

Calibration Service - Radiation Qualities

Radiation qualities:							
Q	Filter mm	S ₁ mm	a cm	F cm	k _Q	ε	
A60	2.4Al+0.6Cu	0.215Cu	400	30	1.02	+/-2.5%	
A80	2.4Al+2.0Cu	0.540Cu	400	30	1.00	+/-2.5%	
A100	2.4Al+5.0Cu	1.05Cu	400	30	1.00	+/-2.5%	
A150	2.4Al+2.5Sn	2.45Cu	400	30	1.01	+/-2.5%	
A200	2.4Al+2Cu+3Sn+1Pb	4.10Cu	400	31			
A250	2.4Al+2.0Sn+3.0Pb	5.50Cu	400	31			

Radiation qualities:							
Q	Filter mm	S ₁ mm	a cm	F cm	k _Q	ε	
DV70	2.5Al	2.20Al	50	2.0 x 3.5	1.06	+/-5%	
DV90	2.5Al	3.00Al	50	2.0 x 3.5	1.02	+/-5%	
DV120	2.5Al	3.60Al	50	2.0 x 3.5	1.00	+/-5%	
DV150	2.5Al	4.60Al	50	2.0 x 3.5	0.99	+/-5%	
DN70	23.5Al	6.70Al	50	2.0 x 3.5	0.96	+/-5%	
DN90	32.5Al	9.14Al	50	2.0 x 3.5	0.96	+/-5%	
DN120	42.5Al	11.55Al	50	2.0 x 3.5	1.00	+/-5%	
DN150	50.0Al	13.34Al	50	2.0 x 3.5	1.03	+/-5%	

Q : beam quality (the number indicating the tube voltage)
 Filter: total filter (inherent and additional filter)
 S₁ : half value layer at the point of measurement
 a : focus distance between source and point of measurement (in air)
 F : field size at point of calibration
 N_Q : calibration factor for air kerma
 k_Q : radiation quality correction
 ε : uncertainty of calibration factor
 M : Display reading (in C)
 h_Q : air density correction

The calibration is traceable to national standards of the German National calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. This certificate is valid only with the ionisation chamber showing the intact sticker with the certificate number. The calibration factors of chambers having been opened for repair are not comparable to previous calibrations. Test certificates without signature are not valid.

A variety of ionizing radiation beam quality sets for different applications is available

Radiation Therapy Dosemeters

- X-rays 10, 15, 30, 50, 70 kV
(T qualities according to DIN 6817)
- X-rays 70, 100, 140, 200, 280 kV
(T qualities according to DIN 6817)
- ¹³⁷Cs 662 keV
- ⁶⁰Co 1.3 MeV

Diagnostic Radiology Dosemeters

- X-rays 50, 70, 90, 120, 150 kV Conventional
(RQR and RQA qualities according to IEC 61267)
- X-rays 70, 90, 120, 150 kV CT
(RQR and RQA qualities according to IEC 61267)
- X-rays 100, 120, 150 kV CT
(RQT qualities according to IEC 61267)
- X-rays 50, 70, 90 kV Dental
- X-rays 25, 28, 30, 35 kV Mammography
(RQR-M and RQA-M qualities according to IEC 61267
Mo/Al, Mo/Rh, Rh/Rh, W/Ag, W/Al, W/Mo, W/Rh)

Radiation Protection Dosemeters

- X-rays 20, 30, 40 kV
(Narrow Spectrum Series (N) qualities acc ISO 4037-1)
- X-rays 60, 80, 100, 150, 200, 250 kV
(Narrow Spectrum Series (N) qualities acc ISO 4037-1)
- ¹³⁷Cs 662 keV
- ⁶⁰Co 1.3 MeV

Miscellaneous Calibrations

- Source strength (cGym²h⁻¹) of brachytherapy sources measured by well-type chambers
- Diagnostic X-ray generator high voltage of all types of X-ray equipment measured non-invasively by kV-meters: Different ranges from 20 to 150 kV
- Nuclide activity in nuclear medicine measured by isotope calibrators (only CURIEMENTOR instruments)
- Electrical measuring quantities charge (C) and current (A) measured by highly sensitive electrometers

General Information

According to the PTW definition, each such set of beam qualities represents one calibration point for a certain application and can be ordered with a single order number.