Moisture Analyzers

MS-70/MX-50
MF-50/ML-50

ISO 9000 CERTIFIED

Test with The BEST –
Quick, Safe and Accurate

A&D Company, Ltd.

Discover Precision

http://www.aandd.jp

A&D's Moisture Analyzers

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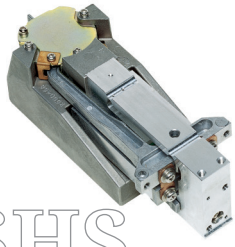


Fast and uniform heating with halogen lamp and innovative SRA technology

Straight halogen lamp and uniquely designed SRA (Secondary Radiation Assist) filter gives shorter measurement time, thanks to fast and uniform heating

High repeatability

With Super Hybrid Sensor (SHS) featured as the weight sensor, ultra accurate moisture content determination is possible based on high precision weighing of even a small sample

Low moisture content measurement

MS-70 measures the moisture content at 0.001% resolution suitable for low moisture content samples as well as Karl Fischer method, yet requires no special knowledge or training and produces no harmful waste

WinCT-Moisture (for MS&MX) for real-time graph displaying

WinCT-Moisture is an original software application designed to display a graph of moisture content rate change while measuring with a connected PC

Sodium Tartrate Dihydrate comes as standard for accuracy checking

Sodium Tartrate Dihydrate is a chemical material that has stable moisture content of 15.66%$^{+0.3}_{-0.1}$, and thus is best to use for accuracy check to maintain the reference value of the analyzer

Calibration of the heater temperature (for MS&MX)

With the temperature calibrator (optional), calibration result can be output in the format that conforms to GLP, GMP, ISO

Memory function

According to sample up to 20 suitable measurement conditions can be stored and recalled, which saves time and prevents the user from making a mistake when setting (10 for MF & 5 for ML)
For measurement result, up to 100 data can be stored and output at once (50 for MF & 30 for ML)

Five measurement programs

Five choices of measurement programs, Standard, Automatic, Quick, Timer, and Manual Mode are provided

Standard Mode : Just measurement accuracy, HI, MID or LO needs to be set

Automatic Mode : Ends measurement when moisture content changes at a rate less than the set rate
Quick Mode : Begins heating samples at 200°C for 3 minutes, then is the same as Automatic Mode
Timer Mode : Continues measurement for a set duration of time (1~60mins.: by 1min, 60~480mins.: by 5mins.)
Manual Mode : STOP button should be pressed to end measurement (Max. heating time: 480mins.)

Selectable Heating Mode

Choose the heating mode from standard, quick, step and ramp heating modes for the most suitable measurement (ML has Standard and Quick heating modes only)

Clear and easy-to-see, large VFD display

Measurement, setting value, change in moisture content, action status, data number and other important information are clearly displayed

Easy handling of the unit

Ergonomically designed pan handle eliminates mishaps such as burns when moving a hot sample pan into or out of the unit from either side. Wing handle for easy opening and closing of the heater cover

Low maintenance cost assured

The halogen lamp is user replaceable without unit downtime with protective chamber for easy cleaning (Lamp life 5000 hours)

Select the best moisture analyzer for your application –Test with The Best

MS

MX

MF

ML

External Calibration

Super Hybrid Sensor

VFD Display

RS-232C Interface

GLP Compliant

Clock & Calendar

Data Memory Function

Software

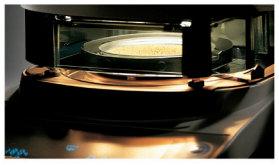
Progress window for heating check
Heating process can be checked through translucent window

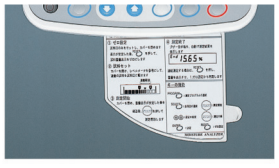
Self Check function
Defect check function is available along with temperature control

Quick Reference Card
A convenient operating guide is installed at the bottom of the analyzer

RS-232C Interface
Bi-directional communication with a PC or connects directly to a printer

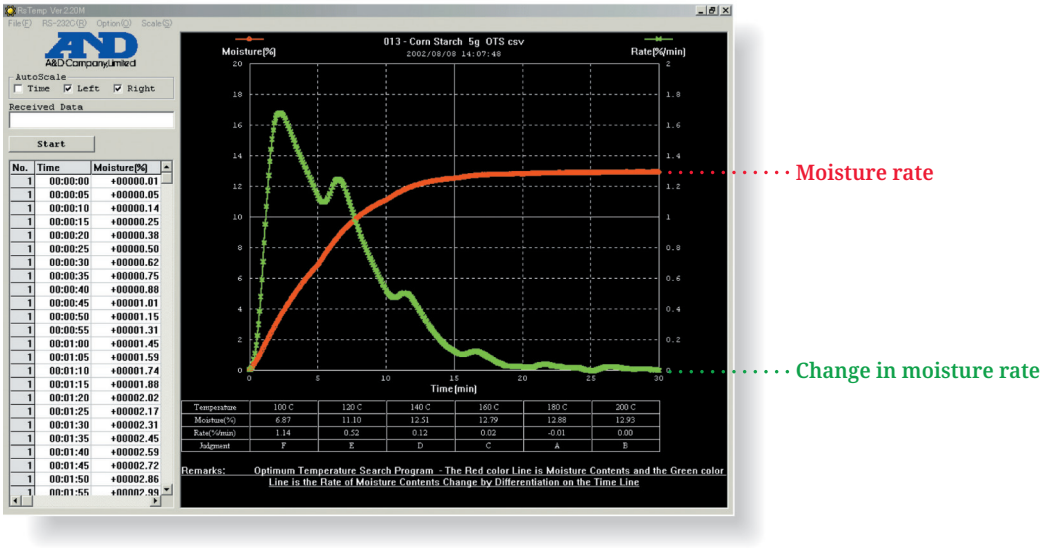
Conformity to GLP, GMP, GCP and ISO with date/time, ID, calibration data and check record outputs
Data output for daily record management





WinCT-Moisture

With our WinCT–Moisture software, data measured by the Moisture Analyzers can be easily displayed on your computer.
Effective for determining measurement conditions such as heating temperature, and useful in reducing the time needed for measurement and improving accuracy.



Displays moisture rate changes over time in a graph (RsFig)

Displays changes in moisture rate in real time

Measures moisture rate in a minimum time with excellent accuracy

Heats at the highest temperature without changing the physical properties of the sample and provides measurements with good repeatability

Automatically determines the most suitable heating conditions in a short time (RsTemp)

Automatically changes the heat applied by the set increments and interval time within a range of 30°C-200°C. From the moisture rate change over that time can determine the most suitable heating temperature in one time measurement (*Patent pending)

Shows sample data summary

Provides a data summary for the sample with the results of moisture rate change for the representative material's measurement

Calculates measurement data statistics

Saves the recorded data as a CSV file

Determines other changes to the sample material in addition to moisture rate

Continuously measures changes to the mass in response to heating temperature and detects other material changes besides the moisture rate

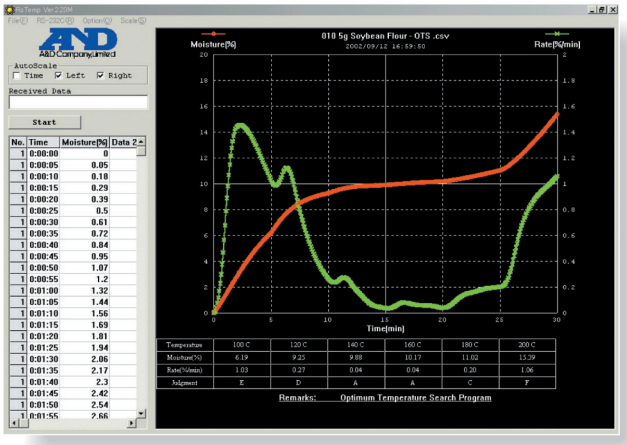
WinCT-Moisture

Measurement example

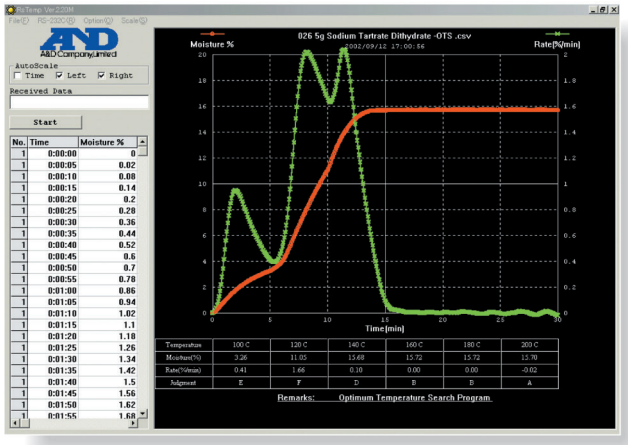
WinCT–Moisture consists of RsTemp software to determine the heating temperature and RsFig software for graphics.

1. Example of measurement using RsTemp software to determine the heating temperature

Automatically changes the heating temperature (by your setting increments and interval time) within a range of 30°C - 200°C. From the rate of change in moisture over time, in one time measurement it can determine the optimum heating temperature for the sample.



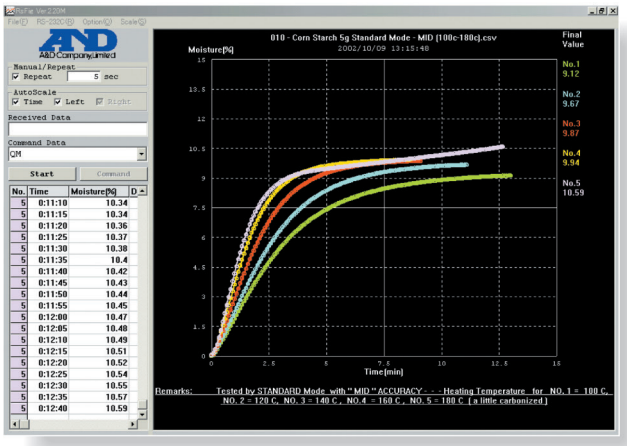
Soybean flour



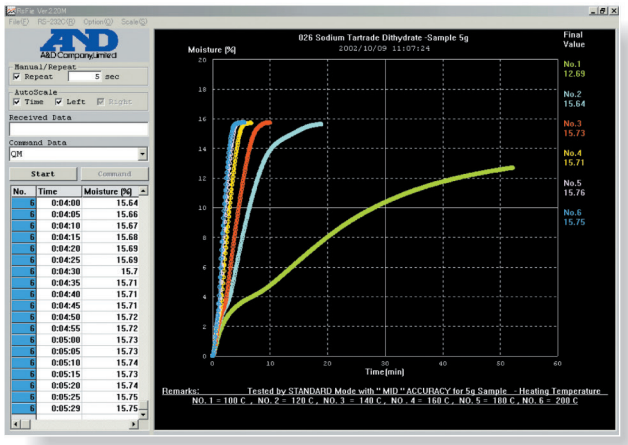
Sodium tartrate dihydrate

2. Example of measurement using RsFig graphic software

Can show moisture rate against time when the heating temperature is changed as well as showing the results of repeated measurements at a certain temperature. From the graph, the highest possible heating range for the sample and the quickest measuring time can be determined.



Corn starch



Sodium tartrate dihydrate

Comparison between MS-70 and the KF (Karl Fischer) method

Example of PET plastic pellet measurement

	Moisture rate		Average measurement time	Measurement conditions
	Average value	Repeatability (standard deviation)		
MS-70	0.298%	0.0045%	6.8 mins	Heating temperature 180°C Test sample 10g Measurements 5 times
KF method	0.307%	0.0065%	19.1 mins	Heating temperature 180°C Test sample 0.3g Measurements 5 times

KF method: a way of measuring moisture content through chemical determination.

With PET plastic and other materials, the MS-70 can measure a drop of moisture content of less than 1%. Specialist knowledge is not necessary to operate the MS-70, and since measurement occurs quickly no harmful waste is produced.

Specifications

		MS-70	MX-50	MF-50	ML-50
Measurement Method		400W straight halogen lamp heating system with SRA filter and SHS weighing technology			
Max Sample Weight Capacity		71g	51g		
Weight Resolution		0.0001g	0.001g	0.002g	0.005g
Moisture Content Display		0.001%/0.01%/0.1%	0.01%/0.1%	0.05%/0.1%/1%	0.1%/1%
Moisture Content Accuracy (Standard Deviation)	over 1g	0.05%	0.10%	0.20%	0.5%
	over 5g	0.01%	0.02%	0.05%	0.1%
Heating Technology		Halogen lamp (Straight type, 400 Watt max, 5000 hours)			
Drying Temperature (1°C increment)		30-200°C	50-200°C		
Memory of Measurement Programs		20 sets		10 sets	5 sets
Measurement Programs		Standard Mode/Automatic Mode/Quick Mode/Timer Mode/Manual Mode			
Measurement Mode		Moisture content(Wet or Dry base) /Dry content/Ratio/Weight			
Heating Mode		Standard/Quick/Step/Ramp			Standard/Quick
Display Type		Large VFD			
Interface		RS-232C standard			
Data Memory Function		100		50	30
Operating Temperature		5-40°C (41-104°F) less than 85%RH			
GLP/GMP/ISO		Available			
Self Check Function		Standard			
Communication Software		WinCT-Moisture standard		WinCT standard	——
Sample Pan Size		Ø85mm			
Power		AC 100V to 120V (3A) or AC 200V to 240V (1.5A), 50/60 Hz, Approx. 400W			
Physical Dimention/Weight		215(W) × 320(D) × 173(H) / Approx. 6kg			
Standard Accessories		Sample Pans (20 for MS/MX/MF 10 for ML), Pan Handles (2 for MS/MX/MF, 1 for ML), Tweezers (for MS/MX/MF), Spoon (for MS/MX/MF), Test Sample (30g of Sodium Tartrate Dihydrate for MS/MX/MF), CD-ROM (WinCT-Moisture for MS/MX), Glass Fiber Sheet (for MS/MX/MF), RS-232C Cable (for MS/MX), Display Cover, Dust Cover (for MS/MX/MF), Instruction Manual, Quick Reference Card, Power Cable, Fuse			

Specifications are subject to change for improvement without notice.

Accessories

AD-8127	Compact Printer
AX-MX-30	Disposable Aluminum Pan (100pcs)
AX-MX-31	Sample Pan (ø85mm x 100pcs)
AX-MX-32-1	Glass Fiber sheet (ø70mm x 100 sheets)
AX-MX-32-2	Glass Fiber sheet (ø78mm x 100 sheets)
AX-MX-33	Test Sample (Sodium Tartrate Dihydrate, 30g x 12pcs)
AX-MX-34-120V	Halogen Lamp for AC100V to 120V
AX-MX-34-240V	Halogen Lamp for AC200V to 240V
AX-MX-35	Pan Handle (2pcs)
AX-MX-36	Tweezers (2pcs)
AX-MX-37	Spoon (2pcs)
AX-MX-38	Display Cover (5pcs)
AX-MX-39	Dust Cover
AX-MX-40	RS-232C Cable (2m, 25-9pins)
AX-MX-41	Calibration Mass (20g, equivalent to OIML class F1)
AX-MX-42	WinCT-Moisture (CD-ROM, Application Software for Windows)
AX-MX-43	Certified Temperature Calibrator (only for MS/MX)
AX-USB-25P	Serial/USB Converter

AD-8127
Compact Printer

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Discover Precision

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