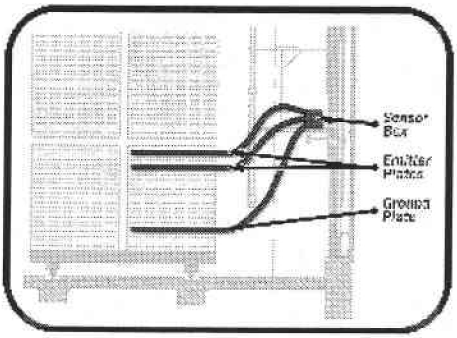
IN KILN MOISTURE MEASUREMENT: THE NEXT STEP IN AUTOMATING THE DRYING PROCESS

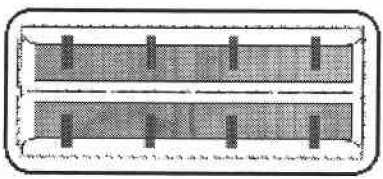
Andrew Israelson
Wellons, Inc.
Sherwood, Oregon

Introduction

In the past, there have been many types of moisture metering systems: resistance probes, capacitance-based and weight-based.



End view of TCS Sensor Positions



Plan View of Kiln Showing Locations of TCS Sensors

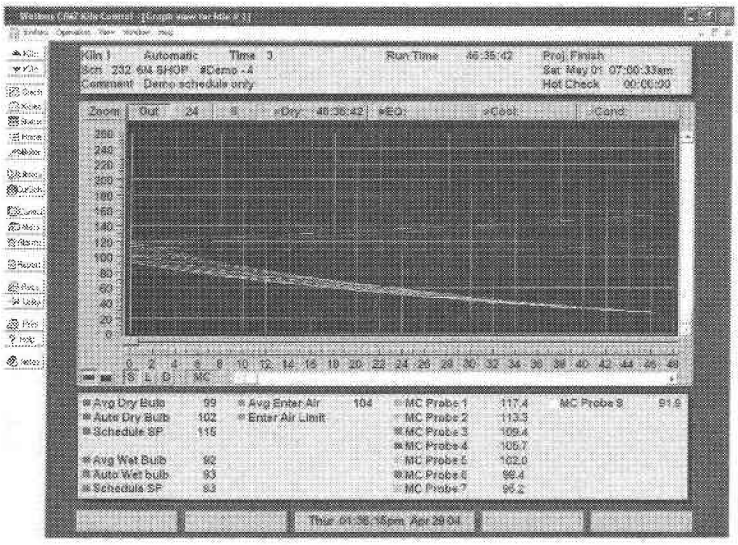
What is TCS?

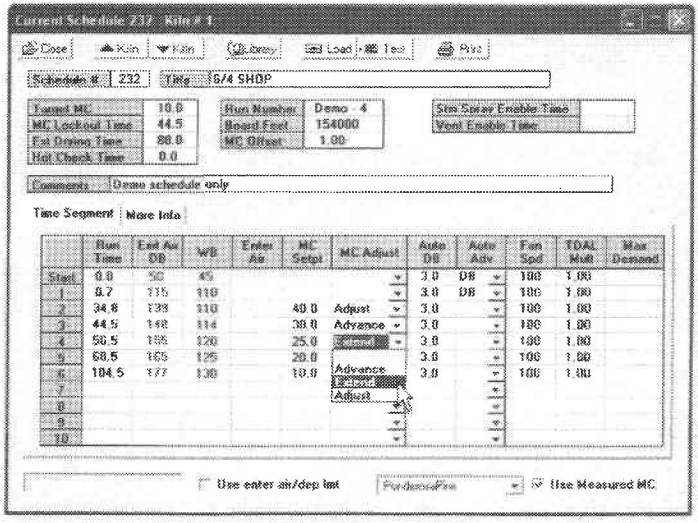
The TCS system measures direct capacitance, not impedance. As a result, readings above fiber saturation point are possible. This gives TCS the ability to measure the moisture content of the lumber from green to dry inside the kiln.

The true capacitance moisture meter is a full range in kiln moisture meter.

Important Considerations

In-kiln moisture meter system should be fully integrated with the computerized kiln control system. A truly integrated system can be continuously refined and updated utilizing the moisture meter data. The system should be capable of allowing the kiln computerized controls to run automatic moisture content-driven schedules. The system should provide repeatable accuracy at the planer.





Winkiln/TCS

The right moisture metering system should continue to work when:

- Schedule modifications are made
- Unscheduled interruptions such as power outages or low steam pressure problems occur.
- Seasonal changes in logs occur.

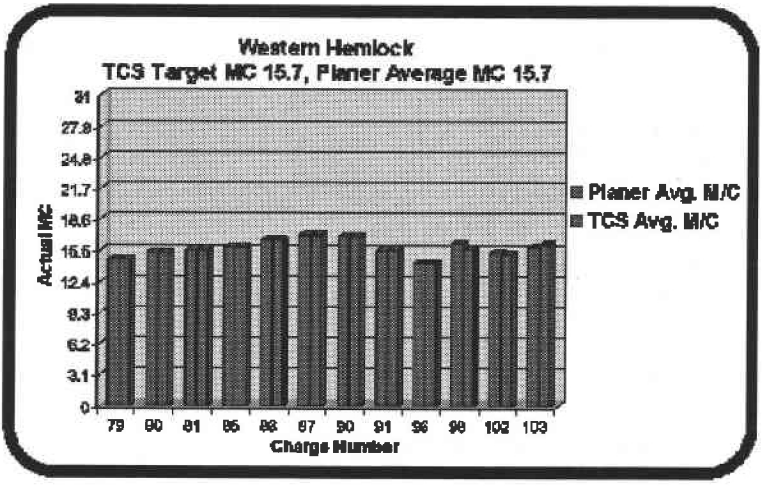
Helping the Operator Develop Schedules

Schedule step changes based on actual moisture content.
Make schedule decisions based upon actual drying rate.
Knowing when the lumber is passing through the fiber saturation point.
Drying to the highest possible target MC.

The Effect of Improved MC Accuracy at the Planer

More consistent target moisture content
Improved planer feed speeds
Fewer breakups=less downtime

Planer MC versus TCS



Improved Schedule Development
Reduce drying time
Reduce energy consumption

Reduce Degrade Through the Kiln
- Higher moisture content target
- Less overdry

Eliminate Hot Checks
- Reduce drying time
- Reduce energy consumption
- Improve safety by reducing operator time in the kiln

Computerization Got Us Here

In the mid-80s the first computer controlled kilns systems were developed. With computer controls came multizone control and the development of an historical based. Operators were able to remotely access their control systems via modem and gained familiarity and feedback from the system. Paging systems called operators when schedules were nearing completion. With fully integrated in-kiln moisture meter systems, we are truly at the next step in automating the drying process.