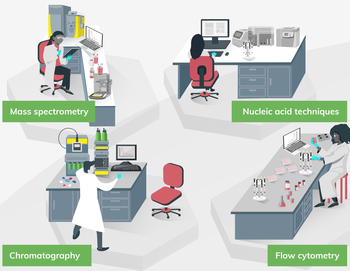
IN THE ZONE Bioanalysis ZONE

SARTORIUS

The Essentials of Sample Preparation

Sample preparation is a foundational element for precise analysis, ensuring product safety and regulatory adherence. This critical process refines samples for compatibility with advanced analytical techniques like **chromatography**, **mass spectrometry**, **nucleic acid techniques** and **flow cytometry**.



Lab essentials ensure precise sample preparation, crucial for accurate results in quality control testing. Top-notch lab essentials strengthen sample processing, transforming samples for analysis while preserving key compounds and eliminating contaminants. Thereby, prolonging the life of chromatography columns, analytical instruments and minimizing interferences.

Tools for Reliable and Accurate Sample Preparation

Lab Weighing

Common problem

When preparing HPLC standards, improper weighing and manual calculation can lead to unrepeatable and imprecise standard series.

Solution

Lab balances with ultra-high resolution can be used for precise preparation of calibration standards and sample solutions.

- Allow **accurate sample and solvent weighing** for further analytics
- **Avoid sample transfer** by weighing small samples directly in large containers
- Enable extremely low sample weight and concentration, adhering with **USP and FDA** requirements
- Guide throughout the workflow with **Q-App software and digital documentation** of the entire process in a 21 CFR part 11 compliant record
- Guarantee **fast stabilization** by eliminating static
- Provide step-by-step guidance to simplify both routine and advanced cleaning procedures

Lab Water

Common problem

Bottled water can incur high costs with higher risk of contamination as it is usually used by more than one person with repeated opening and closing of the bottle.

Solution

By choosing a water system that can be flexibly configured, ensure that your sample is treated with the highest quality solvent and mobile phase.

- Lab water systems for **consistent baseline and fewer ghost peaks**
- Prevents interference and **false positive and negative results** in analytics
- Sartorius Type 1 ultrapure water can be used for sensitive assays (**ICP, MS or HPLC**)
- Sartorius Type 2 pure water can be used for general **applications and ELISA washing**

Syringe Filters

Common problem

Improper filtration of samples reduces the quality and consistency of analytical results and decreases instrument downtime. Therefore, it is important to remove particulate impurities from liquid samples prior to HPLC analysis.

Solution

Use syringe filters with fast flow rates and lower absorption characteristics without adding unwanted extractables or leachables that will contaminate your sample or affect your measurement results.

- Syringe filters for **clean particle-removal**
- Removes **particulates and microorganisms**
- Ensure **sterility and protect analytical instruments**
- Selection based on **sample compatibility and sample volume**

Pipetting & Dispensing

Common problem

Unreliable and inaccurate pipetting can lead to contamination of samples and incorrect sample volumes.

Solution

Pipettes and tips can be used for accurate and inert transfer of even the smallest volumes.

- Precision volume measurements for **consistent results**
- Connected **electronic pipettes** smoothly run preinstalled sample preparation workflows, speeding up your work
- **Ergonomic design** to prevent user fatigue and errors
- Quality filter tips to **avoid cross-contamination** caused by aerosols and compatible with main solvents

This infographic has been created as part of a Bioanalysis Zone feature in association with Sartorius.

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