

ASIA COAL
CATALYST COMPANY



MINISTRY OF ENVIRONMENTAL PROTECTION
THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国环境保护部



国家电力监管委员会

SERC State Electricity Regulatory Commission
People's Republic of China

CC-88 COAL CATALYST

for Coal Conservation and Improved Environment

Asia Coal Catalyst Company



Presented at
The Harvard Club
February 27, 2009

Attended by:

USTDA

SERC

MEP

Combustion Chamber

- Improves combustion efficiency – lowers fuel feed rate
- Removes and controls slagging
- Reduces excess air



Before



After



What is a catalyst?

- ⦿ A compound or element that can increase the rate of a chemical reaction
- ⦿ What does Coal Catalyst-88 (CC-88) do?
 - Promotes the physical and chemical reactions that occur during combustion
 - Releases more oxygen to the carbon contained in the coal



What does CC-88 accomplish?

- In the combustion chamber
- Stack emissions
- Other aspects





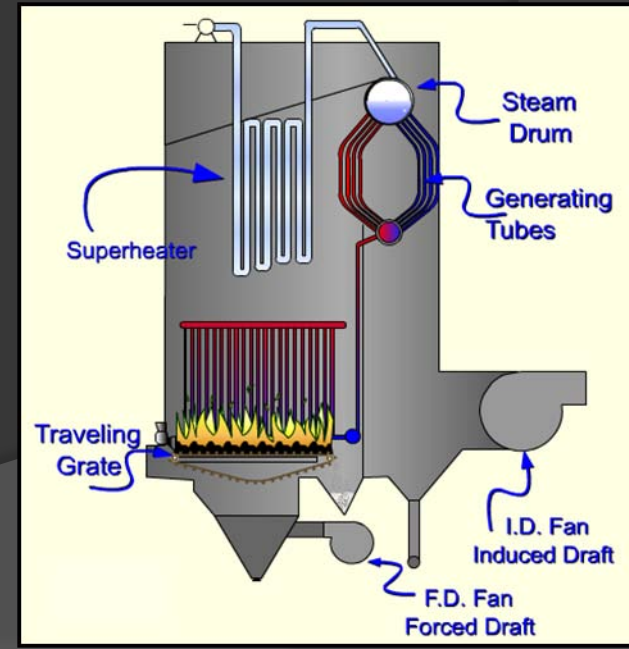
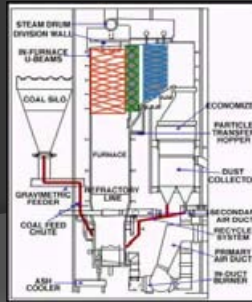
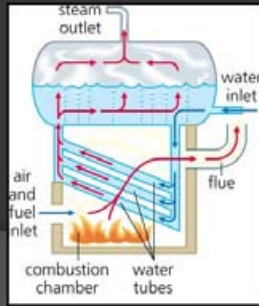
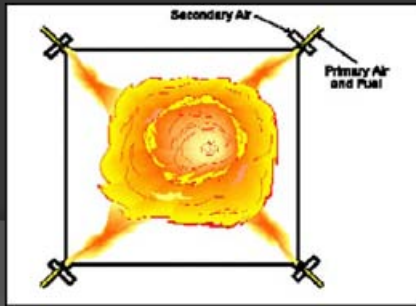
Emissions

- Particulate
- Gaseous
- Future



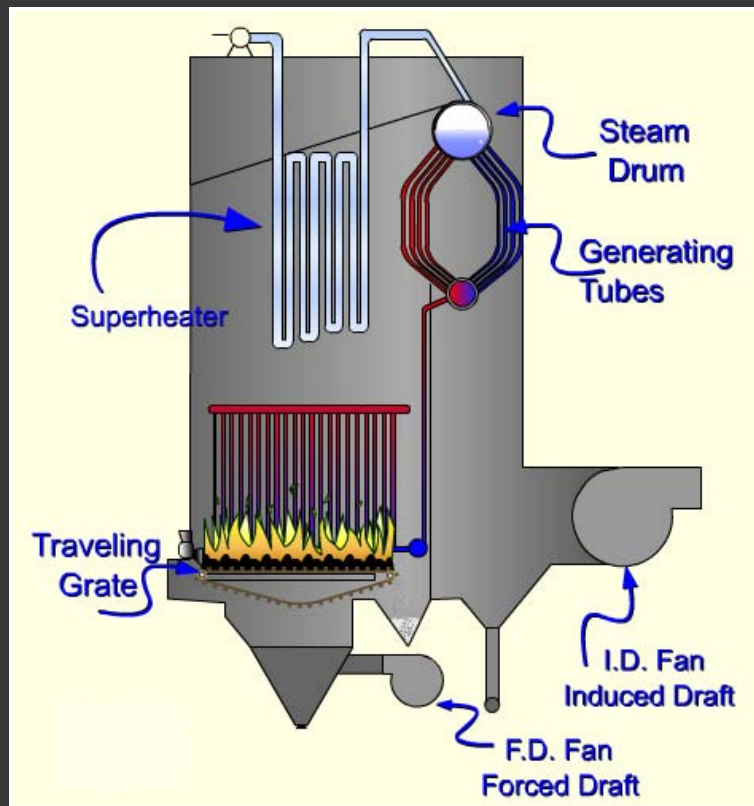
How is CC-88 used?

- Injection methods
- Feed rates
- Types of fuels
- Types of furnaces / boilers

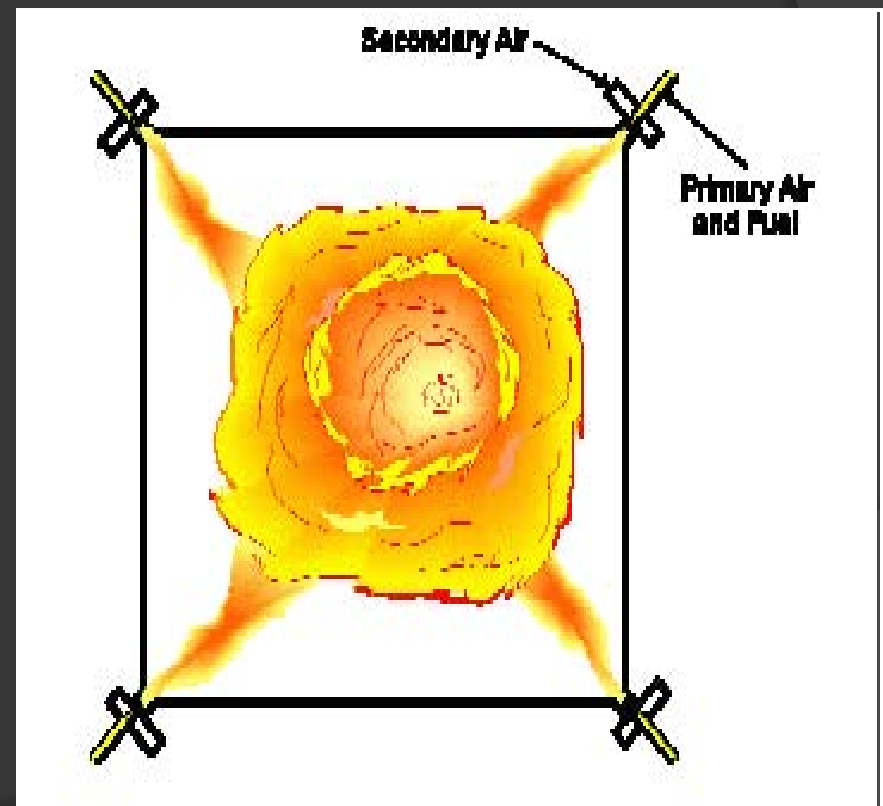


Types Of Boilers

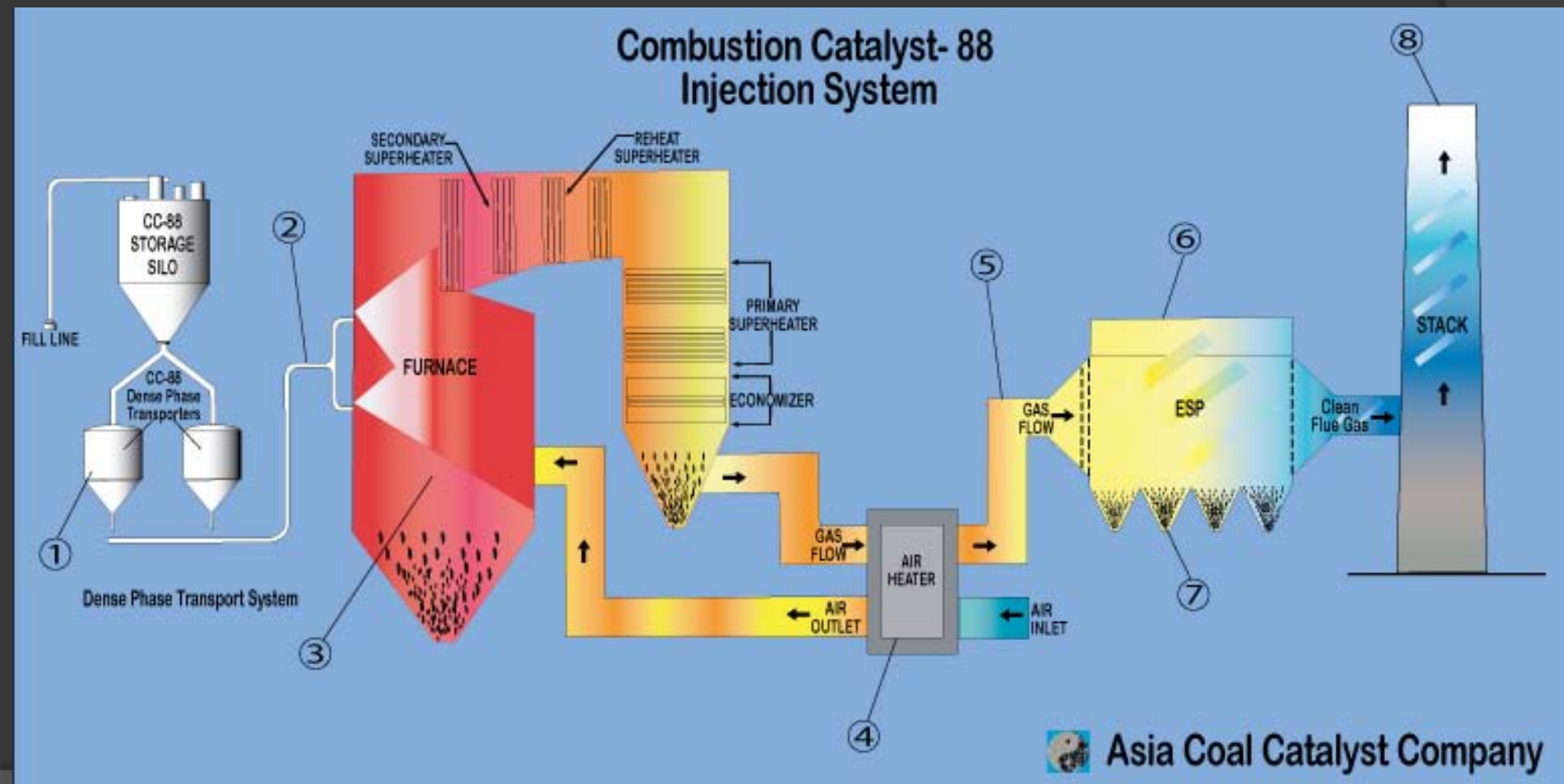
STOKER FIRED



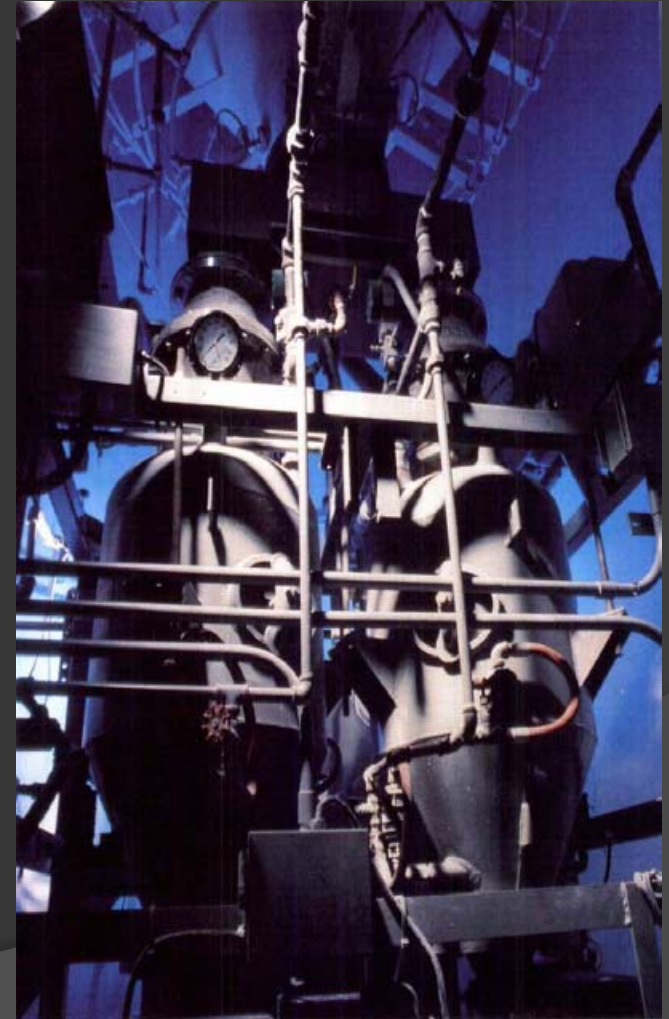
PULVERIZED COAL



CC-88 Injection System for Large Boilers



Dense Phase Transporters



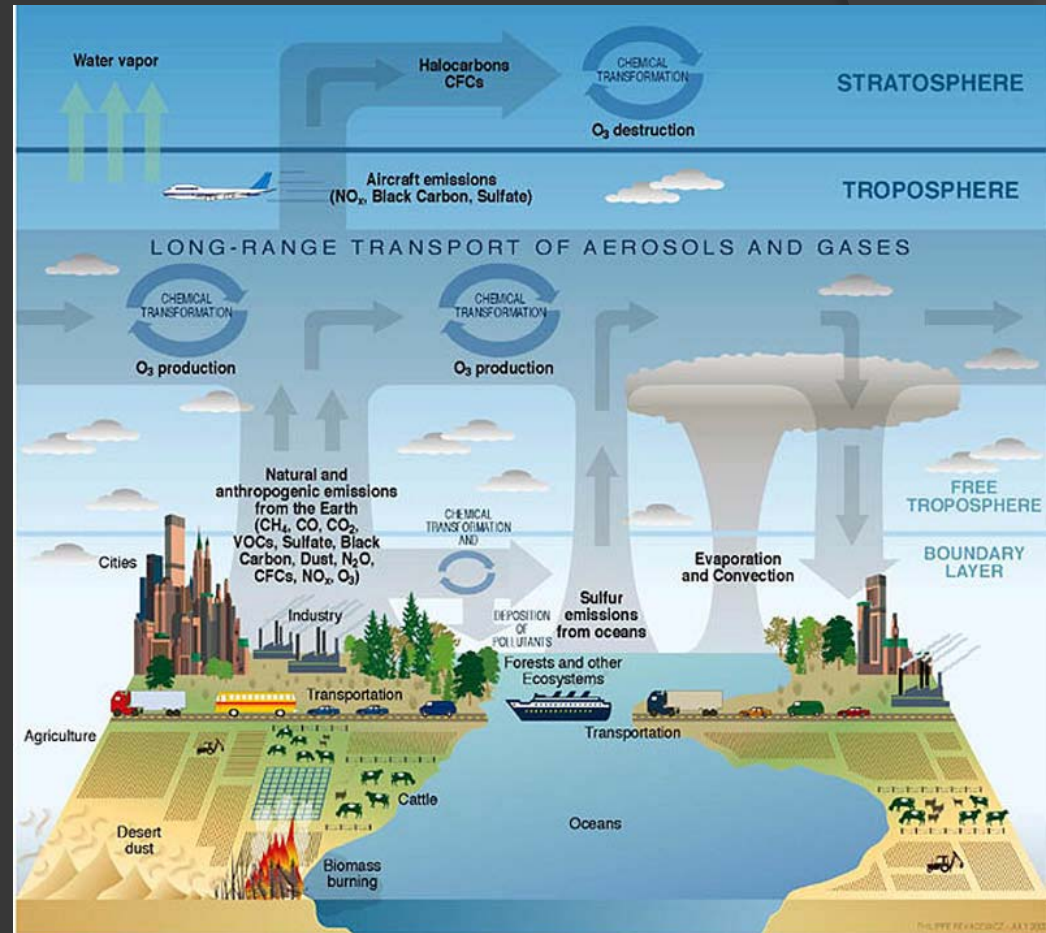
Testing

- ◎ Most Recent Laboratory Results
 - 15% improved combustion efficiency on a Shaanxi sub bituminous raw coal
- ◎ Future
 - Improved catalyst performance
- ◎ Demonstrations
 - Full Scale Site Within China



Environmental Benefits

- Reductions of
 - PARTICULATE
 - SO₃
 - SO₂
 - CO₂
 - NO_x
 - Hg and others





Most recent laboratory test results – China's coal

- ① Coal ignites faster
- ① Burns more efficiently
- ① Burns with less smoke
- ① Realizes 75% greater weight loss
- ① Produces 50% less residual carbon

Benefits

- Environmental benefits
- Fuel savings
- Monetary savings
- Return on investment





Fuel Savings – A Clean Coal Technology

- ⦿ Reduced fuel consumption through improved combustion efficiency
- ⦿ Option to burn higher sulphur coals
- ⦿ Reduced capital and operation expense for scrubbers

Monetary savings

◎ Example:

- 50,000 Kg/hr steam producing boilers
- 40,000 tons per year coal feed
- 3% improvement to combustion efficiency

\$50,000 net fuel savings per year





Return on Investment - ROI = Savings less Expenses

⦿ Savings

- Fuel
- Longer equipment life
- Fewer outages
- Less purchased power
- Ash disposal
- SO₂ scrubbers
- Lower emissions
- Carbon Credits

⦿ Expenses

- CC-88
- Injection system



ACCC Position On Use of Catalysts

- ⦿ **Preventative and Low Cost Method to Improve Coal Energy Efficiency and Reduce Operating Costs**
- ⦿ **High Return On Investment**
 - **It Pays for Itself**
 - **Less Coal is Consumed**
 - **Reduced Corrosion of Internal Breachings**
 - **Reduce Slagging on Heat Transfer Surfaces**
 - **Lower Particulate Emissions**
 - **Lower Gaseous Emissions**



Value Contribution – ACCC as an Enabler

- ⦿ **Improves Combustion Efficiency**
 - Return on Investment
 - Conserving Energy
- ⦿ **Emission Reductions**

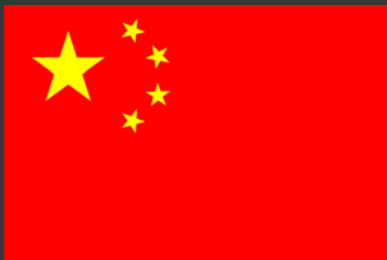


Q&A

Q

?

A



"CC-88: HELPING TO
GREEN THE WORLD"

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