



# *Halogenated Sorbent Supply*

DOE/NETL Mercury Control  
Technology R&D Review

NORIT Americas, Inc.

World Leader in activated carbon technology

# What is activated carbon?

- Any of a number of carbonaceous materials treated with heat and steam to create a highly porous matrix capable of adsorbing or entrapping contaminants out of a liquid or gas stream.

# How is Activated Carbon Produced?

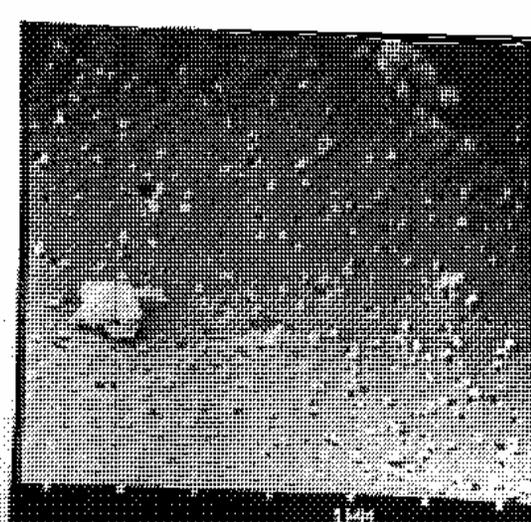
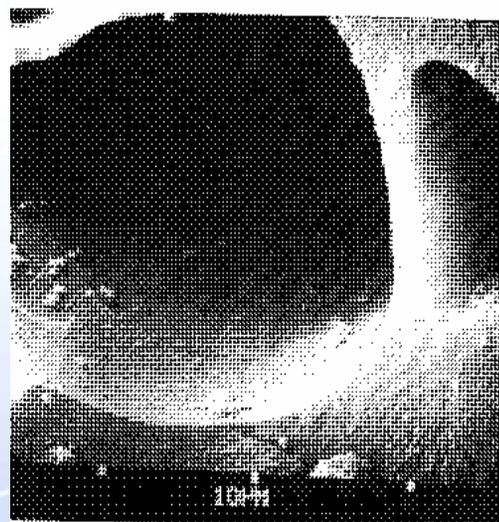
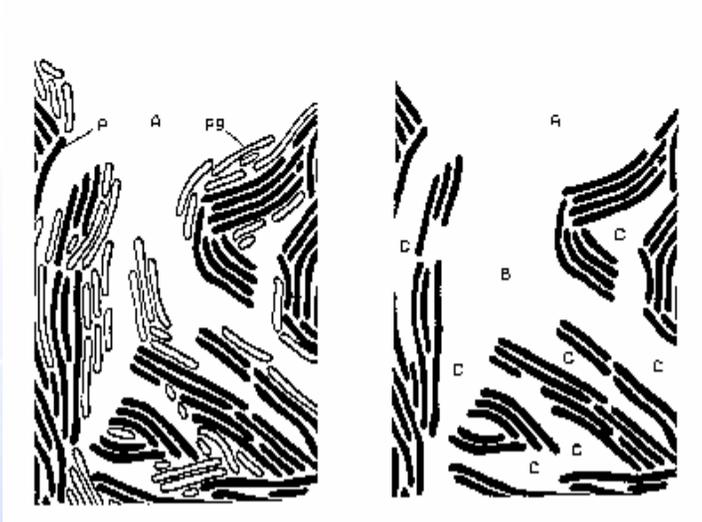
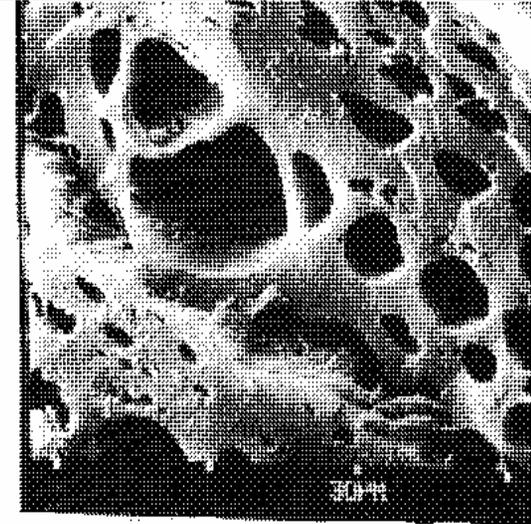
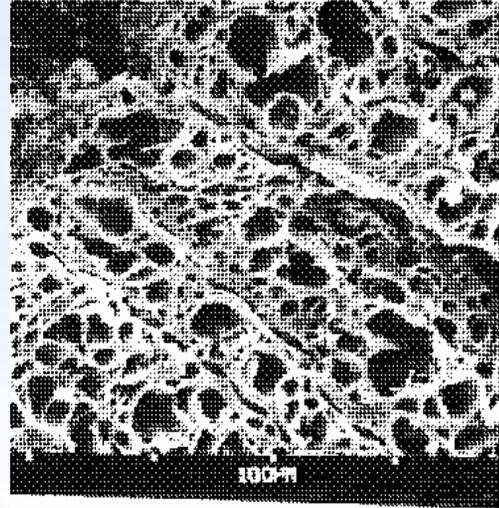
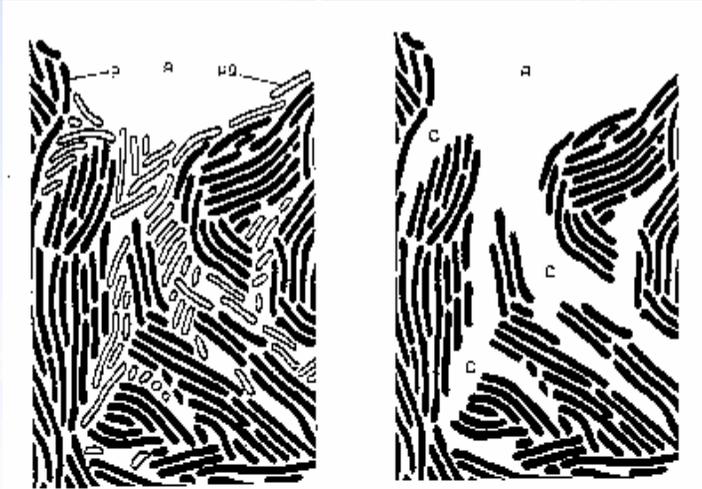
- Primary sizing of the raw material
- Removal of volatiles/Charring
- Activation/Reaction with Steam (Marshall-5 Kilns)
- Impregnation
- Final sizing and Packaging

# PORE VOLUME

- Total volume of all pores inside a particle of activated carbon in ml/g
- Calculated from density data



# Pore Structure



# AmerenUE Meramec Plant

Unit Capacity  
140 MW

Coal

PRB

Mercury Content:  
0.04 – 0.1 ppm-dry

Chlorine Content:  
7-35 ppm-dry

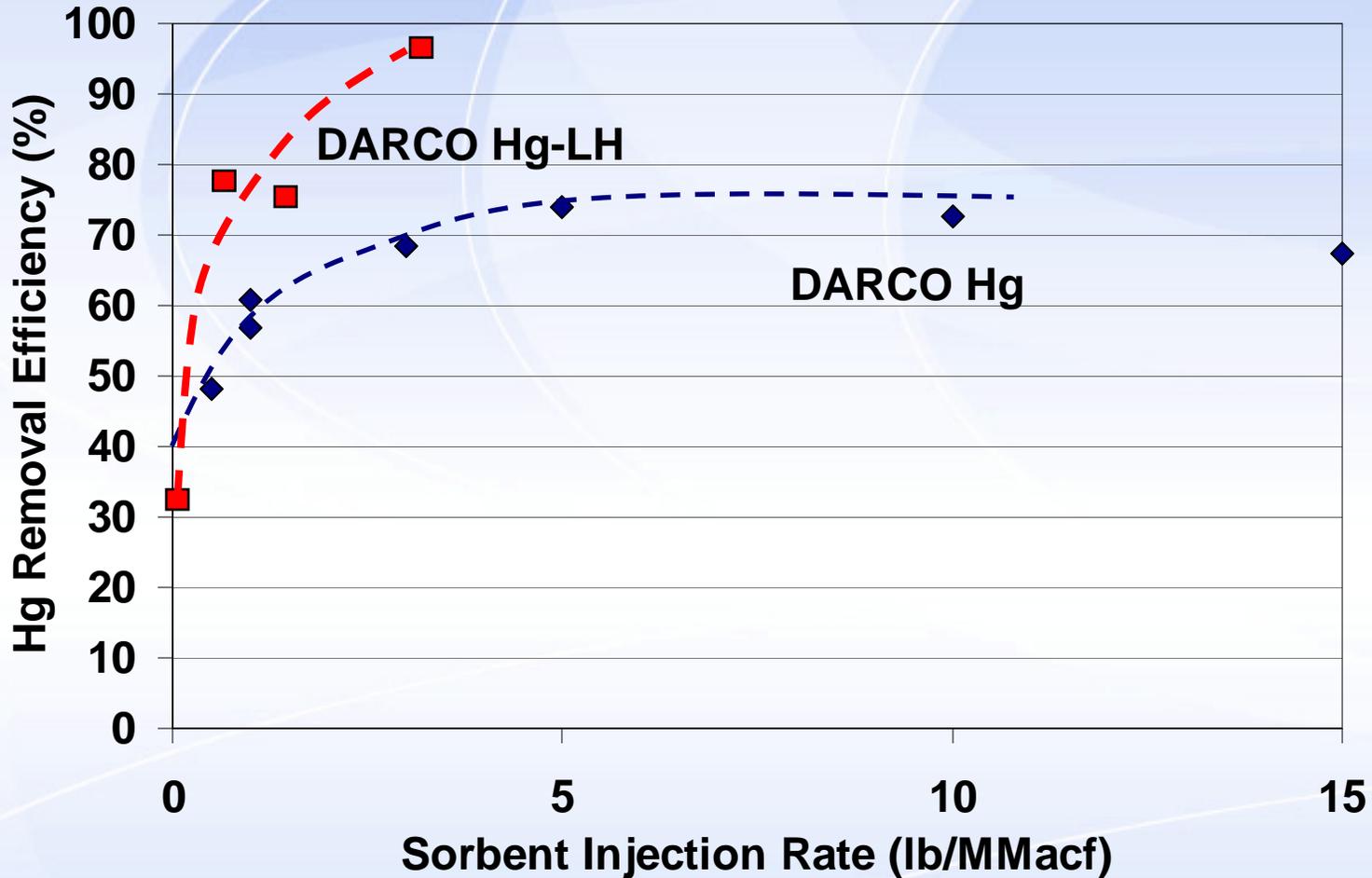
NO<sub>x</sub> Control – SOFA, LNB

SO<sub>2</sub> Control – Compliance Coal

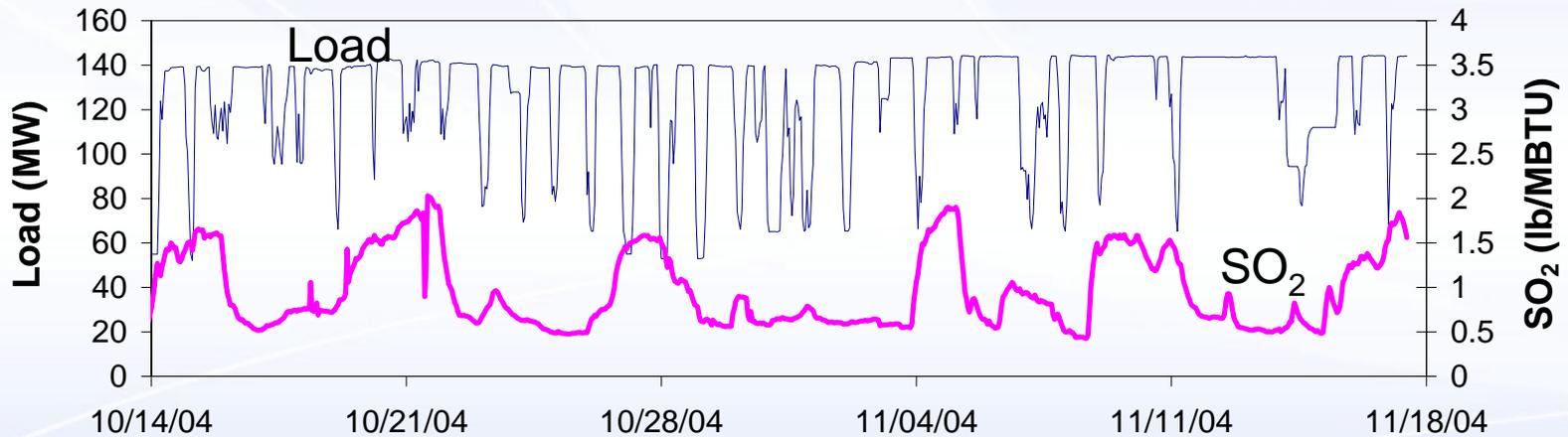
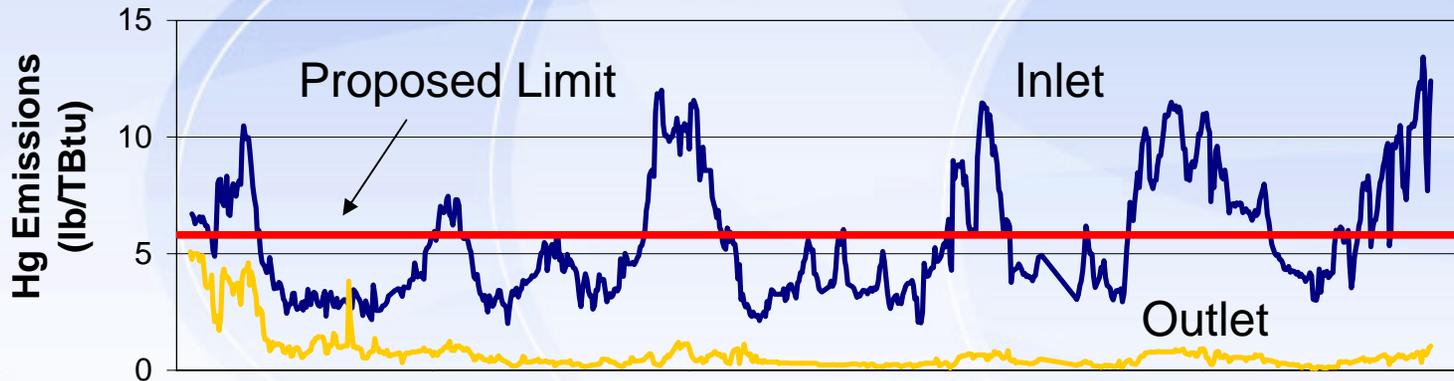
Particulate Control – CSESP



# Parametric Results – Treated Carbon



# Long-Term Results



# NORIT's Commitment to the Future Product Development

- Norit has the industry standard DARCO Hg activated carbon for many applications.
- Within the last year, developed the highly effective DARCO Hg-LH for the sub-bituminous Powder River Basin and North Dakota Lignite coals, thought to be difficult to treat.
- In development currently on products for the difficult high acid gas applications, and will be testing at locations this year.

# Will Activated Carbon Be Available?

- Worldwide demand growing at 4%py
- Current installed capacity at 1.6 billion pounds
  - Installed capacity growing with demand
- USA and China account for 50% of world capacity
- Industry continually demonstrates capacity additions to meet market demand.
- Total NORIT volume available in halogenated form.

✓ YES!

# NORIT Americas' Preparation for Mercury Removal

- Raw materials must be procured
  - Lignite reserves identified capable of producing 126 billion pounds of carbon
  - Quality requirements tested and established
  - Pricing established
  - Ready to begin permitting
- Capacity investments must be made
  - Plant designs engineered
  - Stage 1: expand existing capacity in OK, TX
  - Stage 2: build new facilities
    - Potential properties identified