

REINHOLD ENVIRONMENTAL Ltd.



**2013 NO_x-Combustion Round Table
& Expo Presentations**

February 18 & 19, 2013, in Salt Lake City, UT / Hosted by PacifiCorp

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SCR Effects on Downstream Mercury Control

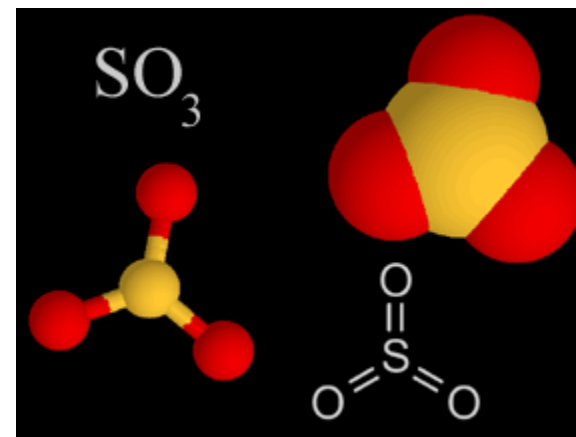
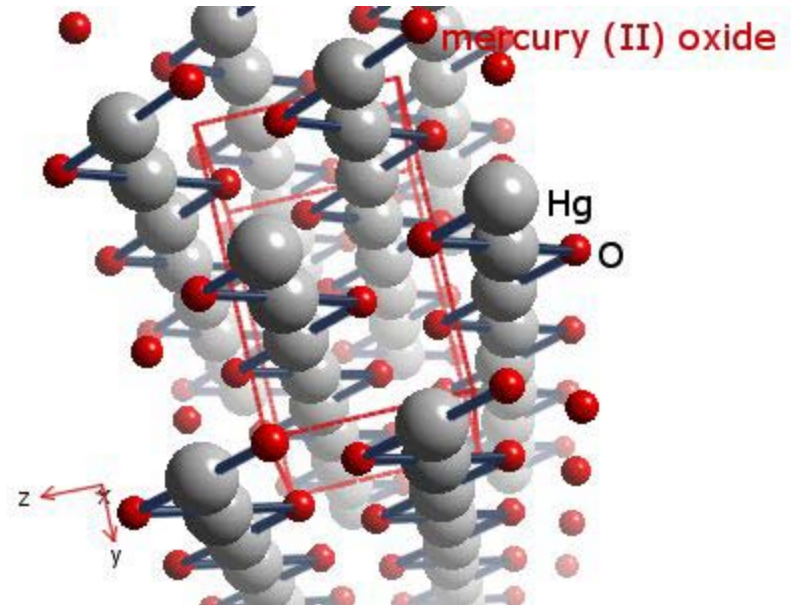
Reinhold NOx Combustion Roundtable
February 18th, 2013

Norit
leading in purification

Activated Carbon |

Areas of Impact on Activated Carbon

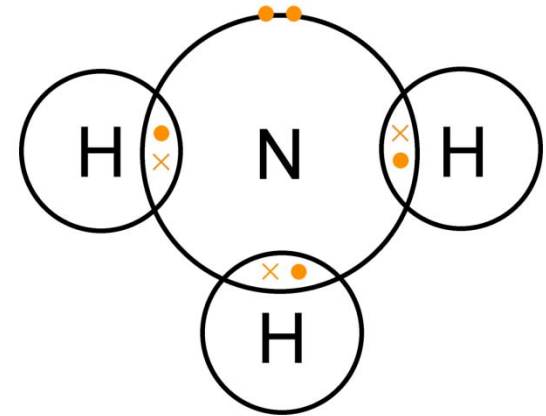
- Ammonia
- Mercury Oxidation
- SO_3
 - Variability
 - Level



Ammonia

The impact on activated carbon from ammonia slip has not been well studied.

- Low levels (< 5 ppm) not considered to impact negatively
- Higher levels (> 5 ppm) stoichiometric imbalances result in higher slip levels considered detrimental, consuming activated carbon surface
- Catalyst life



Mercury Oxidation

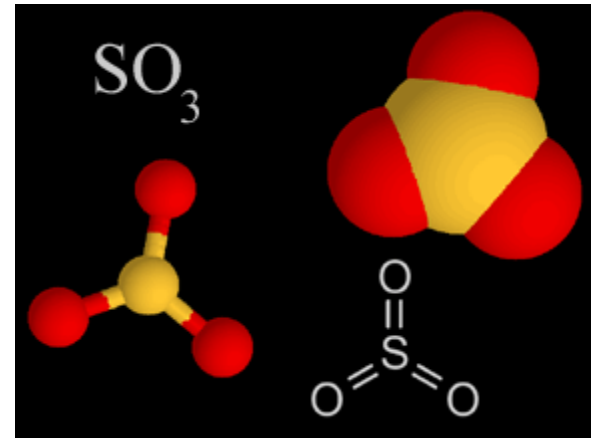
Improves Mercury Oxidation

- Clear benefit for AC and wet scrubbing
 - Activated carbon injection (may allow for use of untreated carbon)
 - Mercury capture during wet scrubbing
- Variability of mercury oxidation over catalyst life
 - Results in uncertainty in emission rate planning and predictability of capture in a wet scrubber
 - Activated carbon type may be affected
 - Newer catalysts minimizing this impact

SO₃ Impacts

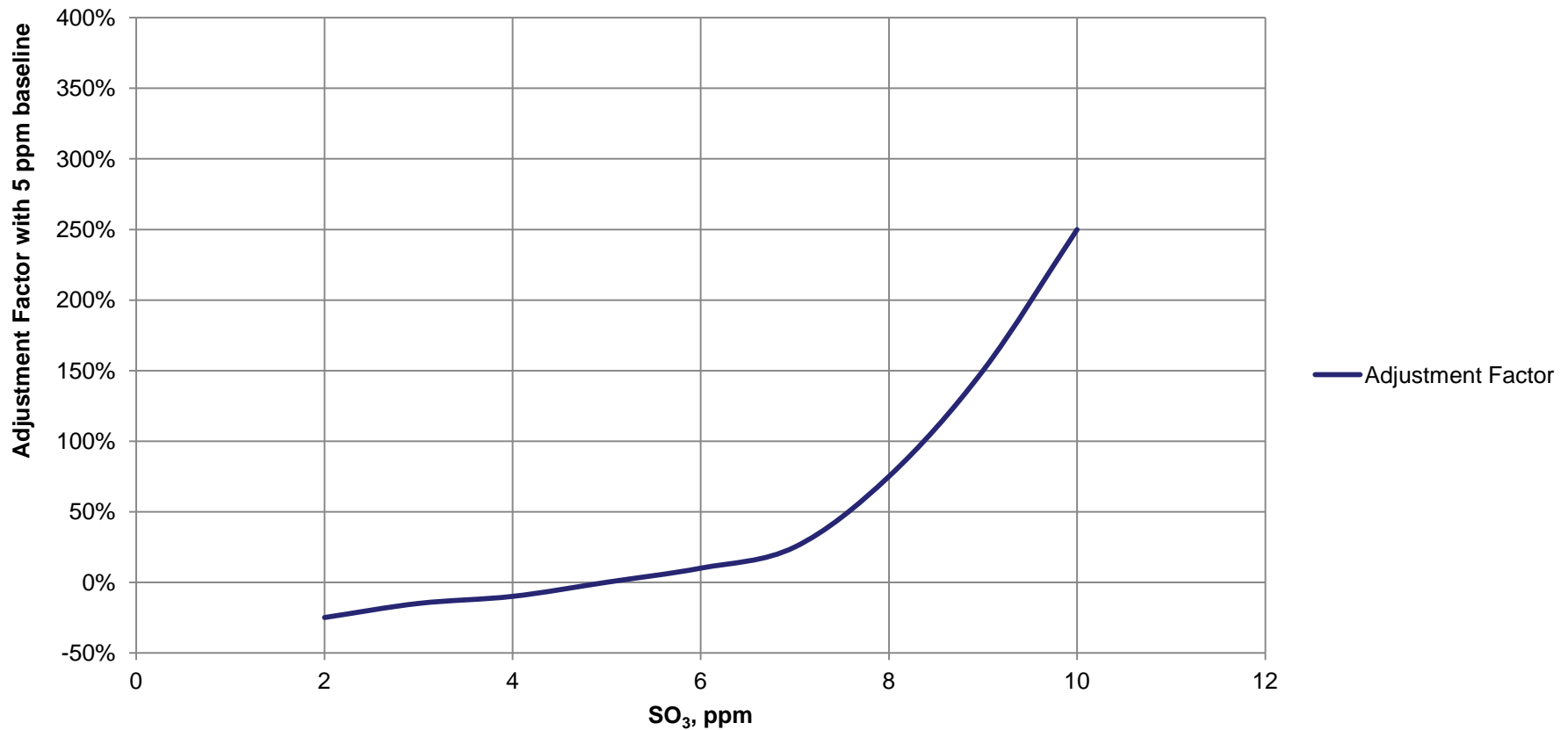
Higher SO₃ conversion from SO₂

- Poisons/fouls activated carbon
 - Results in higher injection rates
 - In worst case, non-achievable mercury emission rates
- Impacts from co-injection with dry sorbents
 - SO₃ reduction - good
 - NO₂ generation – bad
- May limit injection point locations.



SO₃ Impact

SO₃ Adjustment Factor



Activated Carbon Approaches to SO₃

Challenge

- Affinity of activated carbon for condensation
- SO₃ is present at 1000 times the concentration of the mercury

Possible solutions

- Surface treatments
- Neutralization
- Co-injection



Questions?



purification for life.