



You Build, We Protect!

NEWSLETTER

HEGGEL® Coat 101

July 2021



INSIDE THIS ISSUE:

Safe & Effective
for
Potable Water

- ◆ Contamination and Corrosion
- ◆ Coating Characteristics
- ◆ Risks of Common Coatings
- ◆ Excelling Standards
- ◆ AWWA Approved

Contamination and Corrosion in Potable Water Containers & Piping

The purity of drinking water is a matter of primary concern. On one side, the drinking water supply must be stored in containers made of material which will keep it safe from contaminations and bacterial growth. On the other side, the potable water usually traverses through pipes made of steel to be delivered safely. However, the porosities, micro-cracks and unevenness of the surfaces, whether in containers or pipes, enhance bacterial adherence and biofilm development, endangering water safety.

Moreover, when container/pipe material comes in contact with water, degradation will invariably occur due to corrosion. Diverse but interrelated factors influence the corrosion on water contact surfaces; for instance: Various constituents of water such as calcium carbonate gradually cause scale formation; or microorganisms initiate destructive microbiologically induced corrosion (MIC); or the selected material of the container/pipe itself could add up to the onset and/or the acceleration of corrosion. In addition, high flow rates can also cause internal erosion corrosion or in some cases cavitation corrosion. Not to mention the presence of gritty contaminants in water which can also speed up erosion corrosion. Additionally, due to internal corrosion, metallic ions from the container/pipe are continuously released into the water (stream). When the level of impurities exceeds the prescribed limits, the effects can include changes in water odor and taste, discoloration and ultimately adverse health consequences.



Characteristics of Potable Water Coatings

The interior surfaces of containers/pipes should be coated/lined, serving as an impermeable barrier in contact with the potable water, to prevent the chemical/gritty compounds and moisture from coming into contact with the substrate. The effective corrosion protection provided by the internal coating would not only ensure health and safety of the water supply, but through increasing the diffusion barrier, would also result in greater longevity of the water transport systems.



When surface materials are in contact with drinking water, impurities may leach into the water, impacting its wholesomeness. This may affect the water quality by the release of undesirable or toxic compounds and microbial contamination. Therefore, internal coatings are required to comply with standard specifications to determine suitability for contact with potable water. Residue-free and solvent-free coatings must be chosen to meet international guidelines concerning hygienic assessments for coatings in contact with drinking water.



The corrosive elements soluble in the water such as oxygen and carbonic acid, can cause corrosion attacks to the pipes and containers. To prevent the formation of rust and calcination layer on the coated inner parts of drinking water pipelines/containers; characteristics of a standard coating must include surface smoothness, reduced microbial adhesion, low roughness, and small friction coefficient. Adequate adhesion of the coating to the substrate is another key trait in making it safe and harmless to human body. From the environmental aspect, the requirements highlight solvent-free or low-VOC coatings that impose no added pollution on the environment.

Risks & Shortcomings of Common Coatings

Common types of internal coating or lining materials for potable water transmission pipes/containers include coal tar enamel (CTE), cement mortar, fusion bonded epoxy (FBE), and polyurethane (PU), each of which offering advantages and restrictions, depending on their respective characteristics, installation requirements, surface preparation and application procedure. For instance, uneven surfaces of coal tar/cement mortar coatings are prone to bacterial growth. Polyurethane (PU) coatings, on the other hand, may contain relatively aggressive solvents that can attack the paint itself, making it shrivel and peel.

Since traditional coatings are mainly solvent based, prolonged curing process needed for evaporation of solvents is a considerable disadvantage they share; taking into account that to reach the adequate thickness, several layers of coating must be applied within time consuming intervals. The application of several layers of coating also results in labor costs as well as the possibility of intercoat adhesion failure. Availability of qualified applicators, extended downtime and exposure of workers to harmful volatile components are just some of the challenges in the application of the common coatings.



Excelling The Standards: HEGGEL® Coat 101

HEGSEL Coat 101 has been innovatively formulated to protect the substrate by creating a uniform barrier film against corrosion; successfully surpassing the standard requirements of the American Water Works Association (AWWA), a preeminent international organization that publishes standards describing requirements for design, installation, performance, and manufacturing of products used in the drinking water industry. HEGSEL Coat 101 has fulfilled all AWWA C210-15 certification requirements as a revolutionary and highly cost-effective liquid-epoxy coating approved for steel water pipe and fittings. The coating is featured by long-term durability, impermeability and exceptional physical properties, derived from the unique structure of non-leafing lamellar flake reinforcement built into the product which performs as diffusion barrier within a high-performance epoxy backbone to provide long-term protection for various substrates.



The environmentally friendly HEGSEL Coat 101 exhibits easy application and high-quality finish compared to the traditional solvent-based counterparts, improving coatings performance by preventing the formation of rust and reducing coefficient of friction. Due to the low molecular weight of the product, cross-linked density is increased to provide better chemical and moisture resistance.

HEGSEL Coat 101 popularity is largely owing to its easy single-coat application process without need for any primers, turning the application as well as repair and maintenance extremely convenient. The coating forms strong mechanical bonds to steel/concrete substrates of potable water pipes/storage tanks, and even provides superior adhesion to existing coatings on older facilities.

HEGSEL Coat 101 is applied directly on the substrate with minimal preparation and curing time. Accordingly, the product is regarded as a time-saving solution that lowers operating costs and needs fewer repairs, providing an extended design life and adequate protection against corrosion.



Advantages

- + **AWWA C210-15 approved**
- + Single-layered
- + Self-priming
- + Solvent-free
- + Extremely impermeable
- + High-strength corrosion resistance
- + Excellent adhesion strength
- + Outstanding abrasion resistance
- + Easy application & quick drying
- + Easy to repair



Application

- ✓ Storage/process tanks
- ✓ Pipelines
- ✓ Vessels
- ✓ Offshore and marine platforms
- ✓ Desalination and water treatment equipment