

How to Choose the Right Moisture Analyzer for Your lab

When selecting a moisture analyzer for your laboratory, it's important to approach the decision carefully, as the results can significantly impact product integrity. Moisture measurement and control are crucial in various processes within the pharmaceutical, food, agriculture, and chemical industries, as moisture content significantly influences the quality and shelf life of end products. Choosing the right moisture content determination device can be challenging, particularly given the wide range of models available in the market.



Identify Your Solutions to be Analyzed:

The first step toward selection of the right moisture analyzer is a definition of the various features that ought to be incorporated in the solution to be analyzed.

These include the following:

Sample Type:

Different materials require different moisture analyzers parameters. The suitable analyzer will vary depending on whether the technique is applied to powders, pastes, liquids, or solids.

Moisture Level:

Certain industries may demand moisture content as low as 0.01%, while others may allow for broader limits. It's essential to ensure that the analyzer can accommodate the full range of moisture content relevant to these fields and even exceed those requirements.

Measurement of accuracy and precision:

What levels of accuracy will you need? An audience willing to invest in high precision analyzers will mostly be working in fields such as pharmaceuticals and food safety among others while general applications will call for less stringent accuracy.

Think about the Heating Technology

A moisture analyzer is a precision balance combined with a heat source, which is why they are often called a Moisture Balance. As with all balances the accuracy and precision is determined by the weight and therefore finely tuned loadcells are used. However, in a moisture balance the heat source also contributed to both accuracy and precision. So, choosing right heating technology with your requirement is crucial.

Infra-Red Heating

Infra-Red heat sources are typically a metal ring in the top housing of the moisture balance, the sample directly absorbs infrared radiation, leading to the drying process. This method is slower

than some other heat sources but is adopted in environments where glass is not allowed (e.g. food processing).

Halogen Heating

Halogen heating is more efficient due to its ability to transfer energy through both radiation and convection. This offers a faster result than infrared heating.

Microwave Heating

Employs microwave radiation to heat the sample, generating heat through water molecule absorption. This method is quick, but only suited to large samples with higher water content because other substances may also evaporate during the process and therefore it becomes less reliable.

Carbon Fibre heating

Carbon fibre heating operates in a manner similar to infrared heating, but the carbon fibre heating element consumes less energy to illuminate the bulb. Instead, this energy is utilised to penetrate the sample through long-wave radiation, leading to quick and dependable results.

More about OHAUS:

Knobs on MB32 & MB62

Both the **OHAUS MB32 and MB62** models feature user-friendly, ergonomic knobs, allowing for precise control and adjustments. This simple yet effective design provides enhanced operational convenience during moisture analysis, ensuring that each test can be adjusted with minimal effort, thereby improving accuracy and workflow efficiency in busy laboratory environments.

Multi-colour Status Light

The **OHAUS moisture analyzers**, including the **MB62 and MB92**, also come equipped with a multi-colour status light. This visual indicator provides real-time updates on the testing process, with different colours signalling specific stages such as heating, analysing, or cooling down. This allows technicians to easily monitor progress from a distance, enhancing the user experience and reducing the risk of test disruption.



Convenience of Operationalization and Data Management

User-friendliness and seamless workflow integration are crucial factors in selecting specific instruments for a busy laboratory. A moisture analyzer that is easy to use addresses the necessity for quick result reproduction and straightforward operation of both the equipment and software, particularly when formal lab technicians are not overseeing all processes. Additionally, many modern analyzers feature touch screen controls, programmable settings, and the ability to store multiple profiles, all of which contribute to enhanced work efficiency.

LIMS Connectivity: Additionally, consider how the analyzer will integrate with the lab's data management activities. Some moisture analyzers offer connectivity to Laboratory Information Management Systems (LIMS) or feature USB/RS232 ports for data transfer, which can enhance the efficiency of reporting and auditing processes.

Calibration and Maintenance

To ensure that each moisture analyzer operates within its specified parameters, regular calibration is essential. Certain models are designed to facilitate routine calibration, minimizing downtime and promoting both time savings and compliance. Additionally, choosing materials that are easy to clean and dependable can help reduce maintenance needs and prolong the instrument's lifespan.

Sample Size and Throughput Requirements

If your laboratory processes a high volume of samples within a specific timeframe, it is crucial for the sample modules to analyze them efficiently. High-capacity moisture analyzers are designed to handle multiple large samples or to frequently test a significant number of samples, while smaller, compact moisture analyzers may be more appropriate for low-volume laboratories. It's important to consider the preparation of samples, the execution of tests, and the cleaning of the analyzer between tests, as these factors significantly impact the overall productivity of the lab.

Action Plan and Budgetary Perspective

Instead of focusing solely on cutting costs, it's important to consider how to stay within budget regarding other expenses that may arise from your purchase, such as maintenance, repairs, and energy costs. For example, OHAUS's energy-efficient gaseous analyzer incorporates advanced energy-saving technologies, including carbon fibres. While the upfront investment for this type of analyzer may be higher, the operating costs are significantly lower over time. Additionally, investing in a high-quality, durable instrument reduces the likelihood of frequent repairs or replacements.

Regulatory Compliance

In specific industries, such as pharmaceuticals and food safety, there are certain standards that specify the appropriate equipment for moisture analysis. Ensure that the moisture analyzer you choose complies with all relevant regulations, including, but not limited to, USP or ISO standards.

Conclusion

It's important to emphasize that selecting the right moisture analyzer requires careful consideration of your laboratory's specific needs. By focusing on key factors such as sample type, accuracy requirements, heating technology, ease of use, and long-term cost-effectiveness, you can choose a device that not only meets your current needs but also supports your laboratory's future growth. Innovative technologies, like carbon fiber heating in moisture

analyzers, enable laboratories to achieve quicker results, reduce energy consumption, and adopt more environmentally friendly practices, significantly enhancing productivity.

Finally, don't hesitate to reach out to moisture analysis experts or product representatives for knowledgeable assistance tailored to the equipment you wish to acquire.

References:

To know more:

[Introducing the Next Generation of Moisture Analyzers by OHAUS – MB32, MB62 and MB92](#)

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