



Green corrosion protection inhibitors for food and beverage industry

For companies involved in the food and beverage industries, corrosion prevention is non-negotiable. Corroding equipment requires costly repairs and can contaminate products. Among other materials, aluminum, tin, copper, titanium, and mainly stainless steel are widely used in these industries. Processed foods contain aqueous solutions such as syrups, and additives used to improve food appearance, quality, and preservation. These solutions have a wide pH range and varying salt, water, and vinegar content that can accelerate food corrosivity.

Cleaning and sanitation agents used in the industry include alkaline, acidic and oxidising chemicals to ensure a high hygiene level. These corrosive environments and aggressive chemical agents require cautiousness when it managing corrosion protection. Not only must the legal requirements for hygiene be adhered to, but occupational health and safety guidelines as well.

Three types of cleaning and sanitation agents are applied in the food industry, creating corrosive environments:

1. Alkaline: such as caustic soda, alkali phosphates, sodium carbonate and bicarbonate;
2. Acidic: phosphoric, citric, and sulphamic acids
3. Oxidisers: chlorine, nitric acid, ozone, hypochlorite, hydrogen peroxide

Cortec's VpCI (vapour phase corrosion inhibitor) technology emerges as an efficient solution for the food industry. By employing VpCIs, producers can prevent equipment damage and potential food contamination. VpCIs can be applied to protect a range of equipment and surfaces in food processing facilities, including cans, water tanks, and the exteriors of structures made from materials like carbon and galvanised steel, concrete, or wood.

Meanwhile, the production of beverages involves great quantities of water in cleaning, storage, and bottling procedures. Many beverages are also acidic and aggressive to carbon steel, requiring the protection of equipment from corrosion. In addition, the wet, damp, and high humidity conditions

contribute to plant corrosion and premature equipment failure. Here, VpCIs can protect cans, water tank containers, and exteriors of installations made with carbon and galvanised steel, concrete, or wood.

Cortec offers a wide range of environmentally safe corrosion protection products that are USDA, FDA and NSF compliant. Environmentally safe and cost-effective when it comes to corrosion protection, Cortec's products form with a thin, mono-molecular protective barrier. The barrier re-heals and self-replenishes and can be combined with other functional properties for added protective capabilities. They offer safe, certified, efficient, and economical corrosion protection for the food, beverage, and pharmaceutical industries.

BIOBASED CORROSION INHIBITOR FOR FOOD CAN PROTECTION

Although cans spend most time sitting on shelves in dry environments, after their production they pass through a hot steam for the sterilisation and sometimes through a cold-water bath. The exposure



of the metal to steam, water and air during these stages easily leads to corrosion.

Cortec's solution can be added at a very low dose to the sterilisation and cooling water, providing a thin protective layer that will not form sticky deposits on the surface of the can. The S-8-Corrosion Inhibitor for Food Can Protection is part of a wide range of Cortec's corrosion protection products.

The S-8 is an economical product formulated only from FDA approved ingredients. It can be used in very low concentration and still provide complete corrosion protection in water, its vapours and their interface. The green, non-toxic inhibitor is also useful for the corrosion protection of metallic cans with different food items during their washing or sterilisation of the packed food. It is compatible with most products used in water treatment and is efficient against corrosion in the presence of disinfectants and does not hydrolyse during the application.

The S-8 contains 71% USDA-certified biobased content, and is a qualified product under the mandatory federal purchasing initiative of the USDA bio-preferred programme. Active ingredients also include the sodium salt of fatty amino acids and amino alcohol.

Benchtop laboratory tests have demonstrated film persistency and stability in a wide temperature range. The S-8 is compatible with the majority of water chemistries and outperforms other "green" inhibitors due to its

stability and ability to form a thin protective layer that will not cause sticky deposits.

BIOBASED LUBRICATION FOR FOOD PROCESSING FACILITIES

Many today are on the lookout for ways to implement sustainability into business and manufacturing. One simple way to do that is by instructing maintenance departments to exchange petroleum-based greases for biobased greases.

For the food industry, Cortec recommends the EcoLine bio-based food machinery lubricating greases to keep production rolling. The EcoLine bio-based food machinery grease #1 and #2 contain 96% USDA-certified biobased content. This high percentage of renewable content comes from natural seed oils that offer notable lubricity to moving parts. The greases are biodegradable and not toxic to plants, making them sustainable in regard to both sourcing and disposal.



Although the EcoLine bio-based food machinery grease #1 and #2 can be used in almost any industry, they are especially suited to lubrication of food processing machinery. Both greases have been registered with the NSF nonfood compounds registration program as H1 category lubricants, allowing them to be used where incidental contact with food is possible. The EcoLine bio-based food machinery grease #1 is an NLGI Grade 1 grease that is suitable for low-speed bearings, oscillating machinery, and other ambient or low temperature applications. On the other hand, the EcoLine bio-based food machinery lubricating grease #2 is an NLGI Grade 2 grease for bearings, gears, and machine slides.

KEEP THE CONVEYORS ROLLING

Gears and conveyors are a vital part of food processing facilities, and they require lubricants to operate. Now, they can continue to function without petroleum-based greases, with biobased alternatives like Cortec's EcoLine greases.

Unlike conventional corrosion inhibition methods, Cortec's VpCIs are self-replenishing. VpCIs can be added into any part of the system at single or multiple points. Cortec VpCI products are free of chromates, heavy metals, phosphates, or chlorinated hydrocarbons. Its organic formulations provide an environmentally friendly way to protect and extend the life of products and equipment in food and beverage industries. **FBA**