CASE STUDY

Proven Protection: Filming Amine Keeps Critical Greenhouse Heating System Clean and Stable

CHALLENGES

A newly commissioned 4-million-litre heating system in a large-scale greenhouse needed proven corrosion protection from day one. Even minor corrosion in such a critical system could lead to rising costs, efficiency losses, and early degradation. The goal was long-term stability, without frequent adjustments or invasive maintenance.

SOLUTIONS

Guardian Chemicals commissioned the system and introduced a filming amine-based treatment program from system startup. This technology forms a protective barrier along metal surfaces in the system, minimizing corrosion without affecting system operation. The program included:

- Continuous monitoring of filming amine residuals
- Monthly metal testing (iron and copper)
- Regular corrosion coupon testing to validate performance

RESULTS

Proven Corrosion Control

100% of copper and iron results remained within target range across four years of operation.

Verified Long-Term Stability

Coupon testing confirmed corrosion rates well below industry standards—ensuring system integrity.

Reliable, Low-Maintenance Program

No chemical changes or flushes needed—just consistent protection and peace of mind.

AT A GLANCE

A commercial greenhouse operating a 4,000,000-litre closed-loop heating system required long-term corrosion protection for this critical asset. Guardian Chemicals implemented a filming amine treatment program that delivered stable system chemistry, excellent corrosion rates, and clean internals over 4+ years of operation.

KEY METRICS

4+ YEARS CLEAN & PROTECTED

4M LITRE HEATING LOOP

75% BELOW INDUSTRY LIMIITS
CORROSION RATES VALIDATED BY COUPON TESTING

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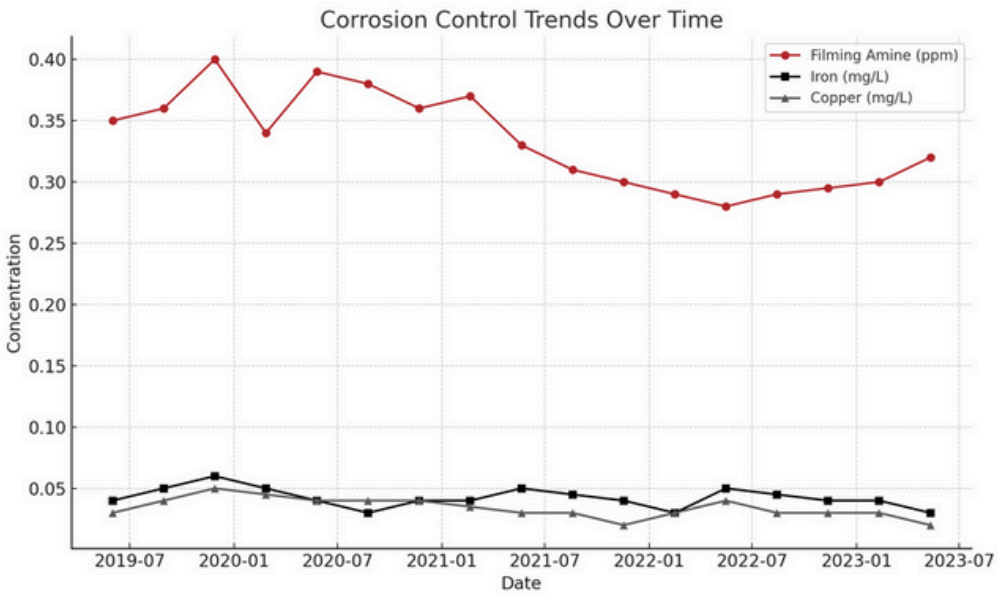
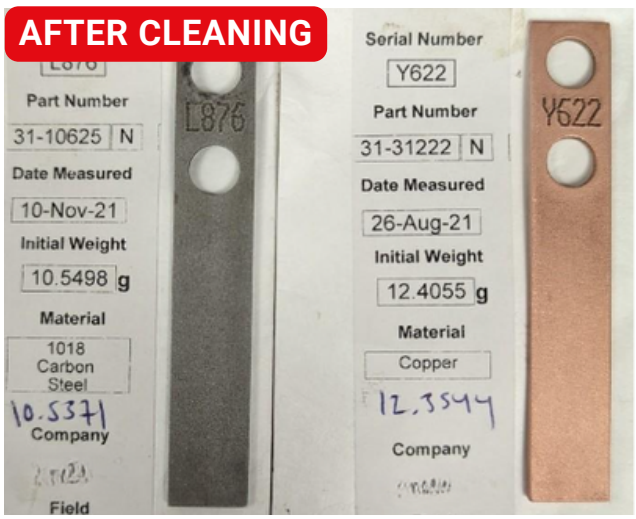
DATA



Consistent Corrosion Control Over 4+ Years
Filming amine, copper, and iron levels remained stable throughout four years of operation, confirming reliable system protection and excellent program performance.

Before and After: Coupon Validation Confirms Protection



Carbon steel and copper corrosion coupons exposed for 171 days show intact filming amine coating and minimal surface degradation, validating excellent corrosion rates of 0.0795 and 0.2804 mpy, well below industry thresholds.