



Product Specification (PS)
GEX Laboratory Transfer-Standard Dosimeter Service
S1000-X, S1000-XV, S1000-XR

1. Product Information

PRODUCT ID	PRODUCT	DESCRIPTION
S1000-X	GEX Transfer Standard Alanine Dosimeter for in-situ irradiation - Disc type	Alanine dosimeter in a disc form factor. Alanine dosimeter is returned to GEX after irradiation. Measurement results and certificate issued by GEX.
S1000-XV	GEX Transfer Standard Alanine Dosimeter for in-situ irradiation - Vial type	Alanine dosimeter in a vial form factor. Alanine dosimeter is returned to GEX after irradiation. Measurement results and certificate issued by GEX.
S1000-XR	GEX Transfer Standard Alanine Dosimeter for in-situ irradiation – Disk or Vial type (no certificate)	Alanine dosimeter in a disc or vial form factor. Alanine dosimeter is returned to GEX after irradiation. GEX provides informal measurement results for 2 alanine pellets; no certificate issued.

2. Description

GEX Laboratory Transfer-Standard Dosimeter Service	<p>GEX Laboratory provides customers with certified and traceable high dose measurements using alanine pellet dosimeters. Customers use our transfer-standard dosimeter service to calibrate their dosimetry systems by irradiation of GEX's dosimeters at their irradiation facility alongside their dosimeters. Our certified dose measurements are also useful for establishing dose rate(s) for, or mapping of, radiation fields produced by gamma ray, X-ray or electron beam sources.</p> <p>Accreditation GEX is accredited by NVLAP to ISO/IEC 17025:2017 to provide alanine pellet dose measurements for ionizing radiation in the range 0.100 kGy to 100.0 kGy. NVLAP Lab Code 600080-0</p>
Alanine pellet	A cylindrical pellet of L-alanine that comprises the alanine dosimeter product
Alanine dosimeter	A disc or vial containing four (4) alanine pellets
Alanine dosimeter measurement	Dosimetry based on Electron Spin Resonance (ESR) analysis of radiation-induced free radicals in alanine (amino acid) is relevant for dosimetry applications. This dosimetry technique is suited for electron beam, gamma, and X-ray irradiation process control.

3. Intended Use

GEX Transfer Standard Alanine Dosimeter Service is used as part of a customer's dosimeter batch calibration, calibration audit activities, or research activities. The Service includes:

- Transfer-standard alanine dosimeter in disc or vial form.
- GEX Laboratory measurement and analysis of the alanine dosimeter using ESR dosimetry (the customer returns the alanine dosimeter to GEX Lab after in-situ irradiation).
- GEX Laboratory issues a final dosimeter measurement report and dose certificate. (The S1000-XR does not receive a dose certificate.)



4. Product Specifications

Alanine Pellet

SPECIFICATION	DESCRIPTION
Composition	Amino acid L-alpha alanine and binder
Storage temperature/relative humidity	15 to 25 °C / 30 to 70 %RH.

Alanine Dosimeter – Vial Type

SPECIFICATION	DESCRIPTION
Alanine dosimeter	A vial containing four (4) alanine pellets
Material	Polystyrene
Color	White
Dimensions	Diameter 0.48 in ± 0.01 in Height 1.03 in ± 0.01 in
Storage	Store in the original, factory packaging. Do not open the vial. Store in a cool, dry, stable location.
Expiration date	Alanine dosimeter must be irradiated and returned to GEX within 6 months of the issue date.

Alanine Dosimeter – Disc Type

SPECIFICATION	DESCRIPTION
Alanine dosimeter	A disc containing four (4) alanine pellets
Material	Acrylonitrile butadiene styrene (ABS) plastic
Color	Black-Grey
Dimensions	Diameter 0.98 in ± 0.01 in Height 0.24 in ± 0.01 in
Storage	Store in the original, factory packaging. Do not open the disc. Store in a cool, dry, stable location.
Expiration date	Alanine dosimeter must be irradiated and returned to GEX within 6 months of the issue date.

5. Shipping / Delivery

Transport information	Alanine dosimeter is shipped via overnight or Express Air
Country of origin	U.S.A.
Temperature controls or monitoring required?	None required. Recommended maximum temperature $\leq 45^{\circ}\text{C}$



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6. Quality Assurance

GEX's Quality Management System (QMS) is ISO 9001:2015 accredited. Quality information is available at <https://www.gexcorp.com/quality.html>

Current GEX Laboratory ISO/IEC 17025 accreditation documents can be downloaded <https://library.gexcorp.com>

DOC. ID	TITLE	LINK
NVLAP01	GEX is an international standards laboratory accredited by NVLAP to ISO/IEC 17025:2017 for calibrations and dose measurements for ionizing radiation for high-dose dosimetry in the range 0.100 kGy to 100.0 kGy. NVLAP Lab Code: 600080-0	Download
NVLAP02	NVLAP Accreditation Certification to ISO/IEC 17025:2017 – Calibration Laboratories.	Download

7. Related Documents

Current GEX documents can be downloaded <https://library.gexcorp.com>

DOC. ID	TITLE
100-141	S1101 and S1102 GEX Calibration Service and Audit Package
100-263	Dosimeter Batch Calibration
100-217	Transfer Standard Alanine Study

8. Revision History

DATE	CHANGE DESCRIPTION	REVISION
05-DEC-2025	Initial release - ECO 75190	A

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