SciAps ApNotes
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Cloud+ for NDT/PMI

Cloud-Connected Tools for PMI and Data Management

Industry Challenge

Positive Material Identification (PMI) plays a critical role in verifying material compliance across refineries, petrochemical facilities, power generation, fabrication, and manufacturing.

SciAps handheld PMI Analyzers such as XRF and LIBS provide rapid alloy verification in the field, but inspection data is often transferred manually after testing. This can delay reporting, increase administrative work, and limit visibility for project managers and quality teams.

For applications where carbon is critical to grade identification, inspectors may also need to combine results from complementary technologies and calculate or verify the final grade after testing.

Cloud+ Solution

Cloud+ creates a connected workflow between SciAps PMI Analyzers and a secure cloud-based platform. Inspection data is automatically synchronized as it is collected, providing a continuously updated backup while making results accessible to authorized personnel.

Administrators can manage analyzer fleets remotely, including software updates, configurations, alloy grade libraries, and user access, without requiring analyzers to return to the office.

Cloud+ doesn't just store your data; the Merge Engine combines complementary XRF and LIBS measurements so your inspectors can calculate CE and identify materials on the spot.

Workflow

Inspectors take measurements with SciAps PMI Analyzers. All data collected is synchronized to Cloud+ constantly, or when Wi-Fi reconnects.

Cloud+ can capture and organize:

- Material identification results, including chemistry and grade
- Carbon measurements from LIBS
- Inspection timestamps
- GPS location
- Photos and barcodes
- Analyzer and inspector information
- Project and custom Test Info fields



For multi-sensor applications, Cloud+ Merge Engine combines the carbon results from a SciAps LIBS analyzer with elemental chemistry from a SciAps XRF analyzer. This data fusion can be used to determine CE along with the applicable alloy grade without manually combining measurements or performing calculations after testing.

Key Features for NDT/PMI

Cloud+ Merge Engine: XRF + Carbon

Beyond data storage, the Merge Engine seamlessly combines XRF & LIBS measurements using a “Merge ID” test info value. The software automatically pairs LIBS carbon data with comprehensive XRF chemistry to construct a complete PMI result.

For example, when identifying 316 stainless, the LIBS carbon result of 0.03% (Figure 1) is combined with the remaining XRF chemistry to distinguish 316L from standard 316 (Figure 2).

This automated data fusion instantly calculates a Grade Match and Carbon Equivalency (CE) in the field. By eliminating manual data entry and disconnected spreadsheets, Cloud+ automates the entire workflow to produce secure traceable reports without the risk of calculation errors.

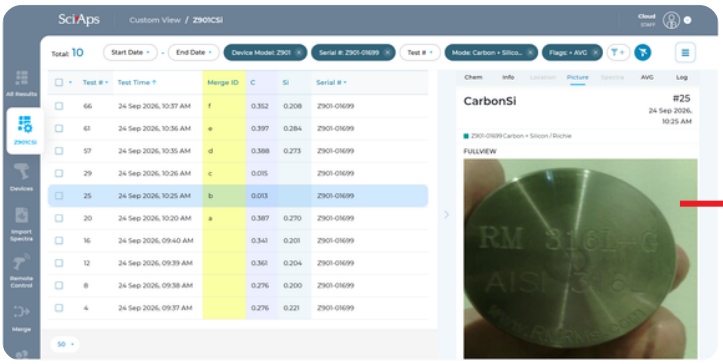


Figure 1: Cloud+ provides a secure backup and measurement validation from anywhere.

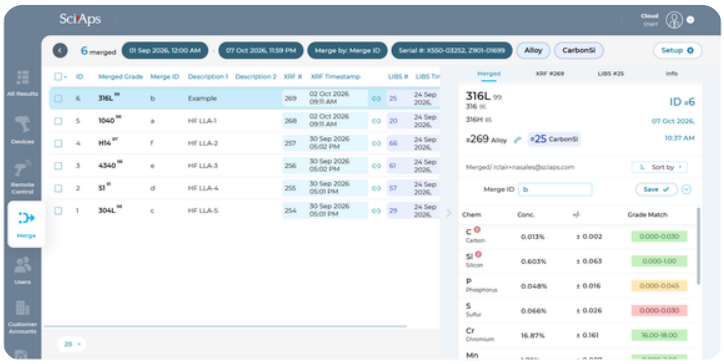


Figure 2: Merge XRF & LIBS data for carbon equivalency, grade ID, and reporting.

Centralized Inspection Records
Cloud+ securely stores inspection history and organizes results using custom fields, making measurements easy to retrieve by project, inspector, analyzer, or other identifying information. Photos, barcodes, GPS coordinates, and chemistry remain associated with the corresponding measurement.

Real-Time Data Access
Inspection results are available immediately after testing, allowing project managers and quality teams to review data remotely and reducing delays between field testing and reporting.

Remote Administration
Manage analyzer fleets without bringing instruments back to the office. Administrators can deploy software updates, maintain consistent analyzer configurations, update alloy grade libraries, and manage user access remotely.

Fleet Management
Administrators can monitor analyzer health and telemetry, track GPS location, view analyzer usage by inspector login, and manage multiple instruments across facilities.

Summary

Cloud+ connects SciAps handheld PMI analyzers with a centralized platform for data management, multi-sensor analysis, inspection documentation, and fleet administration.

By automatically synchronizing inspection data and combining complementary XRF and LIBS measurements, Cloud+ helps inspectors complete more of the PMI workflow in the field while giving project managers and quality teams greater visibility into inspection activities.

Remote fleet management further reduces administrative effort and helps organizations maintain consistent, connected PMI operations across multiple analyzers and facilities.

Operational Benefits

- **Faster PMI Workflows**
- **Greater Project Visibility**
- **Improved Documentation**
- **Simplified Fleet Management**

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