



DOSIMETRY SYSTEM SERVICES FOR PHYTOSANITARY TREATMENTS



Precise Low-Dose Measurement for Proven Performance.

Quantum EBX provides comprehensive dosimetry system services tailored to the specific needs of phytosanitary irradiation treatments. We offer a range of services, from initial dosimetry system selection and qualification to routine calibration and ongoing support, ensuring compliance with standards like ISPM 18 and USDA regulations.

Our experienced team uses industry best practices to ensure the accuracy and reliability of your low-dose measurements for phytosanitary applications.

KEY DOSIMETRY SERVICE AREAS

Dosimetry System Selection

We assist you in choosing the right dosimetry system tailored to your specific phytosanitary application. This selection process takes into account factors such as the low-dose range required for these treatments, required accuracy, and the type of radiation involved.

We evaluate various system options to ensure they align with your processes and meet regulatory requirements. For many phytosanitary applications, we recommend the Far West Opti-Chromic Waveguide Dosimeter due to its suitability.

- **WIDE DOSE RANGE COVERAGE:**
Optimized for food irradiation and phytosanitary treatments, from 10 Gy to 10 kGy.
- **HUMIDITY INDEPENDENCE:**
Dosimeter response is not affected by humidity, simplifying handling and environmental controls.
- **RUGGED PHYSICAL FORM:**
Encased in rugged FEP tubing, making them relatively easy to handle.

Dosimetry System Qualification and Implementation

We will implement the system and perform qualification testing, ensuring compliance through proper documentation. Our focus on dosimetry systems for phytosanitary applications involves key performance aspects like dose response and reproducibility, while considering influence quantities like temperature, UV light, and post-irradiation reading times for reliable measurements.

Dosimetry System Procedures

We will create detailed, user-friendly standard operating procedures, work instructions, and forms for the proper handling, irradiation, measurement, and data analysis of the dosimetry system, aligned with client processes and relevant standards for ongoing phytosanitary process control. Our procedures are designed to ensure consistency, accuracy, and compliance with regulatory requirements.



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KEY DOSIMETRY SERVICE AREAS

Dosimeter Calibration

We can provide both laboratory and in-situ calibrations. Laboratory calibrations are conducted under controlled conditions at an approved laboratory, followed by a calibration verification exercise at your facility. In-situ calibrations are performed by irradiating the dosimeters in your facility's irradiator with transfer dosimeters (alanine) that are provided and measured by an approved laboratory. The dosimeter response is analyzed and correlated to dose.

Phytosanitary Dose Mapping (OQ/PQ)

We can provide both laboratory and in-situ calibrations. Laboratory calibrations are conducted under controlled conditions at an approved laboratory, followed by a calibration verification exercise at your facility. In-situ calibrations are performed by irradiating the dosimeters in your facility's irradiator with transfer dosimeters (alanine) that are provided and measured by an approved laboratory. The dosimeter response is analyzed and correlated to dose.

Dosimetry System Assessment

We can assess your dosimetry system to ensure it is accurate and reliable. We will review procedures and records to ensure compliance with standards and regulatory requirements, analyze dose measurements to determine the appropriateness of the dosimeter and calibration range, and observe operations and make recommendations for improvement.

Routine Dosimetry Program Support

We can provide ongoing technical support for routine dose monitoring, data analysis, trend analysis, troubleshooting, and investigation of nonconformities of the dosimetry systems. We can provide periodic reviews and performance checks to ensure the process is in control and provide preventive and corrective actions as needed.

Training

We can provide comprehensive training to your plant personnel on all aspects of the dosimetry system, including proper dosimeter handling and reading techniques, instrument verification procedures, and overall system maintenance. This ensures your team is equipped to confidently and accurately utilize the system.



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RELEVANT STANDARDS

- **ASTM F1355:** Standard Guide for Irradiation of Fresh Agricultural Produce as a Phytosanitary Treatment
- **ASTM 52628:** Standard Practice for Dosimetry in Radiation Processing
- **ASTM 51261:** Standard Practice for Calibration of Routine Dosimetry Systems for Radiation Processing
- **ASTM 51707:** Standard Guide for Estimation of Measurement Uncertainty in Dosimetry for Radiation Processing
- **Codex Alimentarius:** As relevant for food commodities:
 - » General Standard for Irradiated Foods (CODEX STAN 106)
 - » Code of Practice for Radiation Processing of Food (CAC/RCP 19)
- **ISO 14470:** Food Irradiation - Requirements for the Development, Validation and Routine Control of the Process of Irradiation Using Ionizing Radiation for the Treatment of Food
- **ISPM 18:** Requirements for the use of irradiation as a phytosanitary measure
- **USDA 7 CFR Part 305:** Phytosanitary Treatments (or equivalent national regulations)

CONTACT US TODAY

TO LEARN MORE ABOUT HOW QUANTUM EBX CAN HELP YOU
WITH YOUR PHYTOSANITARY DOSIMETRY SYSTEM NEEDS.



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