

ADVANCED MOISTURE BALANCE

Model FD800



Tomorrow's Testing, Today !
1-800-438-5388

FD800 Advanced Moisture Balance

For Optimum Drying - Even on Difficult Products

The FD800 is the premier moisture balance in our product line. It is controlled by a revolutionary dual temperature sensor method which provides unsurpassed accuracy and precision - - even on products that have historically created problems for loss on drying methods.

A conventional moisture balance measures the ambient temperature within the drying chamber and then regulates heating based on that measured value. While this control method historically provided good measurement, various factors, including environmental temperature, sample depth and particle size, as well as samples that are easily scorched have caused problems in many cases. In addition to a thermistor measuring this ambient temperature, the FD800 includes a non-contact infrared sensor to continually monitor the temperature of the sample moisture. The dual-mode measurement allows the user to optimize the heating profile of the FD800 to match the sample characteristics, reducing drying time while eliminating the chance of sample deformation or scorching.

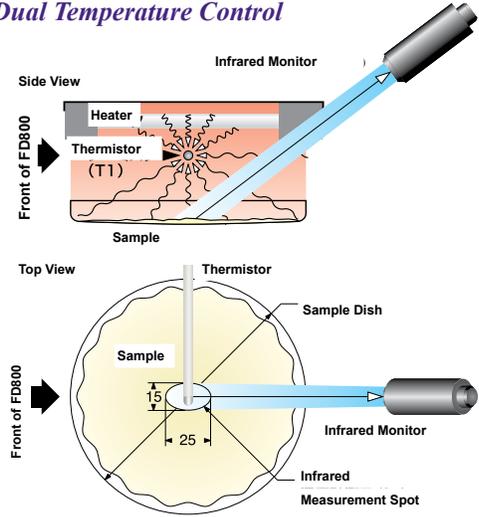
This type of world-class control allows the FD800 to be the standard in R&D facilities and Quality organizations desiring the finest accuracy in moisture measurement.

Simple Operation Yet Extremely Versatile

To operate, simply set the time and temperature for the test, place the sample into the heating tray, close the lid and press start. The test will run to completion, and the moisture content will be automatically shown on the large LC Display. The 120 gram sample capacity is larger than halogen systems, providing the ability to accurately measure non-homogenous samples. Seven measurement modes, 10 product drying programs, and 100 test memories provide tremendous versatility. Data can be output to optional printers or PC's for full traceability. This feature as well as password protection for instrument and program settings allows you to maintain GMP, GLP, and ISO compliance.



Dual Temperature Control

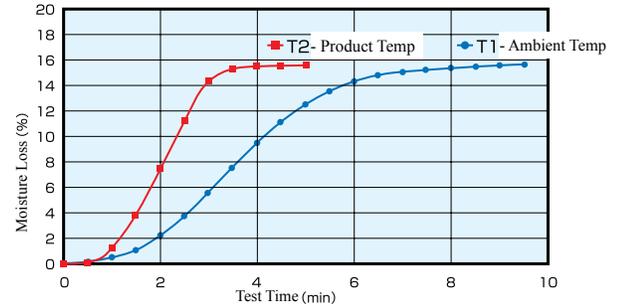


In addition to the ambient temperature in the drying chamber (T1), the FD800 monitors sample temperature (T2) (Patent pending), providing unsurpassed drying control, resulting in optimized drying times, and minimizing or eliminating sample degradation and resulting measurement accuracy.

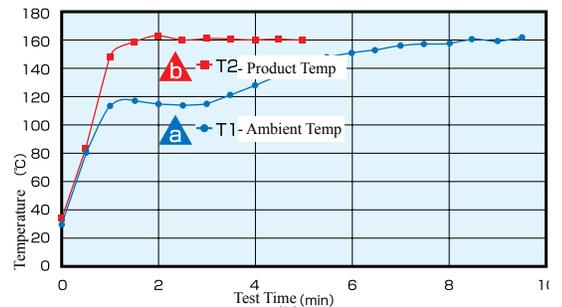
Optimized Drying Cycle Time

Temperature Mode	Thermostat (T1) Temperature	Sample (T2) Temperature
Moisture %	15.68%	15.68%
Measurement Time	9.5 min	5.0 min

(T2) was almost 1/2 of the (T1) measurement time



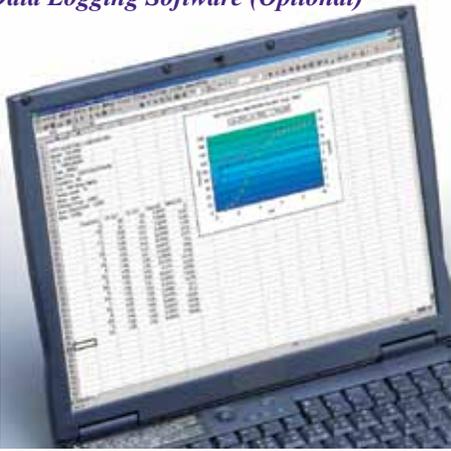
Sample Surface Temperature: Starting with a high temperature, (T2) efficiently conducts heat drying



As an example, T1 data shows a sample dried at 105°C

When drying samples, the product surface is initially wet and surface temperature (T2) rises slowly. With T1 measurements, it was not possible to measure the change in surface temperature. Using T2, it is possible to boost the instrument drying until the sample surface temperature meets a setpoint, then drop the drying temperature. This control reduces the overall drying time while avoiding scorching or burning the sample.

Data Logging Software (Optional)



Windows Direct¹ Connection allows any PC to communicate with the FD800 and automatically transfer measurement data to Excel



Major Features

Advanced Temperature Control

In addition to a conventional ambient monitor (T1), the FD800 utilizes a unique sample temperature monitor.

Shortened Drying Time

The dual-mode temperature control substantially reduces drying cycle time.

High Precision Measurement

Measurement accuracy is optimized as samples do not get scorched.

Unibloc⁽¹⁾ Balance

This balance has superior response, temperature stability and shock resistance.

Unique Auto-Tare Mechanism

The auto tare function adjusts the zero drift and ensures high accuracy, even with the large sample pan.

Mid-Infrared Quartz Heating Elements

The 2.6um quartz heater provides superior heating, is not affected by sample color and doesn't over dry due to surface temperature effects. The 25,000 hour MTBF is 5-10 times longer than infrared and halogen lamps.

Six Measurement Modes

The variety of moisture modes described earlier in this brochure allow the user to select the optimal drying program for the sample, again assisting in optimizing drying time and measurement accuracy.

100 Measurement/Control Programs

With the ability to save up to 100 different measurement modes, it is easy to test a variety of samples without "re" programming the instrument.

Display of Moisture Change

By showing the change of moisture over the last 30 seconds, the user can more efficiently develop measurement protocols.

Data Logging Software (Optional)

The FD800 may be connected to a PC and data automatically imported into Microsoft Excel.

Thermal Printer (Optional)

When connected to the VZ330, intermediate moisture measurement and final values may be output in graphical form.

Thermometer Calibrator (Optional)

Available to help with internal validation.

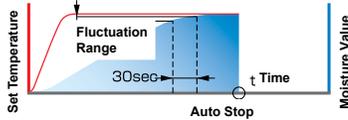
Ability To Measure a Wide Array of Samples

Almost any liquid and solid can be accurately measured. A few examples are shown below.

Moisture Measurement Modes

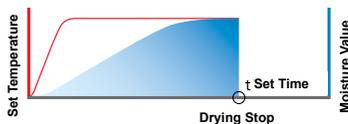
Auto

The test stops when moisture loss over a 30s interval is less than a threshold.



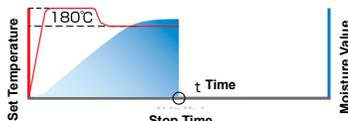
Timed

The test stops when a preset time (t1) is reached



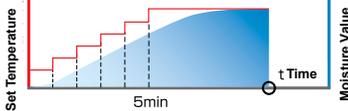
High-Speed

Drying temperature is initially boosted and then reduced to the setpoint after the sample starts to lose moisture



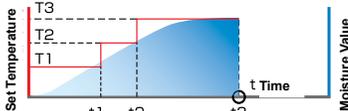
Low-Speed

Useful where case-hardening or crusting may occur.



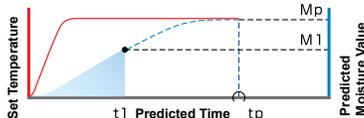
Stepped

Useful in samples that may crystallize or have large amounts of surface moisture



Predictive

Compares predicted future changes with actual changes and truncates tests when predicted final moisture value is within confidence limits.



⁽¹⁾ Tradename of Shimadzu Corporation

