



You Build, We Protect!

NEWSLETTER

HEGSEL® Coat 111

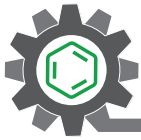
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Arteries:
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Superior Protection for Steel Structures

The Critical Challenge of Crude Pipe Corrosion in Oil Pipeline Integrity

Crude oil pipelines are essential components of the global energy infrastructure, serving as the lifelines that transport oil from production sites to refineries where it is processed into fuel and other valuable products.

Crude pipe corrosion is the deterioration of pipeline material caused by chemical reactions between the pipe's metal and various corrosive agents present in or with the crude oil. This form of corrosion is particularly concerning for pipelines because it can lead to the weakening of the pipeline walls, making them more susceptible to leaks and ruptures. The presence of water, sulfur compounds, and bacteria in the crude oil are common culprits, each contributing to accelerated corrosion rates. Additionally, the impact of abrasive particles and the low-pH acidic content in crude oil cannot be overlooked, as they

significantly intensify the corrosion process.

Corrosion can lead to costly downtime and repairs, as well as the need for frequent pipeline inspections and replacements, significantly increasing operational expenses. Such degradation not only threatens the safe and efficient transport of oil but also poses significant environmental and safety risks, leading to potential oil spills that can cause severe ecological damage and endanger human lives.

Therefore, managing crude pipe corrosion is vital for maintaining the structural integrity and reliability of oil pipelines, making it not just a matter of maintenance, but a critical aspect of ensuring steady energy supplies, operational safety, environmental responsibility, and economic efficiency in the oil and gas industry.





Techniques for Corrosion Prevention and Management in Oil Pipelines

Preventing and managing crude pipe corrosion necessitates a comprehensive, multifaceted strategy designed to prolong pipeline lifespans and ensure safety in operations. This strategy incorporates several advanced techniques, each contributing uniquely to corrosion control.

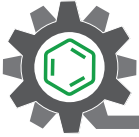
Corrosion Inhibitors are specialty chemicals infused into the crude oil that actively combat corrosion by forming a protective film on the inner walls of the pipeline. While effective in reducing direct chemical attacks, their efficiency can be influenced by the oil's composition and the operational environment of the pipeline.

Cathodic Protection involves attaching a sacrificial anode to the pipeline, which is more prone to corrosion than the pipeline material itself. The anode sacrifices itself by corroding first, thereby protecting the pipeline.

This method is particularly effective for mitigating external corrosion and is widely used in buried or submerged pipelines. However, this technique can be costly to install and maintain, especially for extensive pipeline networks. It alone cannot provide adequate efficiency to combat corrosion and is commonly utilized in combination with other corrosion prevention methods for optimum protection.

Regular Monitoring and Maintenance technologies such as inline inspection tools, known as "smart pigs", and various non-destructive testing methods are integral to detecting early signs of corrosion. These tools enable operators to identify and address potential issues before they lead to significant damage or failure, thereby preventing costly repairs and downtime.

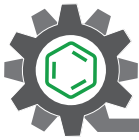




Among the various anti-corrosion strategies, Protective Coatings stand out due to their efficacy and versatility. These coatings are applied to both the interior and exterior surfaces of pipelines, forming a resilient physical barrier that isolates the metal from corrosive agents. Modern coatings are engineered to be highly resistant to a variety of chemical attacks and can significantly extend the pipeline's operational life compared to other methods. The coatings are also easier to inspect and maintain, making them a preferable choice in many scenarios.

Protective coatings are highly effective in defending against the full spectrum of corrosive forces, offering both durability and cost-effectiveness to comprehensively enhance pipeline integrity. Among these, **HEGSEL Coat 111** stands out as a high-performance corrosion protection epoxy coating. Designed to shield industrial surfaces against severe corrosive environments, this robust coating ensures superior adhesion and durability, providing long-lasting protection for a wide range of applications.





High-Performance Corrosion Protection Epoxy Coating

HEGSEL Coat 111 is an advanced two-component epoxy coating, featuring micro-ceramic particles within a state-of-the-art Novolac-resin base. It delivers exceptional corrosion protection and superior abrasion resistance, making it ideal for safeguarding steel structures against corrosion-induced deterioration. The inclusion of micro-ceramic particles enhances durability, providing a strong solution to extend the lifespan of steel surfaces in harsh environments.

Application of **HEGSEL Coat 111** is optimized using airless spray equipment, allowing for a high-build, single-coat application. This method

ensures efficient and uniform coverage, maximizing time and resource efficiency. For projects requiring enhanced protection, multiple applications are possible, offering customizable levels of defense to meet various environmental and structural demands.

A standout feature of **HEGSEL Coat 111** is its unique formulation that eliminates the need for a primer, streamlining the coating process and reducing preparation time and complexity. This flexibility ensures that **HEGSEL Coat 111** can be tailored to meet specific project requirements while maintaining its exceptional protective properties.



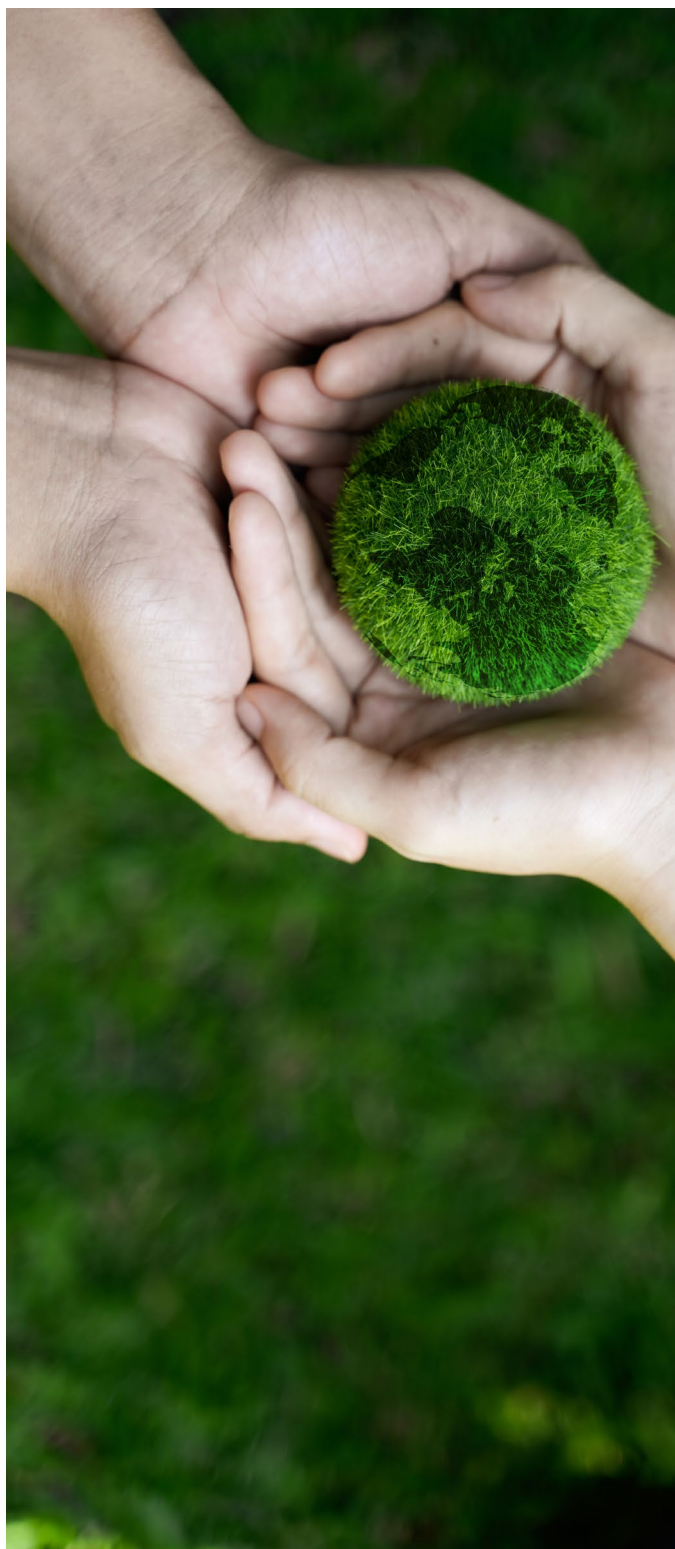


Exceptional Performance and Environmental Friendliness

HEGSEL Coat 111 stands out in the protective coatings market with a Volatile Organic Compounds (VOC) content of less than 1%, making it an environmentally friendly choice. This low VOC formulation is free from harmful heavy metals, benzyl alcohol, coal tar, anthracene oil, and plasticizers, ensuring a safer application and reduced environmental impact. Despite its eco-friendly composition, **HEGSEL Coat 111** does not compromise on performance. It offers exceptional corrosion protection, effectively safeguarding metal surfaces from the deleterious effects of environmental exposure and chemical interactions.

Durability & Mechanical Strength

Engineered for robustness, **HEGSEL Coat 111** exhibits remarkable adhesion strength and superior resistance to abrasion. This ensures that the coating remains intact and effective even in harsh conditions. Its high impact resistance adds an extra layer of durability, protecting surfaces from mechanical damage. Moreover, the coating maintains its integrity without shrinkage, as it is free from plasticizer migration. This stability translates to a longer lifespan and reliable performance, making **HEGSEL Coat 111** a prime choice for industries demanding durable surface protection.





Versatile and Resilient Application

HEGSEL Coat 111 is designed for versatility, curing at ambient temperature which simplifies the application process and reduces energy consumption. It consistently withstands temperatures up to 100°C for non-immersed conditions and can endure short-term spikes up to +150°C. This thermal resilience, coupled with high resistance to early water stress, makes **HEGSEL Coat 111** suitable for various demanding environments. Whether applied in industrial, marine, or construction settings, this coating ensures robust protection and longevity, ensuring that surfaces remain shielded from wear and environmental stressors.



Application Areas

- Industrial and marine structures, including offshore platforms
- Water, seawater, brackish water equipment
- Flood gates, steel sheet piles, and weir plants
- Storage tanks for crude oil, hydrocarbons, and chemicals
- Various types of process vessels
- Oil and gas pipelines

Chemical Resistance

- Industrial and marine conditions
- Water, seawater, brackish water
- Mineral oil, aliphatic hydrocarbons
- Neutral salt solutions
- Diluted acids, alkalis
- Oil, fat, lubricants and fuels