Specifications

Procurement of a CAMAG High-Performance Thin-Layer Chromatography (HPTLC) System or equivalent for the USDA – Agricultural Research Service (ARS)

1. Introduction

The USDA Agricultural Research Service (ARS) requires procurement of a complete CAMAG HPTLC system or equivelant to support analytical chemistry research focused on botanical products, natural products, and food composition. The system will enable enhanced reproducibility, digital documentation, chemometric analysis capability, and standardized workflows that align with ARS project needs, as described in recent scientific work involving HPTLC digitization and plate-based chemometrics.

2. Background

The vendor shall provide a fully configured HPTLC system including equipment, software, installation, and training as detailed below.

- CAMAG Linomat 5 sample applicator or equivalent.
- CAMAG Automatic Developing Chamber 3 (ADC-3) with humidity control or equivalent.
- CAMAG Chromatogram Immersion Device for derivatization or equivalent.
- CAMAG Dip Tank or equivalent.
- CAMAG TLC Visualizer 3 with 16 mm lens or equivalent.
- CAMAG TLC Scanner 4 (20 × 20 cm capability) or equivalent.
- visionCATS Basic software license (1 server, 1 client) or equivalent.
- visionCATS Ultimate Package (High-Resolution Documentation, Enhanced Evaluation, Multi-Wavelength Scanning, Spectrum Scanning) or equivalent.
- CAMAG TLC Plate Heater III or equivalent.
- HPTLC Silica Gel 60 F254 plates (20×10 cm), pack of 50 or equivalent.
- Computer system configured for visionCATS + monitor or equivalent.
- Installation Qualification / Operational Qualification (IQ/OQ) package.
- Two-day training.

3. Requirements

3.1 Technical Requirements

The delivered HPTLC system shall:

- Support standardized HPTLC workflows including sample application, development, derivatization, documentation, and densitometric scanning.

- Enable digital chromatography imaging suitable for chemometric analysis as required by ARS researchers.
- Include all hardware/software needed to interface visualizer output and scanner data with chemometric pipelines.
- Be compatible with ARS laboratory environmental and safety standards.

3.2 Software Requirements

- visionCATS software or equivalent must control all supplied instruments.
- Must enable export of plate images and peak profile data in formats suitable for statistical analysis.

3.3 Deliverables

- Delivery of all equipment listed.
- Installation and configuration report.
- IQ/OQ documentation.
- Training completion report.
- Warranty documentation.

4. Contractor Responsibilities

- Deliver all items in new condition.
- Perform installation, calibration, and functional verification.
- Provide IQ/OQ and ensure all components are operating to manufacturer specifications.
- Conduct training covering operation, maintenance, troubleshooting, and data export workflows.
- Provide technical support during warranty period.

5. Government Responsibilities

ARS shall:

- Provide facility access and necessary utilities.
- Ensure laboratory space meets environmental requirements for HPTLC instrumentation.
- Provide staff for training and acceptance testing.
- Supply any consumables not included with the quoted system (e.g., solvents, derivatization reagents).

6. Period of Performance

- Delivery within 10 weeks upon the purchase order.
- Installation and training to be completed within 30 business days of delivery.

7. Acceptance Criteria

The system will be accepted upon:

- Successful completion of IQ/OQ.
- Demonstration of full function of:
  - Sample application
  - Plate development
  - Visualization under multiple lighting modes
  - Scanning and densitometric profiling
  - Export of data suitable for chemometric analysis
- Receipt of all documentation required.