Dry Sorbent Injection for Simultaneous MATS Compliance/\text{SO}_2\text{ Removal}

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SO$_2$, Hg, and HCl Removal with DSI

TEST RESULTS
SO$_2$, Hg, HCl Removal Results from DSI Demonstration Tests
SO$_2$, Hg, HCl Removal Results from DSI Demonstration Tests
Multipollutant Removal with Trona Alone for E. Bit.

HCL Removal Typically 40% Higher than SO₂
Typically 40 TO 70% Hg Removal as a Co-Benefit
Multipollutant Removal with SBC Alone for E. Bit.

HCL Removal Typically 40% Higher than \( SO_2 \)
Typically 40 TO 70% Hg Removal as a Co-Benefit
Multipollutant Removal with SBC Alone for PRB Unit

HCl Removal Typically Higher than SO₂
No Significant Hg Removal as a Co-Benefit
HCl Removal with Trona for PRB Unit

Trona Injection for HCl Removal
PRB Unit

Percent HCl Removal

Trona Injection rate (lb/hr)

Unmilled Trona
Milled Trona
Mercury Removal for PRB Unit
Mercury Removal on E. Bituminous Unit

Hg Removal Percent
BPAC Injection

BPAC Only
Unmilled Trona (high volume) & BPAC
Unmilled Trona (low volume) & BPAC
Log. (BPAC Only)
SO$_2$, Hg, HCl Removal with DSI

CONCLUSIONS
Conclusions for E. Bituminous Fuels

- Trona and sodium bicarbonate demonstrated as effective sorbents for SO$_2$ and HCl removal, with a co-benefit of Hg removal for E. Bituminous coals
  - Hydrated Lime also effective at HCl removal with a Hg removal co-benefit
  - Over 90% SO$_2$ removal, up to 99% HCl removal, and up to 70% Hg removal

- Simultaneous high Hg removals for E. Bituminous coals requires mercury adsorbent injection
  - PAC or Brominated PAC typically used at AH outlet, with alkali sorbent at AH inlet for SO$_3$ removal
  - Over 90% Hg removal observed
Conclusions for PRB Fuels

- Fuel additive and PAC upstream of AH performs the best, but any trona/SBC injection must be at AH outlet
  - Otherwise, trona/SBC will react with halogen from fuel additive
- BPAC at AH inlet with trona/SBC at AH outlet performs very well
- BPAC and trona both at AH inlet can perform well in some cases
- Trona/SBC at AH inlet with BPAC injection at AH outlet is effective, but more BPAC needed
  - May be due to NO2 formation and/or HCl removal upstream of BPAC
- **Overall economics** should drive decision
Questions ?
For Further Information on
Dry Sorbent Injection Systems for SO₂, Hg and HCl Reduction

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