REINHOLD ENVIRONMENTAL Ltd.

2012 NOx-Combustion Round Table & Expo Presentation

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Top Three Principles For Hg Capture

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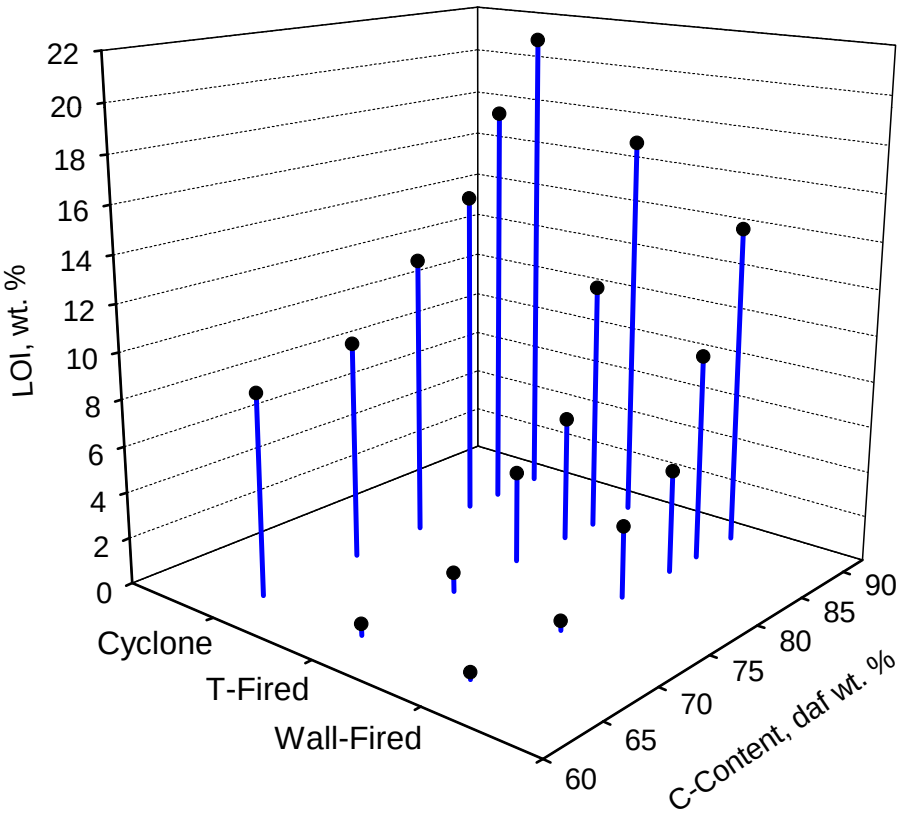
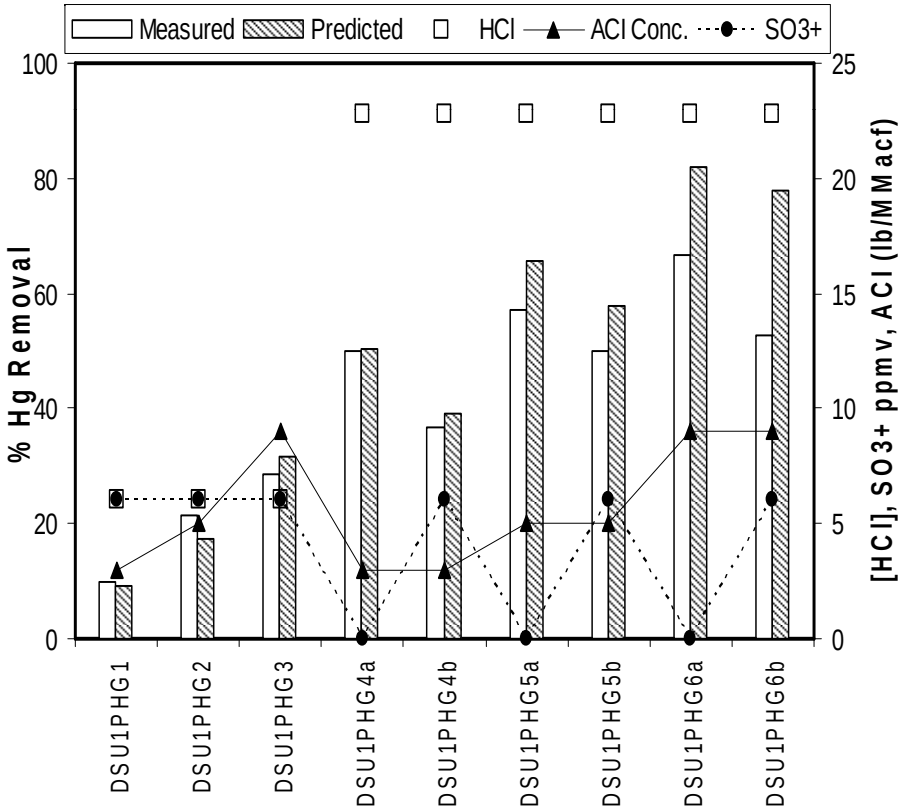
Know Your Fuel Quality Impacts



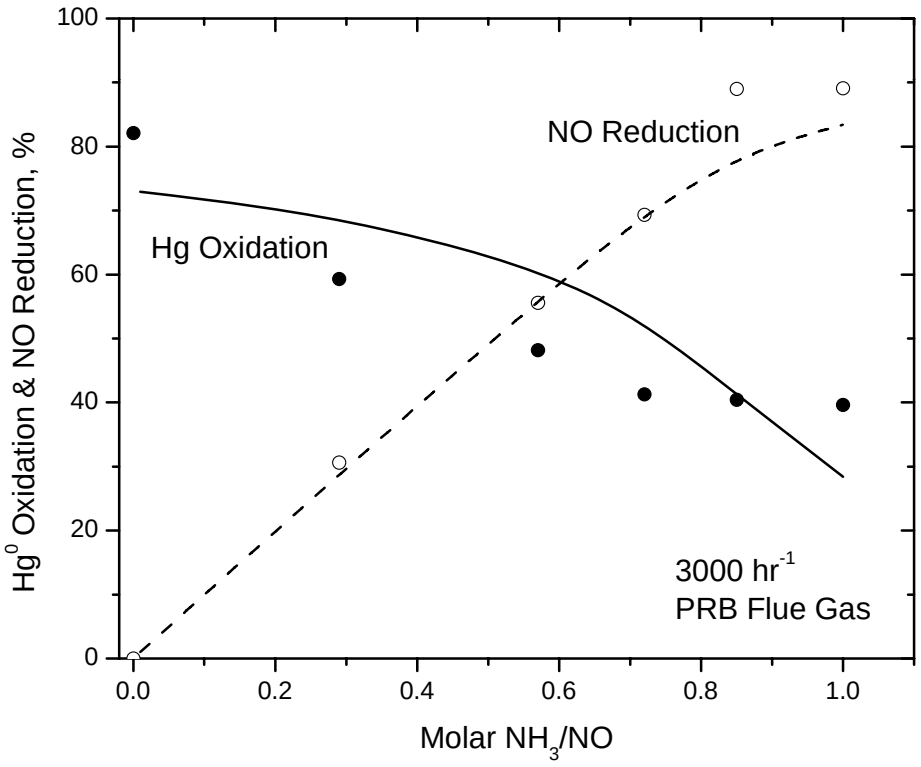
- *Coal rank determines LOI.*
- *Coal-Cl can fluctuate wildly.*
- *Do you need to add halogens ?*
- *When does coal-S knock out ACI ?*

Know Your Fuel Quality Impacts

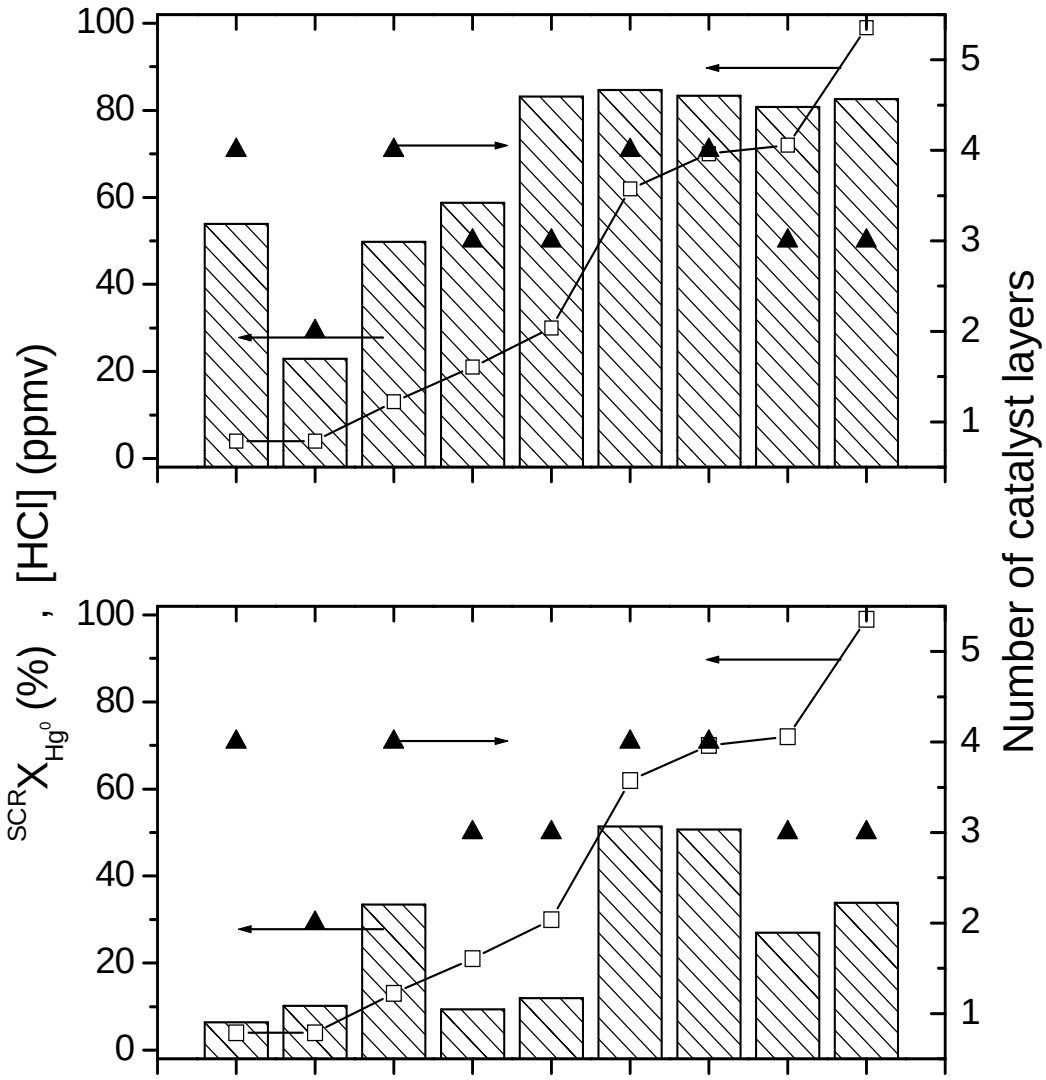


- *SO_3 levels can be accurately estimated.*
- *Key to ACI performance is avoiding H_2SO_4 condensation.*

Hg^0 Oxidation Across SCRs is Very Tricky

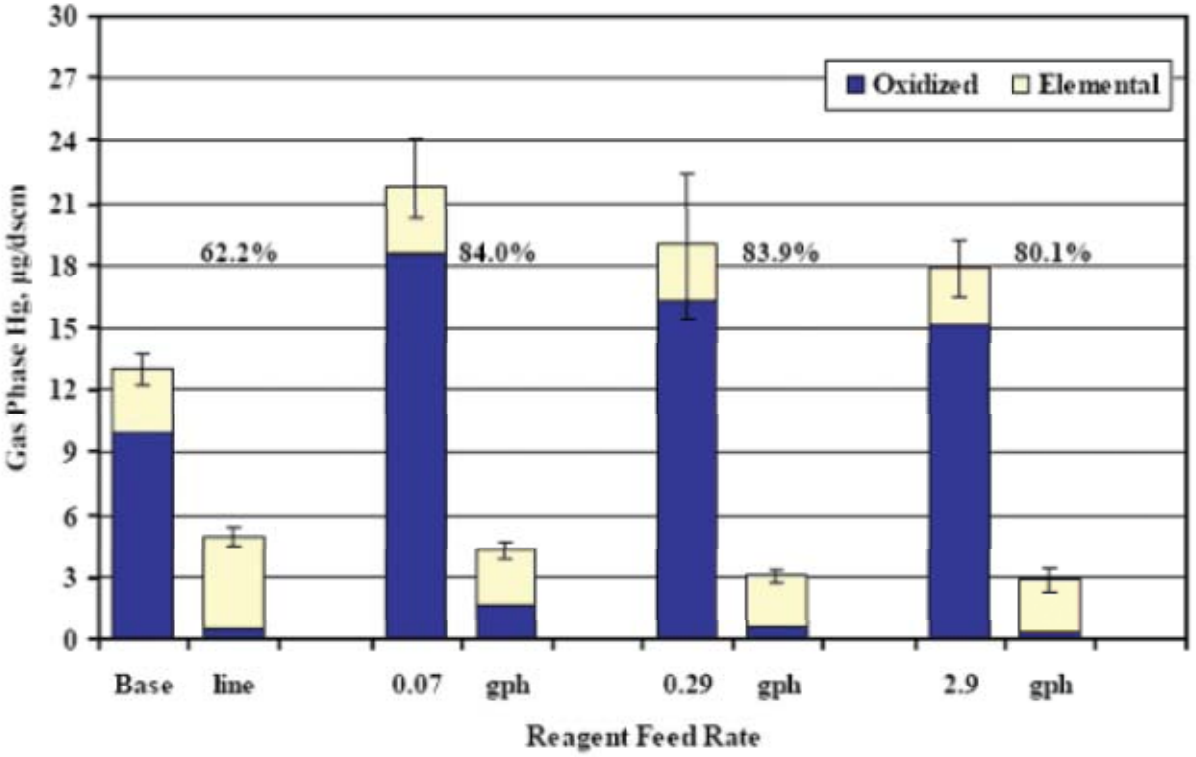


- *NH_3 inhibits adsorption of species that oxidize Hg^0.*
- *Most Hg^0 oxidizes through the trailing layers.*
- *No SCR has yet been designed for Hg^0 oxidation.*
- *Catalyst deactivation allows deeper NH_3 penetration, which inhibits Hg^0 oxidation.*



- *SCRs in the field often have layers with different design specs & ages.*
- *Must analyze deactivation on a layer-by-layer basis.*
- *Deactivation lets more NH_3 penetrate deeper into the SCR.*
- *Significant reductions in Hg^0 conversion.*

Hg^0 Re-Emission Is Important If You (Really !) See It



- *Occurs in cloud and rain water cycles.*
- *Well-documented in several pilot- and full-scale FGDs.*
- *S(IV) species implicated in Hg^{2+} reduction in aqueous solutions, and Cl^- & O_2 suppress re-emission.*
- *Cations (Ca^{2+}, Mg^{2+}) promote re-emission.*