



**Corn Products
Winston – Salem Plant
2008**



Celebrating 27 years
of Sweet Success

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Corn Products produces steam with
Woody Biomass Used as Boiler Fuel.
Wood supplements coal and natural
gas to fire 3 boilers

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Corn Products – Winston-Salem
Plant is a producer of:
Corn Sweeteners used in
manufacturing food products, dry
starch used in paper production, and
fiber and protein used in animal
nutrition. All the products are
produced from whole kernel yellow
dent #2 corn.



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❖ History

- Plant began operation in Winston-Salem in 1981, using natural gas to fire the plants boiler
- 1983 the plant expanded requiring more steam, 2 package boilers using natural gas were installed
- 1984 brought the construction of the 1st wood/coal fired boiler allowing the natural gas fired boilers to be shut down
- 1997 brought the construction of the 2nd wood/natural gas fired boiler to provide additional steam

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2008 Plan

❖ Wood fuel

- Approximately 90 % from whole tree chips
- 10 % from tub grinder, hammer mill, saw dust with the majority from a hammer mill
- Average moisture 43 %, 4800- 5200 BTU/lb
- Purchase 250,000 tons annually
- Usage 250,000 tons with equal amount each month, 700 tpd
- Whole tree chips mostly from land clearing



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Advantages

- Available in this area
- Cheaper fuel than natural gas or coal at the present time
- Is a renewable fuel
- Ash disposal less expensive than coal, can be added as a soil amendment to supplement lime



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Costs

- Pricing depends on what the material is and distance the material is hauled
- Grinds, sawdust, hammer mill material
- Whole tree chips average \$/ ton depending on distance hauled
- Using approximately 58 consistent suppliers from as far away as 115 miles



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Challenges

- Availability during foul weather
- Outside storage, absorbs moisture
- Particle size distribution
- Bulk density variability causing control issues
- Storage time limit of different materials
- Limbs, sticks, and other foreign materials
- Dirt and sand, cannot use tub ground stumps
- Wet vs. moist vs. dry
- Material that has been pushed up in a pile and then ground is a problem because of dirt

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❖ Ideal sizing

- Approximately 1' x 1" x 1/2" chip works the best in out application, The chip has flow-ability, packs well in the storage pile, and conveys consistently stabilizing boiler operation
- Small amounts of saw dust ok as long as it is mixed well with chips
- Small amounts of grinds ok as long as it is mixed well with chips

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