3/15/2017 Preliminary Assessment of the HT Sanitizer

Test Description:

Wiedemeier Wood Dryers LLC engaged White & Company President Marshall (Mark) White in conjunction with the Virginia Tech Center for Packaging and Unit Load Design to perform an assessment on the HT Sanitizer machine and technology for sterilizing and heat treating pallets. On March 15, 2017, 10 green pine and 10 green oak, 48X40 GMA style wood pallets were passed through the HT Sanitizer at a customer site in Waupaca, WI. The twenty pallets were placed together in a single stack. Three additional stacks of 21 green pallets were place behind the test pallets to simulate a full load passing through the chamber. Data loggers were placed into small wood blocks representing stringer segments. These three oak and 3 pine blocks were placed into the stack of test pallets to record temperature for each treatment cycle.

Test Results:

- **The chamber temperature** was initially 450 deg. F. As the chamber filled with pallets the temperature in the chamber dropped to about 325 to 330 deg. F for most of the treatment. The actual cycle time was 1hr and 34 minutes. No condensate is observed.

- **The pallet stringer temperature** was about 57 to 65 deg. F at the beginning of the treatment and between 170 and 201 deg. F at the end of the 1hr and 34 minute treatment cycle. All 6 of the temperature data loggers was reviewed and reached the necessary temperature and higher for over 30 minutes per ISPM-15 certification.

- **The average oak pallet lost 8.1% and pine pallet 10.2% of their weight during the treatment cycle.**
  The average initial moisture content of the pallets was quite high. The average moisture reduction was about 20 to 30%. The parts have very steep moisture gradients near the surface. Using a resistance electric moisture meter the surfaces of the oak pallet parts was 12 to 18% and the pine pallet parts 15 to 24% after treatment.

- **The pallet quality was not significantly affected by the treatments.** The pine pallet exhibited no change in number of open splits around nails. The same locations in the oak pallet exhibited an increase in splits.