

This study uses CFD to model how fouling in a power plant's feed water heater harms thermal efficiency, which is vital for achieving responsible energy.

The Challenge: Industrial Fouling



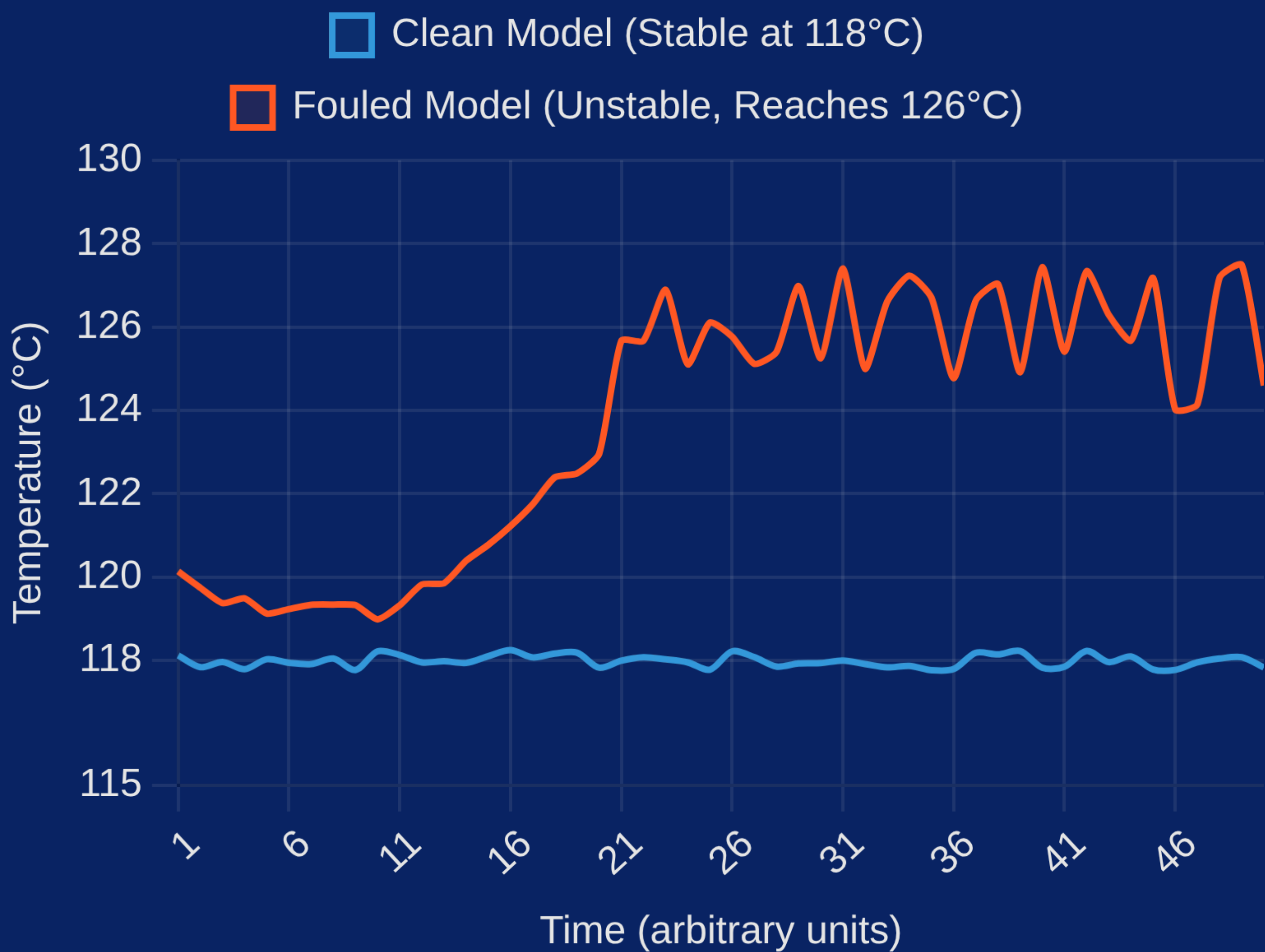
The Controlled Foulant

Foulant: Acrylic Polymer.

Rationale: Chosen as a scientifically controlled, representative model to simulate the insulating effect of real-world chemical deposition. Its known properties allow for accurate and repeatable CFD analysis.

Relevance: By precisely modeling this physical barrier, we can quantify the exact energy loss caused by any type of fouling, directly linking surface chemistry to energy waste.

CFD Simulation: Fouling Disrupts Thermal Stability



+8°C Rise: Exceeds Critical Design Limits

The Impact: Driving Responsible Energy & Sustainable Industry



SDG 7: Affordable & Clean Energy



SDG 9: Industry, Innovation & Infrastructure



SDG 12: Responsible Production



SDG 13: Climate Action

This research proves that the study of foulants is critical for Responsible Energy. By quantifying the inefficiency they cause, we validate a predictive model that directly links surface chemistry to lower energy consumption, reduced emissions, and sustainable industrial operations.