

# Analysis of board moisture in wood based panels production



Laboratory and Process Instruments and Support

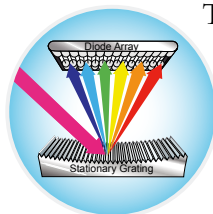
# In only 6 seconds...

*Producers of wood based panels need to control and optimize the manufacturing process. There are also industry and official standard requirements to measure several process parameters like for instance board moisture. The EN 312 standard requires board moisture to be measured with the EN 322 method after each 8 hours of production. Each formaldehyde test with EN 120 also requires determination of board moisture according to EN 322 to correct the perforator value to 6,5 % moisture. The EN 322 standard method takes 24 hours to complete.*

*The Near Infrared Reflectance (NIR) technique is particularly suited for measurement of moisture in board samples. Recent advances in instrumentation and calibration technology that have enabled stable and precise measurements.*



## DA 7250 NIR Analyzer



The DA 7250 is a new full-spectrum, NIR instrument designed for use in process environments. Using novel diode array technology it performs a multi-component analysis in only 6 seconds with no or little sample preparation required.

During these 6 seconds, a baseline is collected, noise monitored, wavelength accuracy is standardized, and a large number of full spectra are collected.

### Advantages

- **Short analysis time**
- **Automatic documentation of results, no risk for typing errors**
- **Save personnel resources**
- **No limitation in oven capacity**
- **The EN 120 uncorrected value can be moisture corrected directly after it is measured using the DA 7250 moisture measurement**

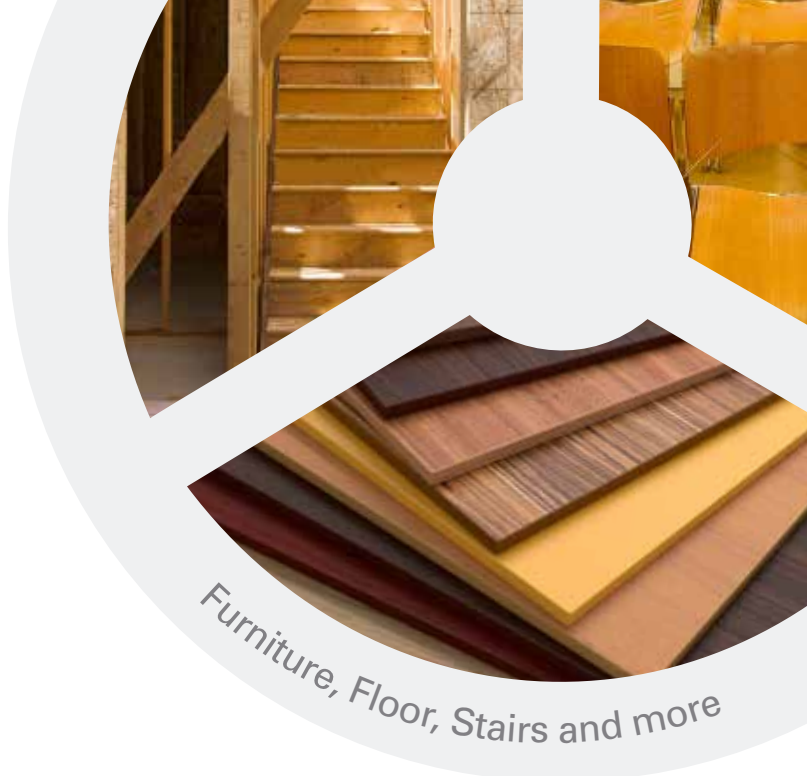
## DA 7250 for board moisture factory production control

The EN 322 method can be replaced with the DA 7250 board moisture measurement using the procedure described in EN 326-2.

### Experimental



Several hundred samples from wood-based panel mills were collected. The samples were analyzed on multiple DA 7200 and DA 7250 analyzers following the procedure described in the “DA 7250 Quick Guide v1.0 appendix EN moisture testing”. With this procedure the board samples are cut in pieces and measured from the edge. Reference analyses were performed by the mills according to EN 322.



A calibration was developed by Pertem Instruments, with the following statistics:

Parameter	Number of samples	Range	R
Board moisture	~ 500	3,8-9,4 % dry based	0,96

The DA 7250 results are very accurate when compared to the results from the reference method

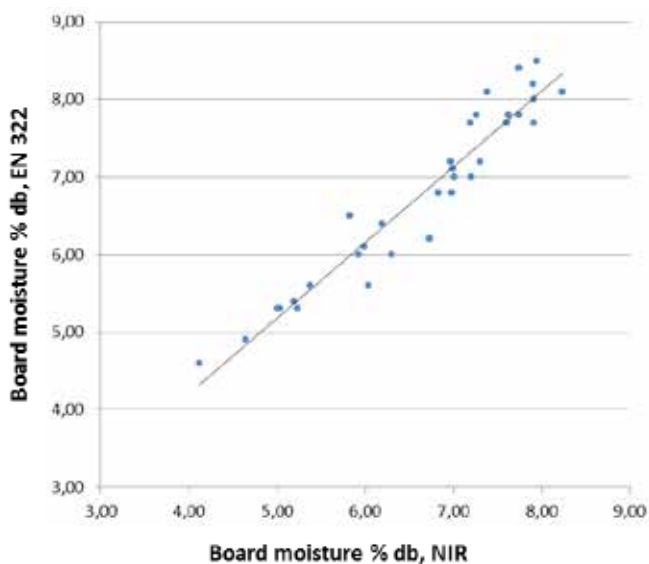


Figure 1. Validation results from one particle board mill. 33 validation samples showed an SEP of 0,34 % moisture,  $R^2 = 0,92$ , Slope=0,97

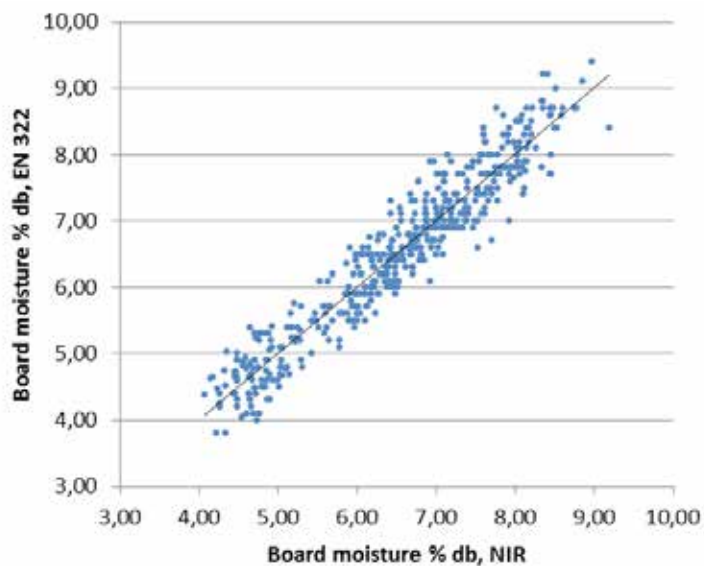


Figure 2. Cross validation results for the board moisture calibration.

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