

BETTER AGRICULTURAL STEEL PROTECTION WITH

# INTERCOAT<sup>®</sup> CHEMGUARD

**CHEMCOATERS** **CC**  
ENGINEERING STEEL PERFORMANCE

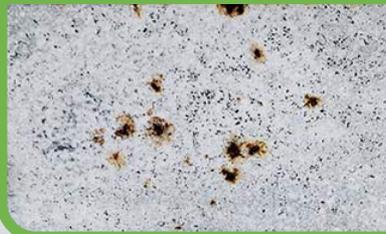
Protect your building components and production equipment from ammonia gas corrosion created by livestock.

Accelerated Animal Confinement Chamber | *All Samples Exposed to 1,200 Hours*

HDG G40 - Hex Chemtreat



HDG G90 - Hex Chemtreat

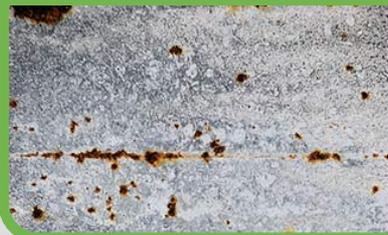


ZAM<sup>®</sup> ZM90 - Hex Chemtreat



VS

HDG G40 - InterCoat<sup>®</sup> ChemGuard



HDG G90 - InterCoat<sup>®</sup> ChemGuard



ZAM<sup>®</sup> ZM90 - InterCoat<sup>®</sup> ChemGuard



Specifically designed for harsh agricultural conditions, InterCoat<sup>®</sup> ChemGuard extends metals life and reduces corrosion-protection costs:



Gates & Pens



Ventilation Systems  
& Fans



Galvanized Components  
& Accessories

**CHEMCOATERS.COM**

# Accelerated Testing Norms for Carbon Steel (Sheet) in the Animal Confinement Industry

## Abstract:

Chemcoaters, an innovative coil-coater and expert in corrosion resistance, created a both customized cyclic corrosion chamber & testing method to best replicate the conditions seen on pig & poultry farms. This novel testing capability and methodology will allow customers to analyze raw material performance more quickly and effectively. Similarly, this experiment has led us to develop new coil-coating technology to address challenges seen by end-users in this segment (ask us about it!).

### >> Problem #1

Housing and raising livestock indoors (specifically pigs and poultry) allows for the accumulation of solid & liquid animal waste in areas with reduced ventilation. The ammonia and urea in these waste products can create very corrosive conditions for metal building products – especially when conditions allow for the creation of ammonia gas.

*This is a major problem for a massive industry; the meat & poultry industry is the largest individual segment of the US Agricultural industry.*

### >> Problem #2

Discussions with fabricators and OEMs in the Animal Confinement industry noted that there was no standard for accelerated corrosion testing upon which they could base raw material decisions. Customers must often wait years to gauge how a trial of a new raw material performs in-situ.

## Creating an Accelerated Corrosion Test:

Chemcoaters' R&D team built an accelerated (cyclic) corrosion chamber & developed a testing methodology. Based on extensive research – Chemcoaters saw several essential components for the test;

- ✔ Urea, ammonia, and nitrate compounds in a controlled solution.
- ✔ pH level of 7 – 8 to promote the release of ammonia gasses.
- ✔ Wet-dry cycling and restricted ventilation for sufficient build-up of corrosive elements.

Chemcoaters drew on extensive experience with salt-spray testing (ASTM B177) and cyclic testing (SAE J2334) to create a measurable result.

**Results:** Chemcoaters tested several rounds of galvanized steel panels (GI, Zn-Al-Mg) in the custom-built cyclic testing chamber. Chemcoaters found failure modes in the chamber that correlate to observations made by our customers & industry contacts. **The test chamber was able to simulate 1.5 years' worth of chicken coop exposure in approximately two weeks' time in-house.** Chemcoaters also used this data to QC a new formulation of our patented InterCoat® ChemGuard specifically for Animal Confinement end-use.

### >> Why it Matters:

This custom-designed cyclic corrosion test provides three primary benefits;

1. The ability to mimic real-world conditions & establish realistic failure modes.
2. The chamber allows for more regular monitoring & follow-up.
3. Results can be obtained up to 35 times faster than current trialing / sampling methods.

## REACH OUT TO CHEMCOATERS!

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