

Ten Years After Dry Sorbent Injection 2012



One Source

McIlvaine Hot Topic
June 2012

2002 – The Blue Plume

- High Sulfur Coal
- SCR
- Wet scrubber

- SO₃

- Gravimetric metering
- Delivery



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2012 – Coal Isn't King

- All coals
- MATS
- CSAPR
- NAAQS

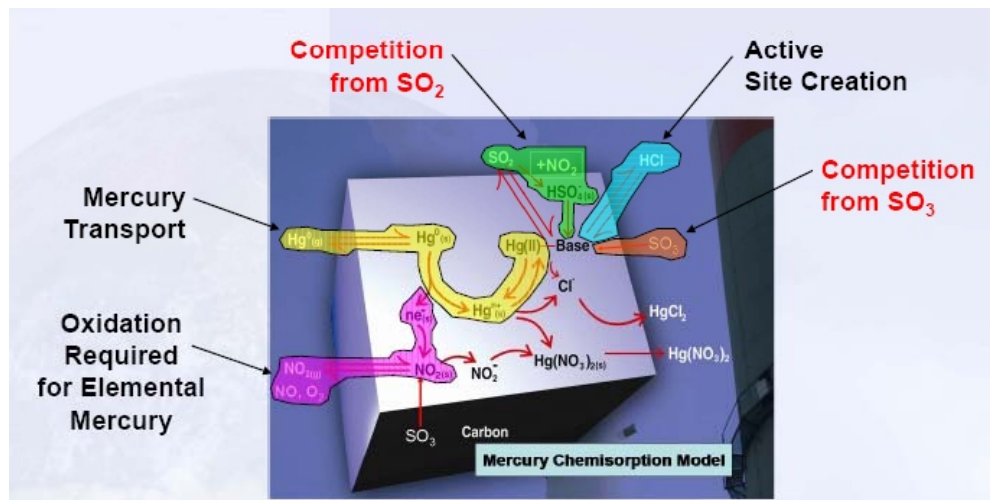
- HCl, Hg, SO₂, SO₃
- CO₂ coming
- Water and Coal Ash



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2012 – Sorbents

- HCl, Hg, SO₂, SO₃
- Selective Removal
- Competing Reactions
- Milling / Particle Size



Courtesy of EERC, 2011

One Source

To mill or not to mill?

As the use of trona in the mitigation of acid gases such as SO_x, HF and HCl increases, prospective users are considering milling.

The finer particles of additionally milled trona make for a more even distribution in the flue gas duct and lower diffusion resistance inside the sorbent particles, resulting in higher removal efficiency. Milling trona is advantageous if the temperature at the injection port is low (< 300°F) and the residence time is short, as may be the case with a cold-side ESP.

Many factors should be taken into account when deciding whether or not to mill trona. If you're looking for objective input, FLSmidth can help.

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Injection Rates

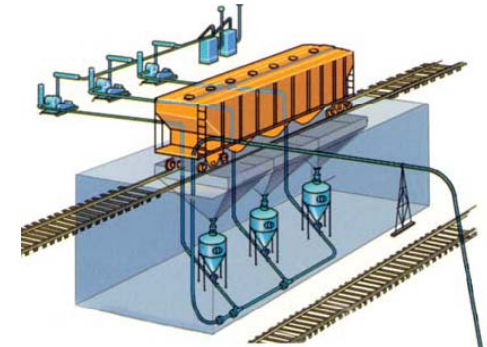
- Mercury and HCl removal can require low rates
- Microinjector™ Feeder - Smaller, more compact, accurate at very low flows (50-500 lb/h)



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Injection Rates

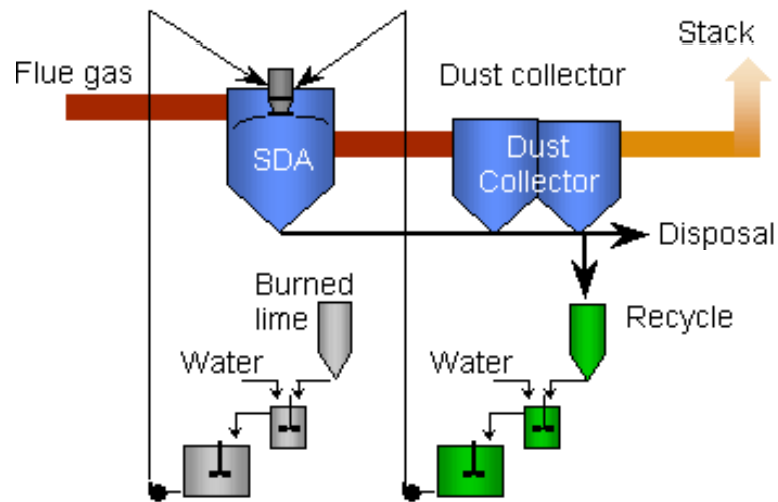
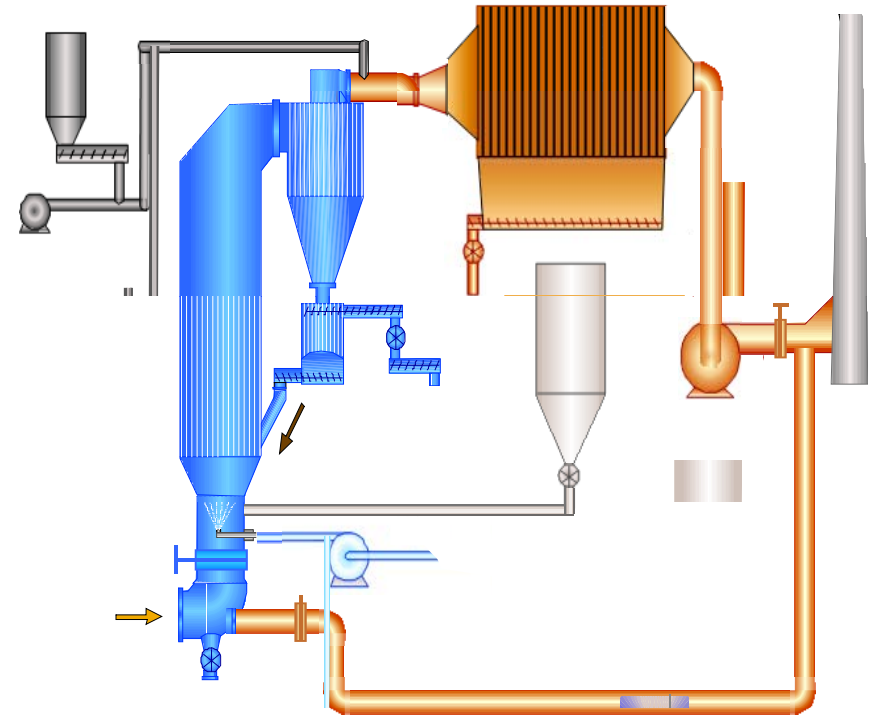
- Higher rates for SO₂ + HCl
- More likely to have rail car unloading
 - Pressure
 - FK Pump / Tanks
- Air treatment
- Pneubost™
- Storage Philosophy
 - Location of rail spur
 - transfer to day bins
 - Direct injection from storage



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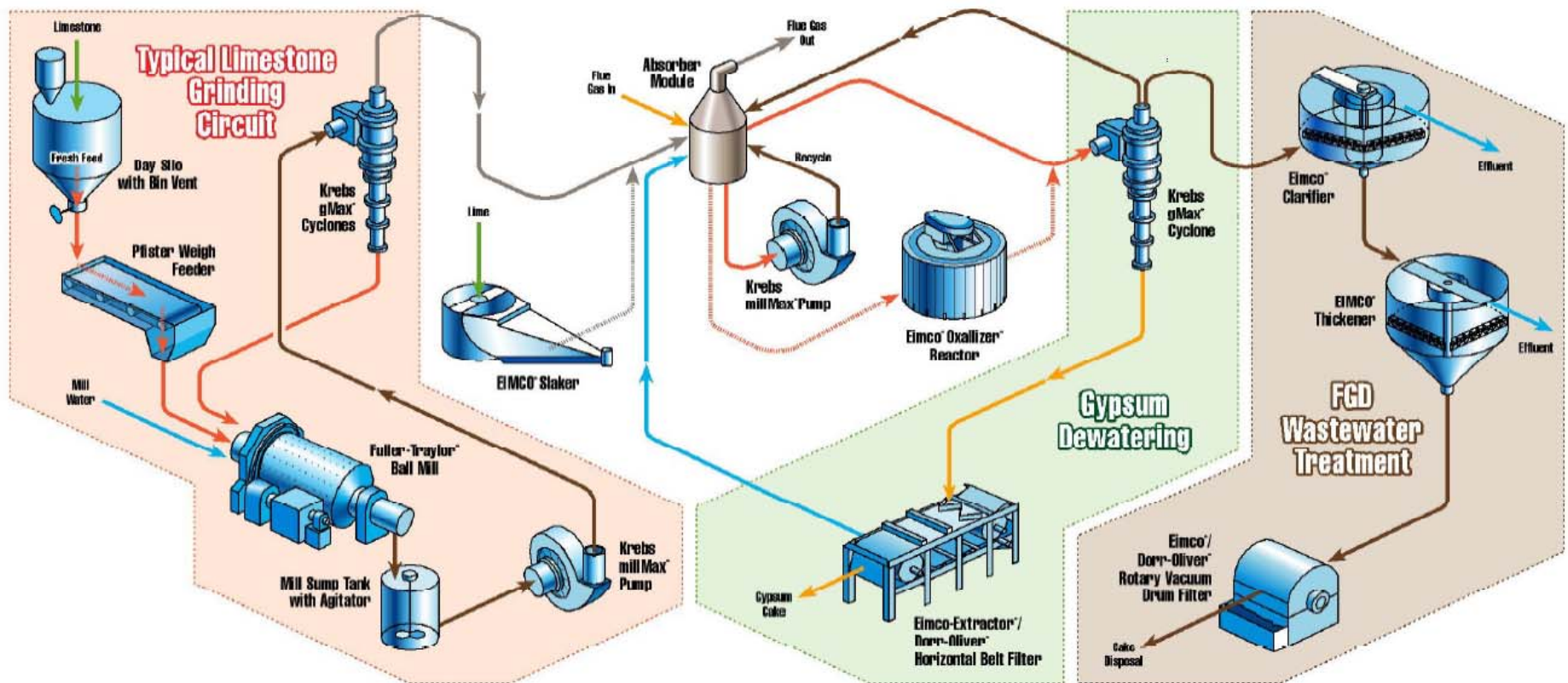
Competing Technologies

- Options for SO₂/HCl removal
- Capital / Operating Costs vs life of plant



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Competing Technologies



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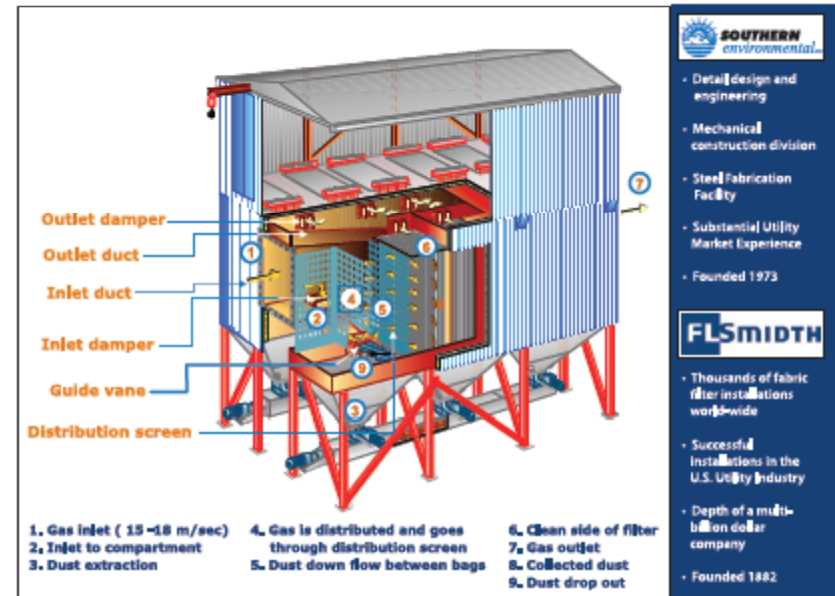
Competing Technologies



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APC Devices

- MATS PM, filterable only
- Improves sorbent efficiency
- Design adapted to improve filter cake, reduce “drop out”
- Replacement vs stand-alone polishing



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Decisions

- Pollutants
- Removal required
- Age of Unit
- Size of Unit
- Run Time – now and future
- Resources – water, sorbents
- Fly ash utilization
- Future Legislation



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