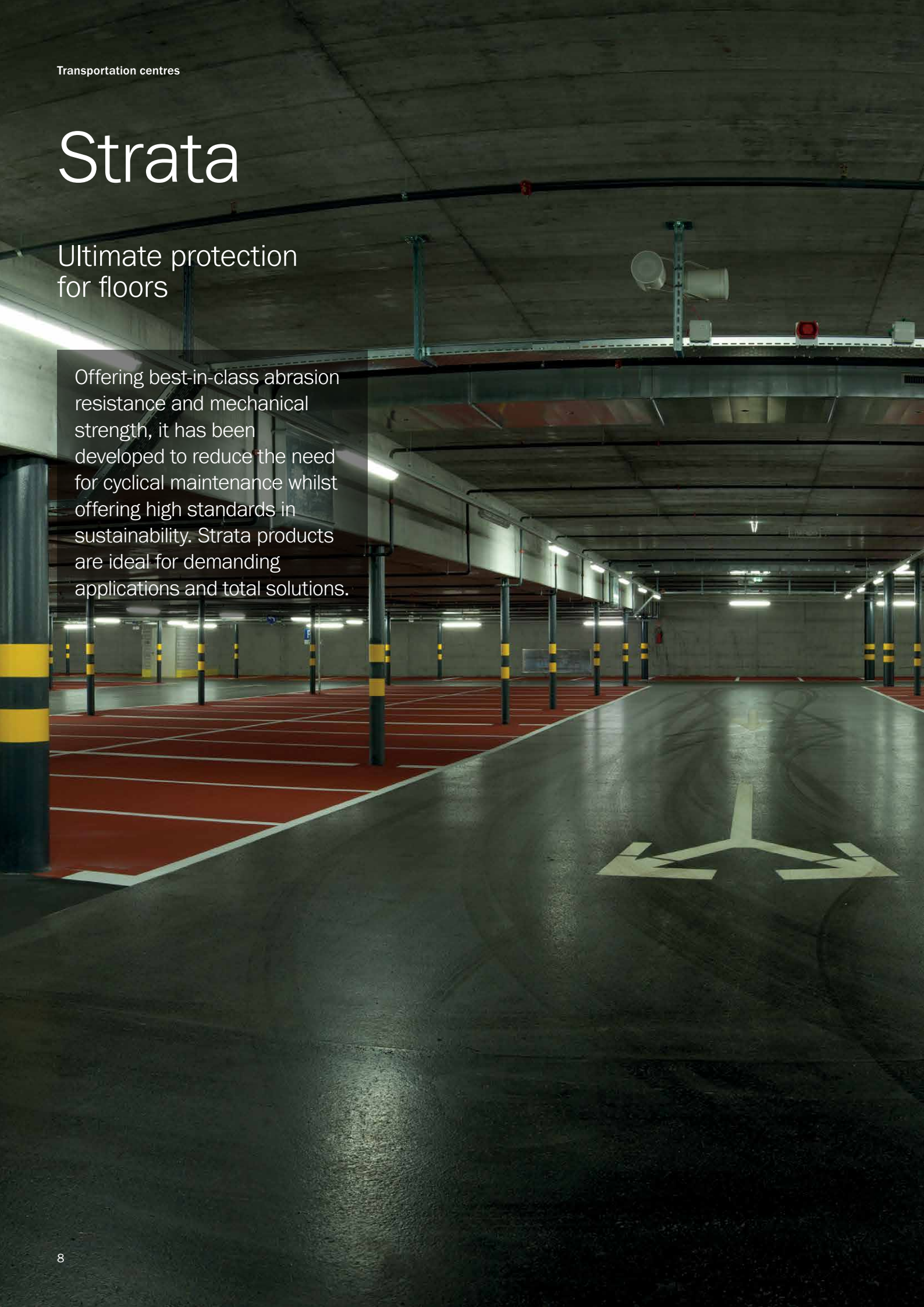
Our coatings ranges include:
- Avantguard®, the activated zinc technology locked in to our Hempadur range of coatings giving you advanced corrosion protection.
- Contex concrete protection system, ideally suited for buildings, roads, bridges, bypasses and tunnels, offering superior protection from weathering, carbonation and structure movements.
- Hempacore® intumescent coatings for passive fire protection, proven to give you consistent, durable and efficient results.
- Strata floor coatings, designed to protect concrete floors in heavy-duty, heavy traffic areas.

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

Strata

Ultimate protection for floors

Offering best-in-class abrasion resistance and mechanical strength, it has been developed to reduce the need for cyclical maintenance whilst offering high standards in sustainability. Strata products are ideal for demanding applications and total solutions.

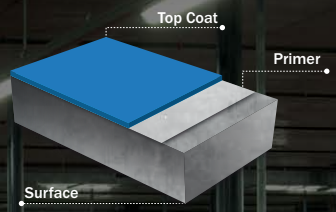


Strata Epoxy HT

High-build two component solvent free epoxy floor coating for heavy traffic purpose.

Special features
- Outstanding mechanical properties.
- High abrasion and chemical resistance.
- Low odour.
- Smooth glossy or slip-resistant surface.
- Available in a wide range of colours.

Areas of use
Designed to protect concrete substrates in heavy-duty areas such as factories, manufacturing, warehousing, airfield workshops, food production, medical laboratories and car parks with heavy traffic. It is suitable for areas like ramps, turning circles, parking lots, and areas with heavy forklift traffic in particular.



Certificates/approvals:

Property	Standard	Result
Adhesion strength	ASTM D4541-09	4.7 N/mm^2
Tensile strength	ASTM C307-03	20 N/mm^2
Flexural strength	ASTM C580-02	39 N/mm^2
Compressive strength	ASTM C579-01	89 N/mm^2
Abrasion resistance	ASTM D4060-10	60 mg/1000 cycles
Impact resistance	ASTM D2794	0.3 kg-m
Shore D hardness	ASTM D2240-05	D/79/1

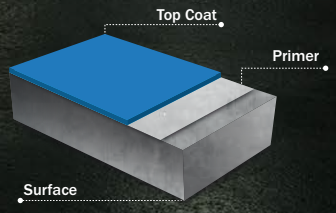
Chemical resistance	Method	Result
Distillated water (cold) Distillated water (hot) Ethyl Alcohol (50% vol) Vinegar (3% acetic acid) Alkali solution (5%) Soap solution Detergent solution	ASTM D1308	No discolouration, change in gloss, blistering, softening, swelling, loss of adhesion or special phenomena was observed.

Strata Epoxy SL2000

Strata Epoxy SL 2000 is a self-smoothing, solvent-free, three-component epoxy floor coating.

Special features
- Self-smoothing, seamless surface.
- From 1 to 3mm DFT.
- Excellent abrasion and impact resistance.
- Excellent chemical resistance.
- Available in a wide range of colours.

Areas of use
Designed to protect concrete substrates where a seamless flooring surface combined with excellent mechanical properties is essential. It is ideal for areas where hygiene is vital such as hospitals. It can be applied up to 3mm DFT depending on the specification.



Certificates/approvals:

Property	Standard	Result
Adhesion strength	ASTM D4541-09	4.8 N/mm^2
Tensile strength	ASTM C307-03	19 N/mm^2
Flexural strength	ASTM C580-02	42 N/mm^2
Compressive strength	ASTM C579-01	84 N/mm^2
Abrasion resistance	ASTM D4060-10	59 mg/1000 cycles
Impact resistance	ASTM D2794	0.4 kg-m
Shore D hardness	ASTM D2240-05	D/83/1

Chemical resistance	Method	Result
Distillated water (cold) Distillated water (hot) Ethyl Alcohol (50% vol) Alkali solution (5%) Soap solution Detergent solution	ASTM D1308	No discolouration, change in gloss, blistering, softening, swelling, loss of adhesion or special phenomena was observed.

Roadmarkings

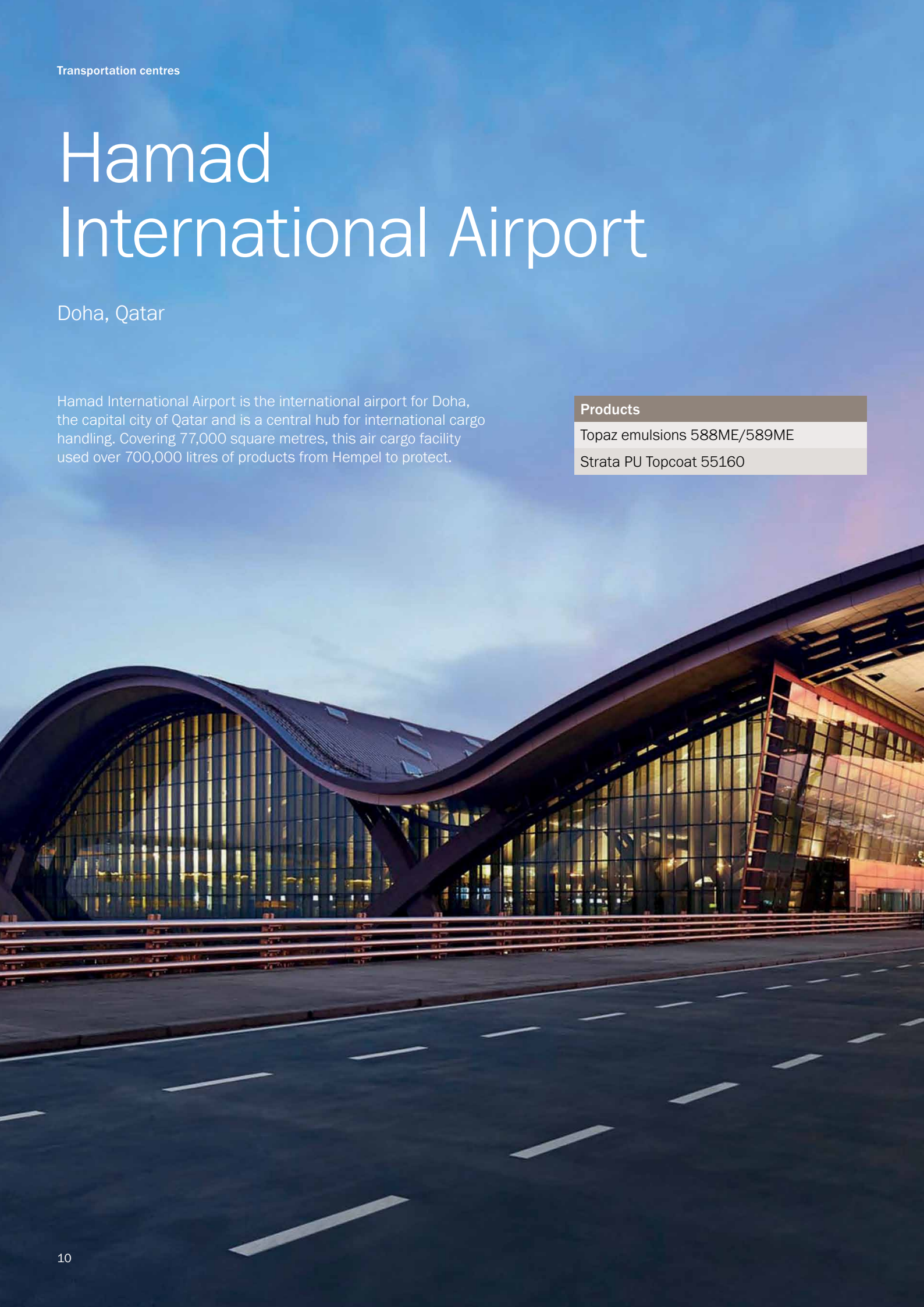
Strata WB and Strata SB are designed to offer ultimate protection to concrete surfaces giving resistance to spillage of petrol, minerals, etc, which are common on roads and airfields.

Hamad International Airport

Doha, Qatar

Hamad International Airport is the international airport for Doha, the capital city of Qatar and is a central hub for international cargo handling. Covering 77,000 square metres, this air cargo facility used over 700,000 litres of products from Hempel to protect.

Products
Topaz emulsions 588ME/589ME
Strata PU Topcoat 55160



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 Hanger 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

Hempacore

Intumescent coatings for passive fire of steel structures

The core of fire protection

The intumescent coatings of our Hempacore range offer passive fire protection that lengthens the time a steel structure will remain intact during a fire. They provide longer evacuation times and allow emergency personnel more time to respond. That means that these advanced coatings solutions not only help to protect investments, but can potentially save lives.

Hempacore provides passive fire protection up to 150 min of cellulosic fire. Manufactured using high-quality raw materials, they give a high performance with low dry film thickness and fast drying times. We also offer coatings suitable for both on site and in shop applications.

Hempacore has you covered

Our Hempacore range helps to protect structural steel both inside and out including:

- industrial halls
- public buildings
- stadiums
- exhibition halls
- airports
- railway stations
- supermarkets

Full system supplier

We have a broad range of primers and topcoats that are approved for use with Hempacore, giving us the flexibility to tailor-make a coating solution to fit any project. Having one supplier makes it easier for you to get the ideal coatings combinations, and you are assured that they are fully compatible.

Excellent application properties

Hempacore is designed with the applicator in mind.

- Competitive loadings give good fire protection performance at low dry film thickness.
- High maximum dry film thickness per coat.
- Wide application window to enable great working flexibility.
- Easy application across wide temperature range.
- Fast drying products.
- Durable coatings that are less sensitive towards weather and potential damage during transportation and construction.

Engineering support

Our specialists are ready to support your project from the initial stages. Just provide us with the project data and we will use our own dedicated specification software to propose the right solution for you. Our specialists ensure all factors are taken into account, such as the required fire protection properties, the architecture of the structure, profile types, application techniques, transport methods, local weather conditions, legislation, aesthetic and economic aspects of the whole project.

Long lasting protection and aesthetic appearance

Not only do you benefit from high corrosion resistance and passive fire protection, but you also achieve your desired decorative effect. Using our tailor-made coating combinations you can have a smooth and tough finish in any shade with excellent colour and gloss retention.

You can count on us

Tested for fire, weather and application
All Hempacore coatings are tested extensively at our dedicated fire protection research and development facilities. The fire protection performance is tested under turbulent conditions, where the fire temperature is over 1000°C.

In addition, we make sure that on site conditions and the effects of weather will never compromise the level of fire protection the coating provides. Real-life scenarios are simulated by testing weathered coating systems and profile sections that have loads applied. For weather durability we test the products in cycles with extreme temperature shocks across the range -20°C to +70°C, and where the relative humidity reaches up to 95 per cent (+/-5 per cent). Application properties are also tested in a broad range of climatic conditions.

Certifications and approvals
With the Hempacore intumescent range, you get coatings with a very wide scope of both international and local approvals.

The global approvals include:
- BS 476-21
- EN 13381-8
- GB 14907
- GOST 53295
- AS1530.4

For more information, please contact your local Hempel office.

Avantguard

Activated zinc primers for advanced corrosion protection of steel structures

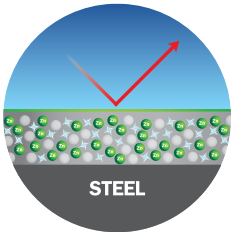
Here at Hempel, we strive to develop coatings that are ever stronger to protect our customers' assets around the world against the corrosive effects of industry and nature alike.

Avantguard, is our innovative, award winning anti-corrosion technology that redefines anti-corrosion. It is based on activated zinc and locked in to our range of high performance protective coatings.

Avantguard significantly reduces the effects of corrosion and offers superior protection. This increased durability has been proven in extensive tests against standard zinc primers.

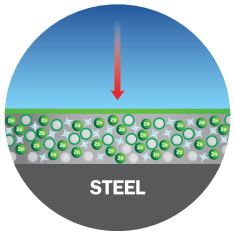
- Redefines protection showing reduced rust creep and superior corrosion protection.*
- Redefines durability with improved mechanical strength and significantly improved crack resistance through high flexibility and self-healing of micro cracks. Avantguard is best in class zinc epoxy to withstand cyclic temperatures.**
- Redefines productivity even in high temperatures and humidity using the same application techniques as standard zinc epoxies and ensuring less rework due to cracking under application as the coating is tolerant even with high DFTs.

This new generation of activated zinc primers improves full systems by strengthening the system at it's core. Unlike standard zinc epoxies, Avantguard is effective using all three methods of protection, barrier, inhibition and galvanic.



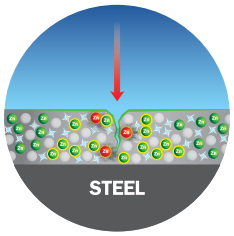
Avantguard has improved barrier properties

Avantguard displays low water permeability that is further increased by the white salts produced as a result of the unique zinc activation process. These salts fill any space within the film, sealing it, and enhancing the barrier properties of the coating system.



The inhibition effect increases its anti-corrosion process

The zinc salts formed contain high levels of chloride ions that are captured as they are diffused from the environment through the film. As a result, the coating uses the inhibition effect by reducing the concentration of corrosive agents that reach the steel structure, delaying the start of the unwanted corrosion process.



Activated zinc gives excellent anti-corrosive properties

In the presence of oxygen, water and salt, zinc reacts faster than steel. The activated zinc in Avantguard performs to a higher standard with more particles becoming 'sacrificed'. This delays the corrosion process for much longer.

Product	Compliance
Hempadur Avantguard 750 Anti-corrosive performance in compliance with NORSOK M-501 which is faster curing, easy to apply and retains it's properties even at excessive application.	Complies with NORSOK M-501 Ed. 6 (ISO 20340) and Level 2, type II in SSPC Paint 20, 2002. Utilises ASTM D520, type II zinc dust.
Hempadur Avantguard 550 Anti-corrosive performance in compliance with ISO 12944 C5 M/I 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.

* Salt spray test according to ISO 12944, Cyclic corrosion test (ISO 20340) Norsok M 501 revision 6.

** Proven in Thermal Cycling Resistance test, NACE cracking test and Hempel welding test.

Making connections

Air bridges connecting you to the sky

When you walk across the boarding bridge from the terminal building to your aeroplane, you're more than likely walking on a structure protected from the elements by Hempel.

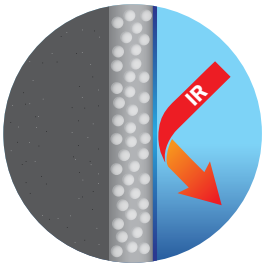
We are recognised as a leading supplier of coatings to many industries, but very few people know that we have been the leading coating supplier of a very particular niche market, passenger boarding bridges for airports. This means that every time you walk from the gate to your plane - pretty much anywhere in the world – you are probably walking on a bridge we coated.

So, next time you walk a bridge to the sky, think of us.

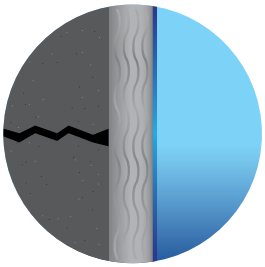
Contex

Protective exterior coatings

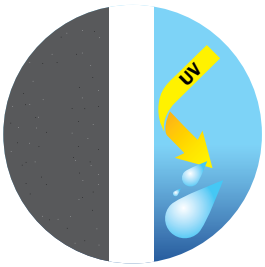
Tough climates require tough protection. Our Contex range uses advanced technology to deflect solar rays, reduce heat conductivity, protect against carbonation and enhance crack bridging. Ideally suited for buildings, roads and bridges, it is available in a variety of finishes and textures that prolong the life of concrete surfaces.



Product	Benefits
Contex Thermoguard Contex Thermoguard is a multifunctional waterborne topcoat designed to reflect near infrared radiation to provide thermal insulation and extreme long lasting colours in hot climates. It is based upon advanced heat-reflective pigments and 100% pure acrylic technology to ensure maximum performance in harsh climates.	Reduce indoor air temperature with up to 5°C
	Reduced façade maintenance due to very long lifetime
	Reduce Urban Heat island effect
	Protect the surface from carbonation



Product	Benefits
Contex EM Contex EM is waterborne elastomeric topcoat with outstanding dynamic and static crack bridging properties to accommodate structure movements. It is based on 100% pure acrylic binders and provide effective protection against harsh climatic conditions. The breathable smooth textured surface offers brilliant anti-carbonation properties.	Outstanding crack bridging properties
	Excellent anti-carbonation properties
	Excellent UV resistance
	Exceptional weathering resistance



Product	Benefits
Contex Topcoats Contex topcoats are known for their outstanding colour retention, allowing exterior walls to maintain their appearance even in the hottest climates. They are available in both waterborne and solvent-borne versions to serve different needs and requirements. Contex topcoats have three different sheens: Matt, Silk, Semi-gloss.	Outstanding weather resistance
	Excellent UV resistance
	Proven colours retention and opacity properties
	Excellent anti-carbonation properties

First Ring Road

Kuwait

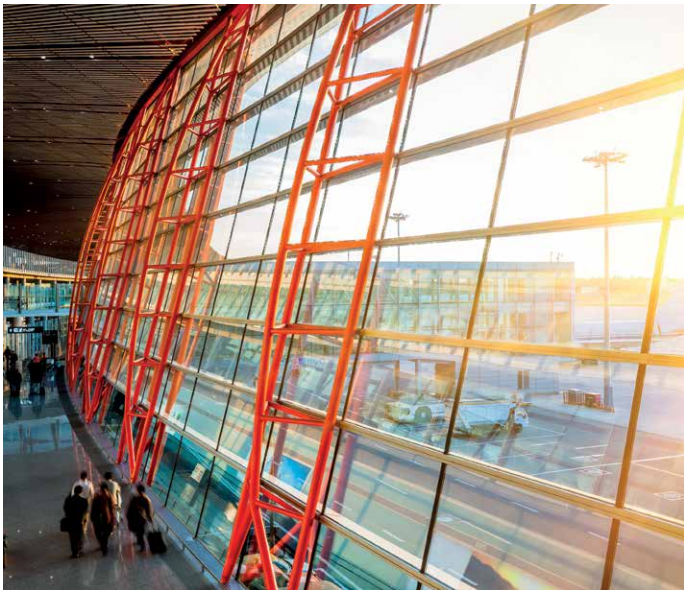
By using a network of new at-grade roads, depressed roads in troughs and tunnels, elevated roads and bridges, the first phase of the First Kuwait Ring Road project will significantly improve access to downtown Kuwait City while reducing traffic congestion.

To ensure the Ring Road is protected with leading technology coatings, the bridge has been coated with over 80,000 litres of Contex EM, providing exceptional flexibility, crack bridging and has anti-carbonation properties.

Products
Contex EM 58600

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

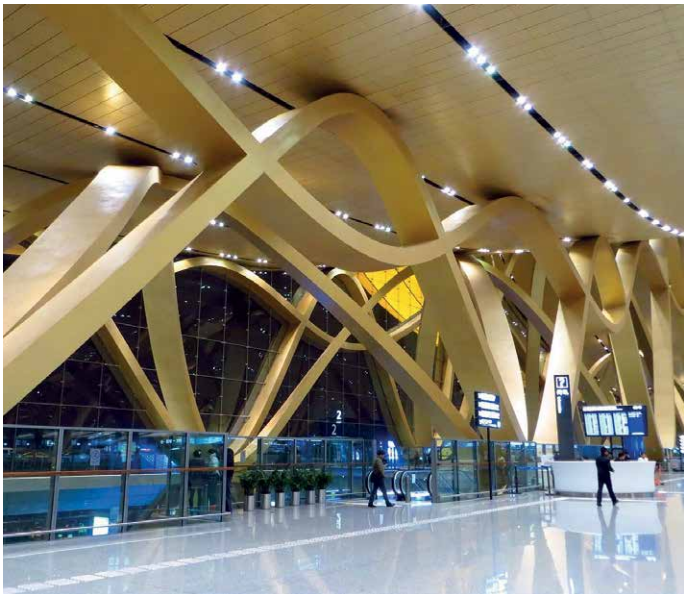
Mekkah Metro, Mekkah, Kingdom of Saudi Arabia

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
Vigo AVE Railway Station	Vigo, Spain	Hempacore One 43600	2015
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
Hamad International Airport	Doha, Qatar	Topaz Emulsions 588ME/589ME Strata PU Topcoat 55160	2014
Domestic Terminal, Adnan Menderes Airport	Izmir, Turkey	Hempadur Fast Dry 17410, Hempadur Fast Dry 45410	2014
Adler Railway Station	Sochi, Russia	Hempathane HS 55610	2014
Olympic Park and Train Station	Sochi, Russia	Hempadur Fast Dry 15560, Hempadur Mastic 45880, Hempathane HS 55610	2013
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
Chengdu Terminal 2	Chengdu, China	Hempadur Zinc 17360, Hempadur Mastic 45880, Hempel's Fluorocarbon Paint 559CN	2009–2012

hempel.com

Since 1915 Hempel has been a world-leading coatings specialist, providing protection and inspiration to the world around us. Today we have over 5,500 people in 80 countries delivering trusted solutions in the protective, decorative, marine, container, industrial and yacht markets. This includes many recognised brands like Crown Paints, Schaepman and Jones-Blair.

Hempel is proudly owned by the Hempel Foundation, which supports cultural, humanitarian and scientific causes across the world.

The Hempel Group Head Office
Hempel A/S
Lundtoftegaardsvej 91
2800 Kgs. Lyngby
Denmark

Tel: +45 4593 3800
Email: infrastructure@hempel.com
specificationsolutions.hempel.com

V1_SEP_16