

Equipment Essentials for Good Laboratory Practice (GLP)

Good Laboratory Practice depends on precise, reliable equipment. Proper tools ensure data integrity and study validity.



GLP Compliance: Equipment Overview

Analytical Instruments

Crucial for measurements, analysis, and testing consistency.

Support Equipment

Includes balances, pipettes, and other essential tools.

Environmental Control

Maintains controlled conditions for reliable results.

Analytical Instruments: Precision is Key

Calibration Standards

Use NIST traceable standards and document each session.

Performance Qualification

Conduct IQ, OQ, PQ to verify installation and functionality.

Example

Agilent 1260 Infinity II HPLC with quarterly calibration.

Weighing Equipment: Accuracy Matters



Calibration

Use certified weights for regular, recorded calibration.



Environmental Control

Place balances in vibration-free, stable conditions.



Example

Mettler Toledo XPR204 calibrated monthly with 100mg weight.



Temperature Monitoring and Control

Calibration and Traceability

Thermometers calibrated to national standards ensure accuracy.

Environmental Monitoring

Use temperature mapping and alarms to guarantee stability.

Example

Thermo Scientific Forma -20°C freezer mapped biannually.

Environmental Control Systems



Temperature & Humidity

HVAC systems maintain strict environmental parameters.



Air Filtration

HEPA filters ensure particulate control in labs.

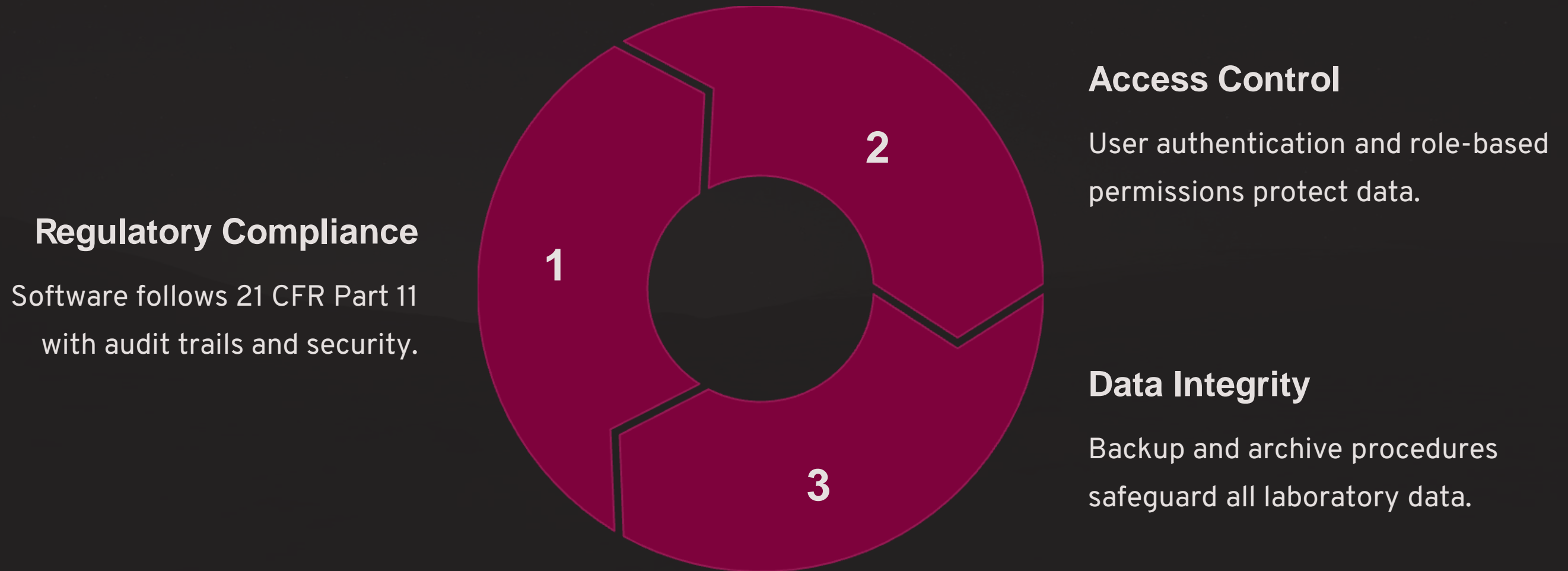


Monitoring & Alarms

Continuous data logging with alert systems for deviations.



Software and Data Systems



Maintenance and Calibration

1

Scheduled Maintenance

Follow documented procedures to ensure continuous operation.

2

Calibration Intervals

Set based on equipment use and risk assessments.

3

Preventive Plans

Reduce downtime and maintain study reliability.

4

Example

Quarterly preventive maintenance on Tecan Spark reader.

Documentation and Record-Keeping

Equipment Logs

Track history, maintenance, and calibration details

SOPs

Standardized procedures for equipment use and upkeep

Training Records

Verify personnel competency and GLP adherence



Ensuring GLP Compliance: A Summary

Equipment Selection

Choose tools that meet GLP reliability standards.

Maintenance & Training

Regular calibration and workforce education reinforcement.

Quality Commitment

Consistent efforts ensure accurate, trustworthy study outcomes.