suministros LPS®

SARTORIUS

Sartorius Mark 3
Ideal solution on moisture analysis for plastic industries

- Over 5000 different resin grades already correlated to Karl Fischer titration
- No pre-programming required on the part of the operator
- Easy to Use - One button operation to perform a test
- 300 programs can be stored and recalled by name
- Hard copy results with standard internal printer
- Verifies performance of dryer systems
- Cost saving and increase efficiency of the overall molding process
- Reduce defect rate and rework of injected parts
- Improving injection throughput
- Free applications development for the life of the instrument
- Two years complete parts and labor warranty

turning science into solutions

Design Inherent Certainty

The Mark 3 Moisture Analyzer is specially designed for the plastic industries to meet the most demanding requirements. i.e. it can quickly determine moisture of resins within minutes displaying result down to 0.001% and accurate to 0.005%.

The Mark 3 conforms to **ASTM standard D6980**, "Standard Test Method for Determination of Moisture in Plastics by Loss in Weight".

The Mark 3 features modular design with separate heating and control modules. For greatest efficiency, it is possible to connect additional heating modules (maximum four) with the control module for simultaneously analysis of same or different type of samples.

Fast, accurate moisture measurement with the Mark 3 allows adjustments to be made in the processing cycle in minutes rather than hours.

Generic	Specific Grade	KF Titration	MARK 3	Test Times	STD Dev
ABS	Cycolac FR 15	0.034%	0.032%	5.0 min	0.002
Acetal	Delrin 500P	0.020%	0.020%	4.0 min	0.001
ABS	Lustran LK279	0.061%	0.060%	10.0 min	0.001
Acrylic	Acrylite S101	0.045%	0.042%	7.0 min	0.001
Nylon 6	Akulon Ultraflow K	0.031%	0.031%	4.3 min	0.002
Nylon 6	Capron 8234	0.088%	0.081%	9.0 min	0.003
Nylon 6	Durethan BG30X	0.071%	0.072%	5.0 min	0.004
Nylon 6/6	Zytel ST 801	0.115%	0.114%	12.5 min	0.006
Nylon 6/6	Chemlon 133 GH	0.064%	0.063%	8.0 min	0.004
Nylon 11	Rilsan Besno	0.020%	0.018%	3.3 min	0.003
PC	Lexan 500	0.015%	0.016%	4.0 min	0.002
PC	Makrolon RX-2530	0.013%	0.014%	4.0 min	0.001
LCP	Zenite 55201	0.009%	0.010%	5.0 min	0.001
LCP	Vectra E473i	0.016%	0.016%	4.7 min	0.002
PET	Kosa 1101	48 ppm	49 ppm	5.0 min	0.001
PET	Traytuff	0.015%	0.014%	5.0 min	0.001
PET	RyniteRE 5231	0.009%	0.010%	4.9 min	0.001
PBT	Celanex 6500	0.022%	0.021%	3.7 min	0.002
PBT	Valox 325	0.010%	0.010%	4.0 min	0.001
HDPE	Petrothene LR7	0.005%	0.006%	4.0 min	0.001
PP	Thermofil P6-30	0.020%	0.019%	7.4 min	0.001
PS	Styron 6079	0.009%	0.011%	4.0 min	0.002
PSU	Udel GF-120	0.031%	0.031%	6.8 min	0.002
PU	Isoplast 2303C	0.015%	0.017%	5.0 min	0.001

Table demonstrates correlation results between Karl Fischer coulometric titration and the Mark 3 moisture analyzer.

Modular system for up to 4 simultaneous tests with excellent repeatable results.

Specification

Method of Measurement	Loss On Drying
Components Analyzer	Modular: Control and Heater modules
Optional Configuration	Up to 4 Heater modules per Control Module
Heat Source	Four parallel infrared quartz cylinders
Temperature Steps	Programmable one or two
Temperature range and settings	30 °C - 210 °C, adjustable in 1-degree increments
Balance Capacity	100 g
Balance Resolution	0.0001 g
Balance Repeatability	± 0.1 mg
Display of results	0.001%
Recommended Working Range	0.005 to 99.995%
Program storage	300 programs with unique settings, alphanumeric naming
Result Storage	999 individual results
Units of Measure of results	Weight / % Moisture / % Solids / % Volatiles / Fuel Moisture, PPM
Power Requirements	90-250 VAC 50/60 Hz self-adjusting power supply
Dimensions (inches)	16 1/4 x 19 1/2 x 9 1/4 (L x W x H) combined modules
Warranty Year	Two years

In-House Testing
Sartorius will test your material and provide the data compared to the standard reference method at no charge for the life of your analyzer.

Free Demonstration
Call for a free demonstration of this instrument.

Asia Pacific and China
Sartorius Mechatronics Hong Kong Ltd.
Unit 1110-12 Lu Plaza, 2 Wing Yip Street,
Kwun Tong, Kowloon, Hong Kong
Phone +852.2774.2678
Fax +852.2766.3526
enquiry.hongkong@sartorius.com
www.sartorius-mechatronics.com

Plastics Industry

Mark 3 Moisture Analyzer

Application Examples

The Mark 3 conforms to ASTM standard D6980, "Standard Test Method for Determination of Moisture in Plastics by Loss in Weight". Fast, accurate moisture measurement with the Mark 3 allows adjustments to be made in the processing cycle in minutes rather than hours.

- Over 4000 different resin grades already correlated to Karl Fischer Titration
- No pre-programming required on the part of the operator
- One button operation to perform a test
- Free loaners for the life of the instrument
- Two year complete parts and labor warranty
- Verifies performance of dryer systems
- 300 resin programs can be stored and recalled by name
- Hard copy results with standard internal printer
- Free applications development for the life of the instrument

GENERIC	SPECIFIC GRADE	KF TITRATION	MARK 3 RESULTS	TEST TIMES	STD DEV
ABS	Cycolac FR15	.034%	.032%	5.0 min	.002
Acetal	Delrin 500P	.020%	.020%	4.0 min	.001
ABS	Lustran LK279	.061%	.060%	10.0 min	.001
Acrylic	Acrylite S101	.045%	.042%	7.0 min	.001
Nylon 6	Akulon Ultraflow K	.031%	.031%	4.3 min	.002
Nylon 6	Capron 8234	.088%	.081%	9.0 min	.003
Nylon 6	Durethan BG30X	.071%	.072%	5.0 min	.004
Nylon 6/6	Zytel ST 801	.115%	.114%	12.5 min	.006
Nylon 6/6	Chemlon 133 GH	.064%	.063%	8.0 min	.004
Nylon 11	Rilsan Besno	.020%	.018%	3.3 min	.003
PC	Lexan 500	.015%	.016%	4.0 min	.002
PC	Makrolon RX-2530	.013%	.014%	4.0 min	.001
LCP	Zenite 55201	.009%	.010%	5.0 min	.001
LCP	Vectra E473i	.016%	.016%	4.7 min	.002
PET	Kosa 1101	48 ppm	49 ppm	5.0 min	.001
PET	Traytuff	.015%	.014%	5.0 min	.001
PET	RyniteRE 5231	.009%	.010%	4.9 min	.001
PBT	Celanex 6500	.022%	.021%	3.7 min	.002
PBT	Valox 325	.010%	.010%	4.0 min	.001
HDPE	Petrothene LR7	.005%	.006%	4.0 min	.001
PP	Thermofil P6-30	.020%	.019%	7.4 min	.001
PS	Styron 6079	.009%	.011%	4.0 min	.002
PSU	Udel GF-120	.031%	.031%	6.8 min	.002
PU	Isoplast 2303C	.015%	.017%	5.0 min	.001

Table demonstrates correlation results between Karl Fischer coulometric titration and the Mark 3 moisture analyzer.

5 Orville Dr. Suite 200
Bohemia, NY 11716
www.sartorius-omnimark.com

sartorius mechatronics

Tel (303) 876-5396
(800) 835-3211
Fax (631) 253-5263

suministros LPS®

sartorius

The New MA160 Moisture Analyzer Manages your Sophisticated Tasks

turning science into solutions

Fast, Precise and Easy Moisture Analysis

To be able to perform fast and precise analysis on a diverse range of product samples, you need a reliable instrument that gives you maximum flexibility.

The MA160 uses the thermogravimetric method to determine the moisture content of liquid, pasty and solid substances – conveniently, reliably and in a minimum of time. It delivers prompt, repeatable results and supports the development of new methods – in three uncomplicated and intuitive steps. The MA160 manages the generated methods professionally and securely and allows them to be transferred to other instruments.

- Effortless cleaning
- Fast and precise method development
- High-speed measurements
- Reliable performance testing
- User-friendly operation
- Large memory capacity
- Display of measurement status

During a measurement, a status lamp indicates the current measurement status. Additionally, the ergonomic BetterClean design of the MA160 allows efficient and simple cleaning of the device.

Using integrated performance testing, the MA160 verifies its functionality at the touch of a button – ensuring permanent and flawless performance.

Applications

With its optimized heating elements, the MA160 produces high-speed measurements. That's how the MA160's weighing system guarantees the required precision.

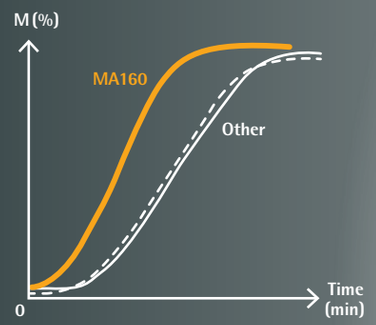
The MA160 is ideal for the moisture analysis of a varying range of samples under different conditions. It can generate new methods which allows you to create and effectively manage proprietary measurement procedures for various samples. This supports your work in the QC lab or in process control.

Typical areas of applications for the MA160 include the moisture analysis of foods, beverages, pharmaceuticals, chemicals, paper materials and environmental protection.

Features

High-speed measurements

Both the high-performance AURI heater and the sample chamber's geometry ensure rapid heating and a homogeneous and swift sample drying.



Large memory capacity

The memory capacity allows the user to store up to 100 different methods and manage them in a method library.

Fast and precise method development

The MA160's method assistant solves the time-consuming problem of determining and evaluating the right parameters. It enables you to develop new methods quickly in just three simple steps.

Display of measurement status

The status lamp indicates the current measurement status during the measurement: “running | START”, “process finished | STOP”, “analyzer OFF” or “error”. It is visible from a distance of up to 10 meters.

Reliable performance testing

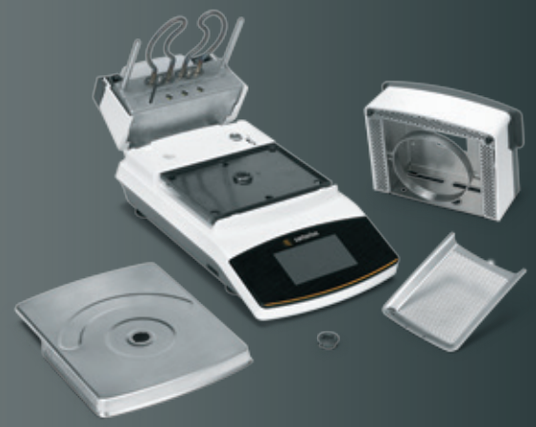
The ReproEasy Pad gives you the option to regularly verify the functionality of the MA160. It guarantees reliable results during routine use.

User-friendly operation

The intuitive user interface, including touch-screen and easy-to-understand menu, considerably simplifies operation of the MA160.

Effortless cleaning

BetterClean design enables the user to easily and thoroughly clean the instrument parts. Additionally, the heating module and the sample chamber plate are removable and dishwasher safe.



Technical Specifications

Max. weighing capacity	200 g
Repeatability, typical	Starting at an initial sample weight of approx. 1 g: ±0.2%, Starting at an initial sample weight of approx. 5 g: ±0.05%
Readability	1 mg, 0.01%
Typical sample quantity	5 – 15 g
Reading display	Moisture content in % M and % g | dry matter in % S and g | ATRO in % M/S
Temperature range and settings	40°C–160°C, in increments of 1°C Standby temperature selectable from 40 to 100°C
Sample heating	Infrared heating using an AURI heater, 600 W
Heating programs	Standard drying, gentle drying
Shutoff parameter	Fully automatic, semi-automatic, manual and with timer settings
Sample forceps	Easy-to-handle sample dish
Interface	Mini USB, automatic printer detection, direct transfer to Microsoft® programs
Data transfer	SD card, method import and export function
Housing dimensions (W × D × H)	215 × 400 × 210 mm
Weight	Approx. 6.2 kg

Accessories

6965542	Disposable sample pans, 80 pcs., aluminum, ∅ 90 mm
6906940	Glass fiber pad for analysis of pasty and fatty samples, hard quality, 80 pcs., ∅ 90 mm
6906941	Glass fiber pad for analysis of liquid and fatty samples, soft quality, 200 pcs., ∅ 90 mm
YHP01MA	ReproEasy pads, 10 pcs. for performance testing to verify the repeatability of the analyzer
YCW512-AC-02	External calibration weight, 100 g (E2) with DKD certificate
YDP40	Standard printer
YDP30	Premium GLP laboratory printer
YCC03-D09	Adapter cable for connecting the YDP20-OCE printer

Disposable sample pans

ReproEasy Pad

suministros LPS®

SARTORIUS

The New Moisture Analyzer – MA37
Fast – Compact – Accurate

turning science into solutions

Your Reliable Partner for Routine Tasks

MA37 is a next-generation moisture analyzer and continues the success story of the MA35. The MA37 delivers fast, accurate results and is easy to operate. This compact device has a BetterClean design which offers effortless cleaning. The status light makes it easy to track the current status of the measurement.

Therefore, the MA37 is ideal for users who require a fast, reliable moisture analyzer which is easy-to-operate and to clean.

Fast measurements

Display of measurement status

User-friendly operation

Effortless cleaning


sartorius
Moisture in %M
Start new measurement
START
Standard

Your Reliable Partner for Routine Tasks

MA37 is a next-generation moisture analyzer and continues the success story of the MA35. The MA37 delivers fast, accurate results and is easy to operate. This compact device has a BetterClean design which offers effortless cleaning. The status light makes it easy to track the current status of the measurement.

Therefore, the MA37 is ideal for users who require a fast, reliable moisture analyzer which is easy-to-operate and to clean.

Fast measurements

Display of measurement status

User-friendly operation

Effortless cleaning

Fast measurements

Due to its high-performance heating elements, the MA37 heats quickly which results in reduced measuring time.

Display of measurement status

The status light indicates the current measurement status – “running | START”, “process finished | STOP”, “analyzer OFF” or “error”. It is visible from a distance of up to 10 meters.

User-friendly operation

The intuitive user interface, including touch-screen and easy-to-understand menu, considerably simplifies operation of the MA37.

Effortless cleaning

BetterClean design enables the user to easily and thoroughly clean the instrument parts. Additionally, the heating module and the sample chamber plate are removable and dishwasher safe.

Technical Specifications

Max. weighing capacity	70 g
Repeatability, typical	Starting at an initial sample weight of approx. 1 g: ± 0.2% for initial sample weight approx. > 5 g: ± 0.05%
Readability	1 mg, 0.01%
Typical sample quantity	5 – 15 g
Reading display	Moisture content in % M and % g | dry matter in % S and g | ATRO in % M/S
Temperature range and settings	40°C–160°C, in increments of 1 degree Standby temperature selectable from 40 to 100°C
Sample heating	Infrared heating using a metal tube heater
Heating programs	Standard drying, gentle drying
Shutoff parameter	Fully automatic, semi-automatic, manual and with timer settings
Access to sample chamber	Removable hood with wide opening angle, SoftClose mechanism
Measuring program	1 program saved in a non-volatile memory (freely selectable method parameters)
Memory for data storage	Results are saved until the start of the next measurement
Sample inspection	LED-illuminated sample chamber, inspection window with grid above the hood
Interface	Mini USB, automatic printer detection, direct transfer to Microsoft® programs
Housing dimensions (W × D × H)	215 × 400 × 210 mm
Weight	Approx. 6.2 kg

Accessories

6965542	Disposable sample pans, 80 pcs., aluminum, ∅ 90 mm
6906940	Glass fiber pad for analysis of pasty and fatty samples, hard quality, 80 pcs., ∅ 90 mm
6906941	Glass fiber pad for analysis of liquid and fatty samples, soft quality, 200 pcs., ∅ 90 mm
YHP01MA	ReproEasy performance test pads, 10 pcs. for performance testing to verify the repeatability of the analyzer
YCW452-AC-02	External calibration weight, 30 g ± 0.3 mg with DKD certificate
YDP40	Standard data printer
YDP30	Premium GLP laboratory printer
YCC03-D09	Adapter cable for connecting the YDP20-OCE printer

suministros LPS®

SARTORIUS

Sartorius LMA200PM

Speed meets analytical precision

Moisture Analysis

- Can be used for liquid and pasty samples with a moisture content of approx. 8 -100%
- Analysis time takes just 40 -120 seconds (depends on sample and moisture content)
- Easy two-key operation in the routine mode

Endpoint determination
- Fully automatic; sensors for mass and moisture
- User-defined as a loss of weight/time
- Timer mode

- Built-in analytical weighing system with 70 g capacity and 0.1 mg resolution

If the sample contains a high moisture content, microwave drying is the fastest and most effective thermogravimetric method (loss-on-drying principle) for moisture analysis. Developed for measuring moisture content ranging from approx. 8% to 100%, the LMA200PM performs moisture analysis in a fraction of the time it takes for other thermogravimetric methods. It delivers results between approx. 40–120 seconds on average. With a cylindrical design, a focused emission of microwave energy is channeled vertically through dual apertures at the bottom of the chamber. This concentrates the microwave energy specifically to the sample. During the test, a carousel spins the sample, permitting an even distribution of microwave energy. This prevents hot and cold spots from occurring, a familiar problem with conventional microwave analyzers.

Built-in analytical weighing system
The moist and dry weight of the sample required for calculating the loss of moisture is measured by a built-in analytical weighing system featuring 0.1 mg resolution. Thanks to its monolithic design (the cell is robotically etched from a single block), this system is particularly suitable for use in a moisture analyzer, because it considerably reduces zero point drift during heat exposure compared with classic weighing systems.

Intelligent endpoint determination
A moisture sensor integrated in the exhaust system of the sample chamber monitors the progress of drying. When the measurement begins, the moisture of the air inside the sample chamber continuously increases as water evaporates from the sample. Once the sample has dried and no longer releases water, the air moisture content drops back to its original level – a clear indication of the end point. At the same time, the built-in weighing system monitors the weight progression and confirms when the sample reaches a constant weight. This dual monitoring system ensures optimal moisture analysis results.

High speed
Two factors play a major role for ultra-fast measurements. First, the sample must absorb microwave energy within the shortest time possible and transform this into heat energy. For this purpose, the LMA200PM has a cylindrically shaped sample chamber that optimally focuses the microwave radiation on the sample. Second, the resulting water vapor must be transported away from the sample as fast as possible to obtain fast analysis results. To accomplish this, a sample is applied to a glass fiber pad that allows water vapor to evaporate not only from top of the pad and upward through the sample, but also from the bottom of the pad. An exhaust system draws water vapor out of the sample chamber, thus preventing the effects of condensation.

Technical specifications | accessories

Model	LMA200PM
Weighing capacity (g)	70
Measuring accuracy of the weighing system (g)	0.0001
Reproducibility on average for initial sample weight starting at approx. 1 g (%)	± 0.05
Sample carriers	90 mm ∅ (3½") glass fiber pads
Display modes	% moisture, ppm moisture, % volatile components, % dry weight (solids), ppm dry weight, g dry weight, mg loss on drying, % RATIO
Measuring range	Approx. 8–100% moisture
Sample heating	Microwave generator with 1,000 W input power
Power control for heating	2–100%, adjustable in 1% increments
Endpoint determination	– Fully automatic, by means of sensors for mass and moisture – User-defined as loss of weight/time: 1–50 mg/1–99 sec. 0.1–9.9 %/1–99 sec. – Timer mode: 0.1–99.9 min.
Analysis time (in seconds)	Approx. 40–120 (depends on sample and moisture)
Programs	320 saved to non-volatile memory
Data printer	Thermal printer, built-in
Moisture analysis report	– User-configured GLP record – The report can be printed on non-fading paper by the built-in thermal printer.
Operator guidance	– Menu-driven, alphanumeric dialogue text (English, French, German, Italian and Spanish selectable) – 5 pre-programmed function keys
Data interfaces	– 1 × RS-232 port for PC – 1 × Ethernet port
Housing dimensions (mm|in.) W × D × H	510 × 535 × 304 | 20 × 21 × 12
Weight, approx. (kg | lb)	22 | 48.5
Power source	230 V, 50 Hz, 1,200 VA (LMA200PM-000EU) 120 V, 60 Hz, 1,200 VA (LMA200PM-000US)
Power consumption (VA)	1,200 max.

Accessories	Order no.
80 glass fiber pads	6906940
500 disposable pipettes	YAT01MA
5 rolls of printer paper, each with 20 m (65 ft.)	69MA30100