

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-19029-01-00  
according to ISO/IEC 17025:2017

Period of validity: 04.09.2020 to 15.08.2023

Date of issue: 04.09.2020

Holder of certificate:

**Eckert & Ziegler Isotope Products, Inc.**  
**24937 Avenue Tibbitts, Valencia, California 91355, USA**

Calibration in the fields:

**High Frequency and radiation quantities**  
**Ionising radiation and radioactivity**  
– **Radioactivity**

Abbreviations used: see last page

**Annex to the accreditation certificate D-K-19029-01-00**
**Permanent Laboratory**
**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement <sup>1)</sup>	Remarks
<b>Activity</b>				
Photon emitting nuclides E < 250 keV	185 Bq to 37 MBq	High-Purity Germanium	2.3%	
	370 kBq to 3.7 GBq	Reentrant Pressurized Ionization Chamber	2.3%	
Photon emitting nuclides E > 250 keV	185 Bq to 37 MBq	High-Purity Germanium	2.3%	
	370 kBq to 3.7 GBq	Reentrant Pressurized Ionization Chamber	2.3%	
Beta emitting nuclides E <sub>avg</sub> < 100 keV	3.7 Bq to 74 kBq	Gas Flow Proportional Counter	2.3%	Tc-99 only
	185 Bq to 7.4 kBq	Liquid Scintillation Counter	2.3%	
Beta emitting nuclides E <sub>avg</sub> > 100 keV	92.5 Bq to 7.4 kBq	Liquid Scintillation Counter	2.3%	
Alpha emitting nuclides	1.85 Bq to 74 kBq	Gas Flow Proportional Counter	2.3%	
	185 Bq to 7.4 kBq	Liquid Scintillation Counter	2.3%	
	37 Bq to 740 kBq	Surface Barrier Detector	2.3 %	
<b>Specific Activity</b>				
Photon emitting nuclides E < 250 keV	37 Bq/g to 7.4 MBq/g	High-Purity Germanium	2.3%	
	74 kBq/g to 740 MBq/g	Reentrant Pressurized Ionization Chamber	2.3%	
Photon emitting nuclides E > 250 keV	37 Bq/g to 7.4 MBq/g	High-Purity Germanium	2.3%	
	74 kBq/g to 740 MBq/g	Reentrant Pressurized Ionization Chamber	2.3%	
<b>Specific Activity</b>				
Beta emitting nuclides E <sub>avg</sub> < 100 keV	1.85 kBq/g to 740 kBq/g	Liquid Scintillation Counter	2.3%	
Beta emitting nuclides E <sub>avg</sub> > 100 keV	925 Bq/g to 740 kBq/g	Liquid Scintillation Counter	2.3%	
Alpha emitting nuclides	1.85 kBq/g to 740 kBq/g	Liquid Scintillation Counter	2.3%	
<b>Photon Flux</b>				
Photon emitting nuclides E < 250 keV	1.85 · 10 <sup>2</sup> s <sup>-1</sup> to 3.7 · 10 <sup>6</sup> s <sup>-1</sup>	High-Purity Germanium	2.3%	
Photon emitting nuclides E > 250 keV	1.85 · 10 <sup>2</sup> s <sup>-1</sup> to 7.4 · 10 <sup>6</sup> s <sup>-1</sup>	High-Purity Germanium	2.3%	

<sup>1)</sup> The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 95 % and have a coverage factor of  $k = 2$  unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.

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**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement <sup>1)</sup>	Remarks
<b>Particle Flux</b>				
Beta emitting nuclides $E_{avg} < 100 \text{ keV}$	$1.85 \cdot 10^0 \text{ s}^{-1}$ to $4.0 \cdot 10^4 \text{ s}^{-1}$	Gas Flow Proportional Counter	2.3%	
Beta emitting nuclides $E_{avg} > 100 \text{ keV}$	$1.85 \cdot 10^0 \text{ s}^{-1}$ to $4.0 \cdot 10^4 \text{ s}^{-1}$	Gas Flow Proportional Counter	2.3%	
Alpha emitting nuclides	$9.25 \cdot 10^{-1} \text{ s}^{-1}$ to $4.0 \cdot 10^4 \text{ s}^{-1}$	Gas Flow Proportional Counter	2.3%	
	$1.85 \cdot 10^1 \text{ s}^{-1}$ to $3.7 \cdot 10^5 \text{ s}^{-1}$	Surface Barrier Detector	2.3 %	

**Abbreviations used:**

CMC            Calibration and measurement capabilities

<sup>1)</sup> The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 95 % and have a coverage factor of  $k = 2$  unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.