

Scrubber Additives and Oxidation Catalysts

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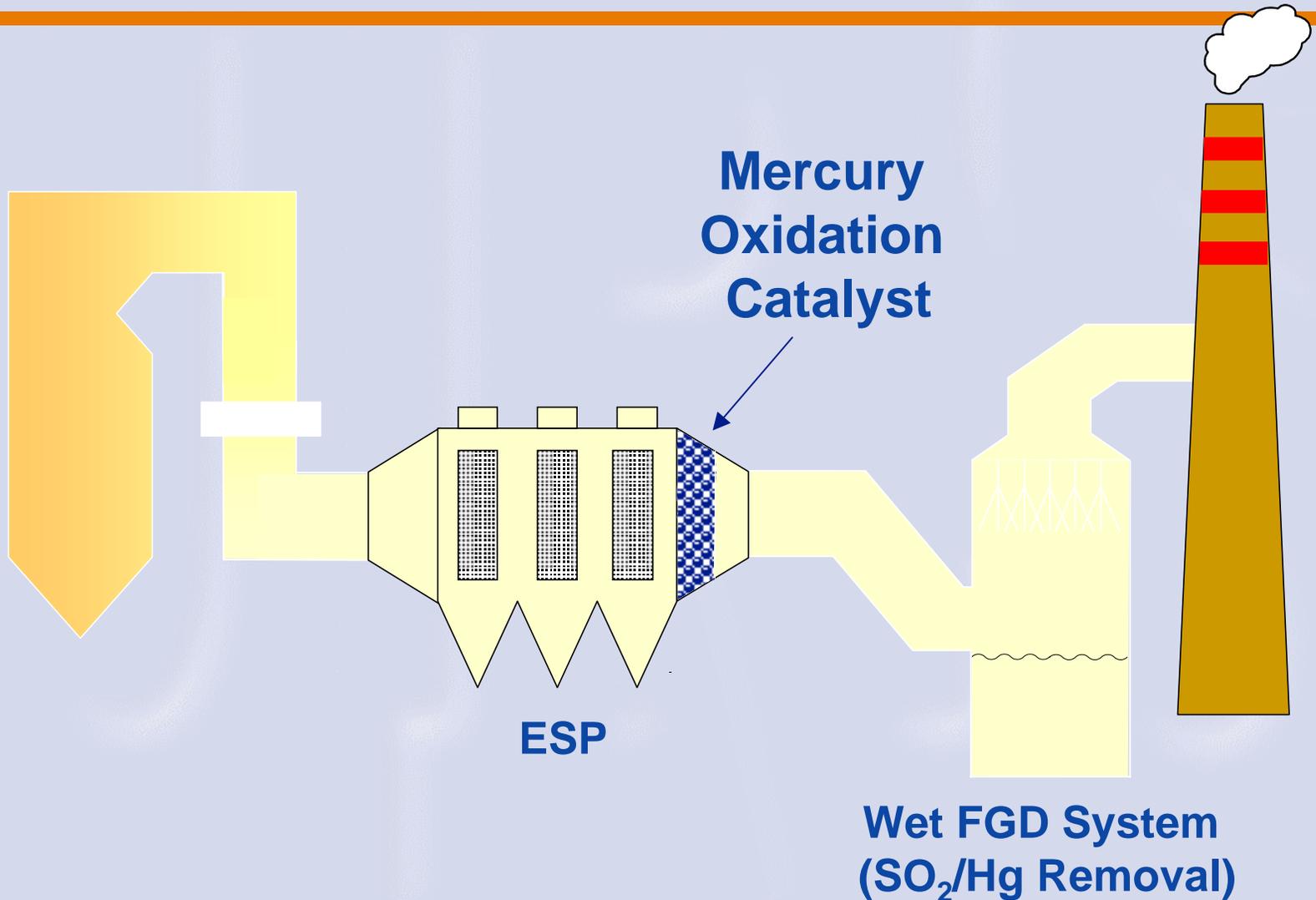
FGD Additives

- Additives to prevent re-emissions
 - Degussa TMT-15 ($C_3N_3S_3Na_3$)
 - $3 Hg^{2+} + 2 TMTNa_3 \rightarrow Hg_3TMT_2 + 6 Na^+$
 - B&W additive
 - Other sulfide-containing materials
 - Used to precipitate Hg before re-emissions reactions occur
 - Best added to slurry feed to absorber
- Others under development to enhance Hg^0 capture (but I am not discussing here)

TMT Additive Economics

Site	% Improvement in FGD Hg Capture	Hg Control Cost, \$/lb additional Hg removed
SRP Coronado (40 mL/ton coal)	4%	~\$37,000
IPL Petersburg 2 (40 mL/ton, observed)	5%	~\$25,000
IPL Petersburg 2 (if completely effective)	>30%	<\$5,000

Low Temperature Hg Oxidation Catalyst Process Concept



Hg Control Process Economics

(based on results from DE-FC26-01NT41185,
scrubbed plant, ND lignite)

Case (all values in \$/lb Hg removed)	Ox. Catalyst (CCS data)	Conv. ACI (Stanton 1 data)	ACI - Brominated Carbon (PRB)
Fly Ash Sales*, No Cat. Regen. (2-yr life)	\$8,900	\$19,000	\$9,100
Fly Ash Sales*, Cat. Regen.(4-yr life)	\$6,500	\$19,000	\$9,100
No Fly Ash Sales*, No Cat. Regen. (2-yr)	\$8,900	\$11,000	\$3,500
No Fly Ash Sales*, Cat. Regen. (4-yr)	\$6,500	\$11,000	\$3,500

* \$4.40/ton fly ash sales, \$3.65/ton landfill disposal