

# Water-Selective Moisture Analyzer

**Brabender: Aquatrac-V**



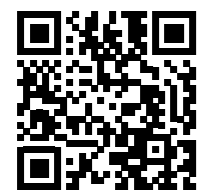
# Aquatrac-V: Moisture Has Met Its Match

For 30 years, the Aquatrac method has been the benchmark for determining the residual moisture content in solids with the calcium hydride method for the plastics processing industry. Compact, durable, and portable for convenient measurement wherever your process requires – there's a reason it's become the reference in the industry.

- ✓ Comply with DIN EN ISO 15512:2019 for your entire value chain
- ✓ Conduct precise measurements (resolution of 0.0001 % H<sub>2</sub>O), no need to calibrate
- ✓ Enjoy your freedom: no special lab, training, or handling of hazardous chemicals
- ✓ Take it anywhere: compact, durable, portable
- ✓ Access your measurements from any device and easily export data with its software
- ✓ Know the instrument sufficiently dries the polymer sample for Melt Flow Rate determination



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# Unveiling the Impact of Residual Moisture on Polymer Properties

Checking the residual moisture during the injection molding process is crucial. Moisture that's out of range will strongly influence product quality and the molding process. What are some of the major issues?

## Decreased mechanical stability

Too much moisture in your product leads to streaks, which are a visual impairment and have a negative effect on mechanical stability

## Unusable product

Significantly increased moisture can even lead to larger defects like cavities and small holes, which can render a product unusable

## Poor processability

Fluctuating residual moisture has a dramatic effect on process reliability in injection molding because the water content influences the viscosity of the polymer melt and therefore makes constant process parameters impossible

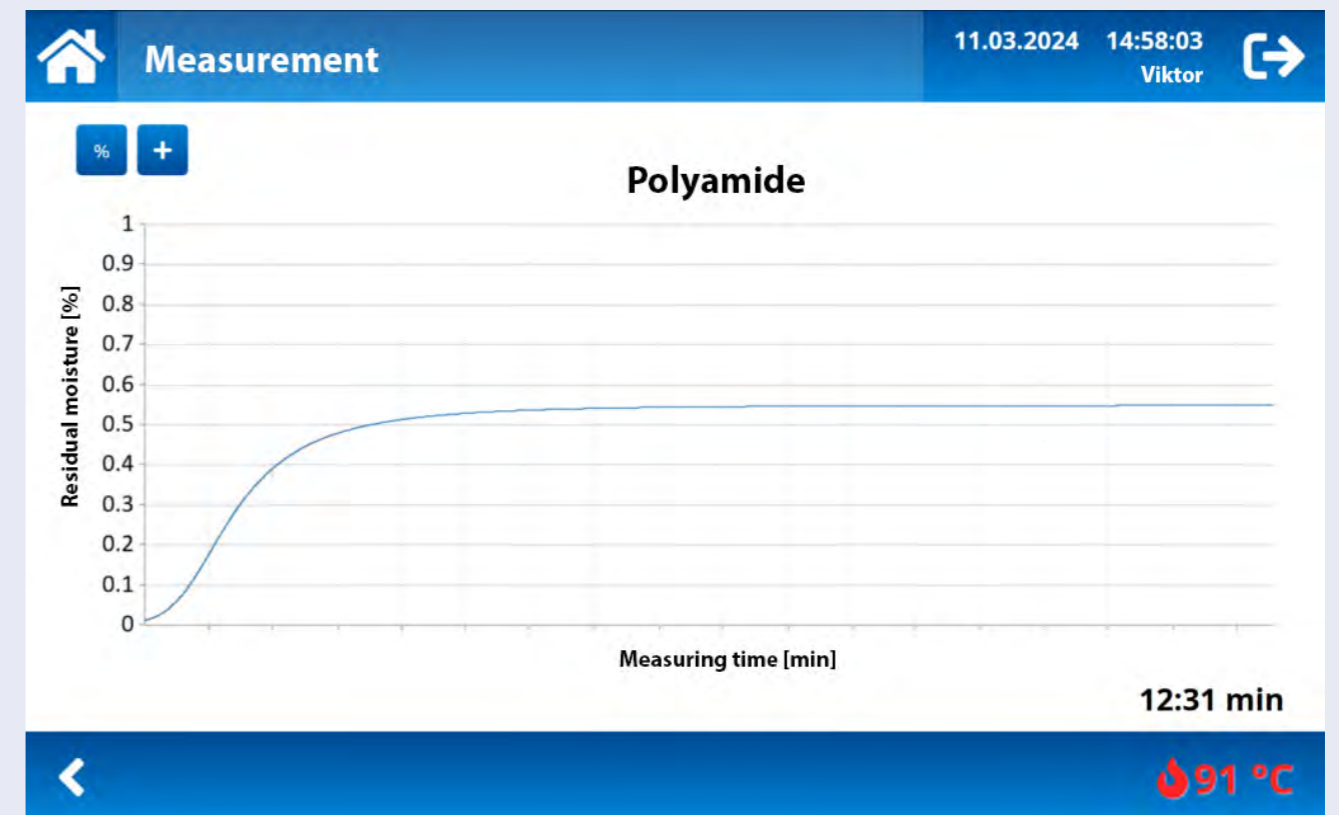


# Measuring Principle behind the Aquatrac-V

The Aquatrac-V uses the calcium hydride method, which is recognized under Method E – Determination of water content by the calcium hydride method, in DIN EN ISO 15512:2019 “Plastics – Determination of water content.”

## It works in the following way:

- The instrument starts by heating the sample under vacuum, which causes water to escape
- Water vapor rises and reacts with the calcium hydride
- The chemical reaction leads to a release of hydrogen
- The release of hydrogen triggers an increase in pressure
- The pressure increase is measured by a pressure-measuring cell
- Using the reaction equation, the water amount is calculated based on the free internal volume, the temperature in the vacuum, and the pressure increase



# Effortless Measurements

With a straightforward measuring process, no special lab or training is needed for the Aquatrac-V.



1

**Push** the button and get started

2

**Choose** a material out of the built-in material database

3

**Weigh in** the suggested amount of sample with a scale

4

**Type in** the weight of the sample.

5

**Push** the continue button

6

**Open** the sample container with the black star knob

7

**Take** the old calcium hydride and the old sample out of the sample container

8

**Fill in** the new sample and calcium hydride into the sample container

9

**Close** the Aquatrac-V

10

**Push** the start button and start the next measurement

# Applications

The Aquatrac-V helps you in your daily challenges while working with polymers. Check your polymers before injection molding, ensure incoming and outgoing product quality, and even prepare your polymer for subsequent characterization methods like e.g., MFR analysis (melt flow rate analysis). Here, Aquatrac-V acts as a drying device to completely dry out the sample for further MFR analysis.

Furthermore, the Aquatrac complements the Anton Paar portfolio for polymer characterization and adds the influence of moisture into your evaluation. Obtain full insight into your material and use our other instruments:

- Extruders: Our twin-screw extruders compound your polymer in a continuous process
- Torque rheometers: Mix polymer compounds and gain insights into processing, plasticizing and melting behavior
- Dynamic mechanical analyzers: Determination of mechanical properties of different polymer types such as elastomers, thermoplastics etc. plus determination of the glass transition temperature
- Indentation and scratch tester: Mechanical surface testing of polymer films and polymeric paints
- Modular compact rheometers: Characterize rheological properties of polymer melts
- FTIR spectrometer: Verify a sample and final QC of polymers
- ...and more

# Aquatrac-V's Operating Software



The Aquatrac-V's operating software ensures proper implementation of the calcium hydride method and has valuable features.



### Injection molding

Since polymers have to be dried to be used for injection molding, checking the moisture content during and after the drying of polymer granules is important for injection molding.



### Incoming/outgoing polymers

The moisture content of incoming polymer granules is important for the whole value chain. Polymer producers can check the moisture before delivering the material.



### Drying device for MFR determination

Because the sample must not contain any moisture before MFR determination, checking the moisture of a polymer and drying it at the same time saves you time.



### Material database

With the Aquatrac-V's material database, you have all the information you need to conduct a measurement



### User management

A user database offers strict rights management to prevent deleting or storing the wrong data



### Material processing limits

Processing limits of moisture can be displayed during the measurement and can be stored for each material individually



### Accessibility

You can access the browser-based software by computer, smartphone, or any device with a browser via network

### Aquatrac-V



Measurement principle	Chemical reaction with calcium hydride according to DIN EN ISO 15512:2019
Sample weight	From 0.1 g to 130 cm <sup>3</sup>
Resolution	0.01 mg / 1 ppm / 0.0001 % H <sub>2</sub> O
Precision	Better than ±1.4 % of measuring range end value
Measuring range	- 0.0001 % to 60 % H <sub>2</sub> O (relative) - 0.01 % to 60 mg H <sub>2</sub> O (absolute)
Measuring temperatures	60 °C to 200 °C in 1 °C steps
Measuring time	Approx. 10 min to 60 min depending on material
Display	%, ppm, mg

# Reliable. Compliant. Qualified.

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Our well-trained and certified technicians are ready to keep your instrument running smoothly.



#### Maximum uptime

Regardless of how intensively you use your instrument, we help you keep your device in perfect shape and safeguard your investment. For at least 10 years after the discontinuation of a device, we'll provide you with any service and spare part that you might need.



#### Warranty program

We're confident in the high quality of our instruments. That's why we provide a full 3-year warranty. Just make sure to follow the relevant maintenance schedule. You can also extend your instrument's warranty beyond its expiration date.



#### Short response times

We know that sometimes it's urgent. That's why we provide a response to your inquiry within 24 hours. We give you straightforward help from great people, not from bots.



#### A global service network

Our large service network for customers spans 86 locations with more than 600 certified service technicians. Wherever you're located, there's always an Anton Paar service technician nearby.

