

Wet Calcium FGD



Application of existing technology to
new projects in China, India and
other countries

Webinar today to launch site

- This site and periodic webinars are to assist operators about making the best decisions relative to wet calcium FGD.
- Topics today include introduction to the site.
- Scrubber selection example by Scott Miller of Advatech.
- One oxidation blower option discussion with Keith Collins of Gardner Denver.
- Discussions on lime vs. limestone with Scott Fraley of Carmeuse.
- Site tour including Chinese information.

Sharing World Experiences

- The experience gained in the U.S., Japan, and Europe has been utilized by Chinese power plant operators.
- Wet limestone forced oxidation has been the standard design for most FGD.
- China still has more to learn from offshore experience.
- International suppliers need to learn from the Chinese experience because
 - It is more recent
 - The size of the market is immense
 - Some unique successes have been achieved
 - Some unique failures also provide educational value
 - The future market includes upgrades and many new plants.

Major Geographic Design Differences

- China has used gas-to-gas heat exchangers and dry stacks vs. wet stacks in the U.S.
- China buys powdered limestone whereas U.S. has wet ball mills
- China uses plastic linings whereas the U.S. relies on stainless (recent 2205 problems)
- China has some seawater scrubbers as does India and a few other Asian countries. Not used in ROW
- China and Europe have a higher percentage of units scrubbed than does U.S.
- China is making SO₂ limits more stringent than for existing U.S. plants

Using this website to exchange information between regions

- The latest developments in Europe, Japan, and the U.S. will be posted for the benefit of other nations.
- The problems and experiences in countries such as China, India, Vietnam, and Eastern Europe where FGD is a relatively new activity will be brought to light.
- International solutions can be brought to bear on local problems.
- China is an incubator for new technology.
- Tracking the success of new technologies will be an important function.

Sharing Component Information - Corrosion

- The website already has many articles relative to corrosion solutions and problems in China.
- There is also a compilation of FGD corrosion information in the ROW with summaries of McIlvaine webinars and FGD articles about specific plants.
- The 2205 problem has been tracked to crevice corrosion and solved with ceramic linings or wall paper approaches.
- The database has detailed cost information on coatings for a 1000 MW Chinese plant.

Scrubber Choice

- Scott Miller showed advantages of wet calcium FGD.
- We have another website devoted just to dry FGD including the vessel type and the in-duct or dry sorbent injection.
- Another option is seawater scrubbing with no reagent required but once-through operation.
- Ammonia systems producing fertilizer and catalytic systems producing sulfuric acid are options.
- China is moving forward with some systems using magnesium as the reagent and sulfuric acid as the end product.

Oxidation

- Mixers and blowers are critical components to ensure complete oxidation to sulfate.
- Site covers products e.g. Gardner Denver blower.
- Case histories such as Hitachi installation at Ameren Sioux station with Siemens Turbplex Model KA blowers and Philadelphia Mixing Model 3850 air agitators.
- Future debate on turbo type blower vs. alternatives in terms of energy consumption and other parameters.
- Suppliers include GE (Roots), Siemens, Gardner Denver, Atlas Copco, and Ingersoll Rand.

Lime or Limestone

- Scott Fraley addressed questions involving lime.
- Can you achieve 99 percent or better removal with lime and if so at what stoichiometric ratio?
- When is wet lime less expensive than limestone?
- Is the magnesium content an aid or problem with limestone FGD?
- URS is touting chemical fixation and this would seemingly make the old Dravo magnesium-enhanced lime natural oxidation process a winner.
- How about regenerating magnesium and creating magnesium for sale in a double alkali process?