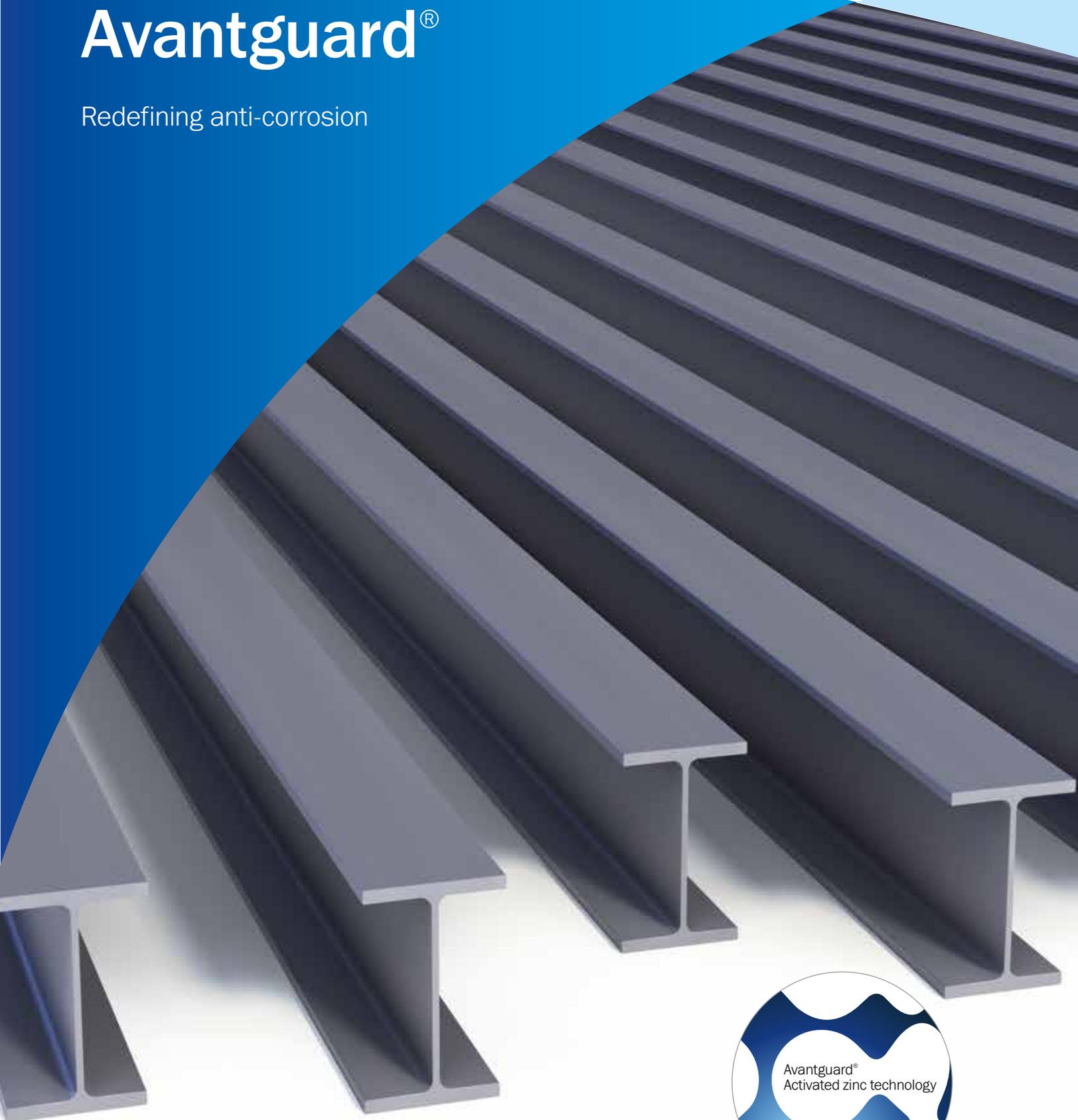


Avantguard[®]

Redefining anti-corrosion



Focus on Avantguard

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 is locked in to our range of high performance protective coatings.

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

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

Improves full systems

Strengthening the system at it's core, Avantguard gives the system enhanced anti-corrosion performance.

Redefines protection

Avantguard shows reduced rust creep and significantly better corrosion protection in Cyclic corrosion testing (ISO 20340) Norsok M501 revision 6 and Salt Spray testing (ISO 12944).

Redefines productivity

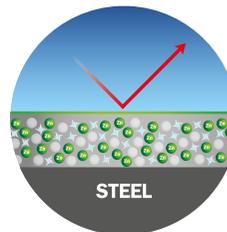
Avantguard has a high tolerance to different climatic conditions, displayed during application under extreme thickness, temperature and humidity.

Redefines durability

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

This new generation of activated zinc primers reduces the effects of corrosion, offers advanced protection and increased durability for all-round performance and unlike standard zinc epoxies, is effective using all three methods of protection.

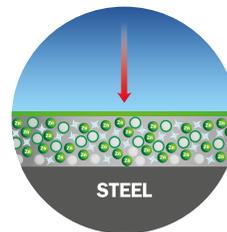
Barrier



Avantguard has improved barrier properties

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

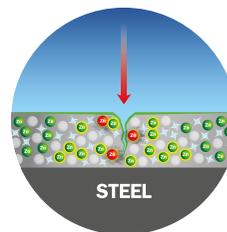
Inhibitor



The inhibition effect helps improve the anti-corrosive 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 structure.

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.

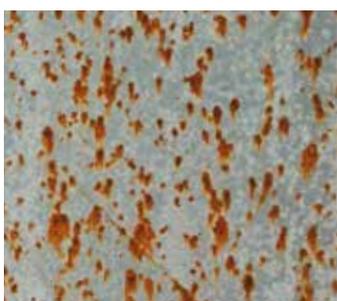
“Avantguard has a self-healing effect on micro cracks, which is something that we've never seen before. The insoluble salts which are created in the unique zinc activation process actually occupy the space left by the microcrack, further preventing the development of a more serious crack.”

Josep Palasi
Hempel Strategic Technology Director

Proven protection

The activated zinc advanced protection in Avantguard reduces corrosion. Reduced rust creep was displayed in Salt Spray tests.

Salt spray test



Zinc epoxy without Avantguard technology (986 hours)



Zinc epoxy with Avantguard technology (986 hours)



Full system without Avantguard technology (1440 hours)



Full system with Avantguard technology (1440 hours)

“You can obtain a very good film formation by using the Avantguard system. We were very surprised by the mechanical properties and strength even at higher DFT and on irregular surfaces like welding seams. The short drying times will help us in the future to optimise our production processes.”

Mr Schomers, Production Manager
Schneider + Co. GmbH
Oberflächentechnik

Mechanical strength

Avantguard has been engineered to release the internal stress of continual expansion and contraction of the surface and its coating. Low cracking tendency was displayed during the NACE cracking test and Hempel's own welding test.

NACE cracking test



Zinc epoxy without Avantguard technology



Zinc epoxy with Avantguard technology

Hempel welding test



Zinc epoxy without Avantguard technology



Zinc epoxy with Avantguard technology

Products and performance

Hempadur Avantguard 550

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

Complies with the requirements for Level 3, type II in SSPC Paint 20, 2002.

Can utilize ASTM D520, type II zinc dust.

Parameters	
DFT range (min and max)	50 – 100 micron
Through drying (20-25 °C)	1 hr 30 min
VS %	65
VOC (g/L)	319
Pot life (20 °C)	3 hrs
Min. overcoating intervals with epoxy (20 °C)	1 hr
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 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.

Can utilize ASTM D520, type II zinc dust.

Parameters	
DFT range (min and max)	50 – 100 micron
Through drying (20-25 °C)	1 hr 30 min
VS %	65
VOC (g/L)	316
Pot life (20 °C)	4 hrs
Min. overcoating intervals with epoxy (20 °C)	1 hr
Application equipment	Airless spray, air spray, brush

Elco chooses Avantguard

Advanced protective coatings

Elco, a leading engineering and fabrication company are working with the global oil major, British Petroleum (BP) who have signed a contract with the government of Oman to develop a major new gas processing facility to serve the Khazzan & Makarem gas fields, one of the Middle East's largest unconventional gas resources.

The challenge

The challenge is to ensure the structural steel pipe racks within the facility are protected. Elco wanted a coating system that would offer its customer the best long-term anti-corrosive performance available.

The solution

Elco have chosen a system that combines Hempadur Avantguard 750, Hempadur MIO 47950 and Hempathane HS 55610.

Avantguard 750 is the ideal primer for use in severely corrosive environments. It is faster curing and easy to apply, giving the facility the most advanced, long lasting corrosion protection, with time and cost saving benefits available during application.

At a glance	
Customer	Elco International Engineering Co. L.L.C.
About	Elco is a leading engineering and fabrication company offering manufacturing solutions to the Oil, Gas & Construction industries.
Coating system	Hempadur Avantguard 750 Hempadur MIO 47950 Hempathane HS 55610
Application	Air spray gun

“The Khazzan project is of strategic importance to us. We are fully aware of the benefits offered by Activated Zinc Technology, hence our choice of Avantguard over conventional Zinc epoxy.”

Anil Kumar, Project Manager for BP



ZPMC makes the shift to Avantguard



The challenge

ZPMC's super-post-Panamax container cranes are used for loading and unloading containers onto carrier vessels at the side of the dock. They need a heavy-duty anti-corrosive coating system to protect them from the harsh saltwater atmosphere and heavy impacts that come with the job.

The solution

The customer chose Hempadur Avantguard 750 for advanced protection against corrosion. Their applicators were particularly pleased with the ability of the Avantguard coating to tolerate high dry film thicknesses without cracking or blistering, which ensures they remain easy to apply even if application conditions are not ideal.

At a glance	
Customer	Shanghai Zhenhua Heavy Industry Co. Ltd. (ZPMC)
Location	Shanghai, China
Date	January 2015
Coating	Hempadur Avantguard 750
Delivery to	Europe

ArcelorMittal Kryvyi Rih relies on Avantguard



The challenge

To protect structural steelwork against corrosion in a new building for pulverised coal handling at one of their blast furnaces. The protection system needed to have excellent corrosion protection properties for the tough C4 environmental conditions of the plant, combined with a high mechanical strength, and be easy to apply.

The solution

A three-coat system, with our new Hempadur Avantguard 550 zinc primer at its core, met all the company's requirements and was applied to 6,100m² of steelwork to ensure a high degree of protection and durability in this aggressive industrial atmosphere.

At a glance	
Customer	ArcelorMittal Kryvyi Rih
Location	Ukraine
Date	2015
Coating	Hempadur Avantguard 550
Delivery to	Ukraine

To find out more:

avantguard.hempel.co.uk

See what our customers who are using Avantguard have to say.

View our videos online to discover more about Avantguard technology.

Speak to your local Hempel Protective Coatings representative for more information.

Redefine your expectations of anti-corrosion coatings with Avantguard

Avantguard

Redefining anti-corrosion

Since 1915 Hempel has been producing protective coatings that help customers to safeguard their assets whilst keeping them looking their best. Today we are a world-leading supplier of trusted solutions in the Protective, Decorative, Marine, Container and Yacht markets. Employing over 5,500 people, across 80 countries worldwide, with 28 factories and more than 150 stock points globally. This includes many recognised brands like Crown Paints, Blome International Inc, Schaeppman and Jones-Blair.

Hempel UK Ltd

Berwyn House
The Pavilions
Llantarnam Park
Cwmbran
South Wales
NP44 3FD

Tel: +44 (01633) 874024
Email: sales.uk@hempel.com