RPL - Dosimetrie mittels DoseAce

eine Alternative zu TLD ?

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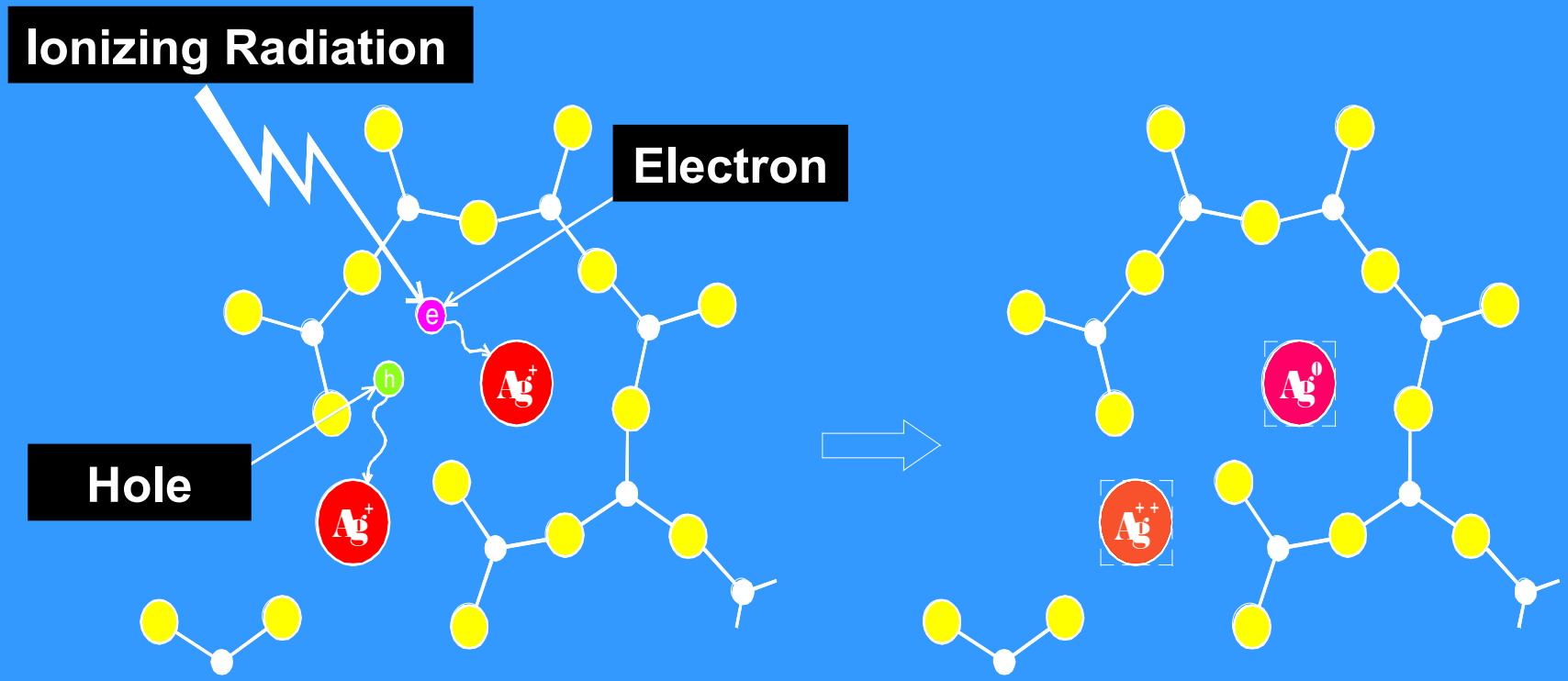

$Ag^{+} + e = Ag^{0}$ **(Electron Trap)**

$Ag^{+} + hPO_4 = Ag^{++}$ **(Hole Trap)**

Es entstehen RPL - Lumineszenzzentren

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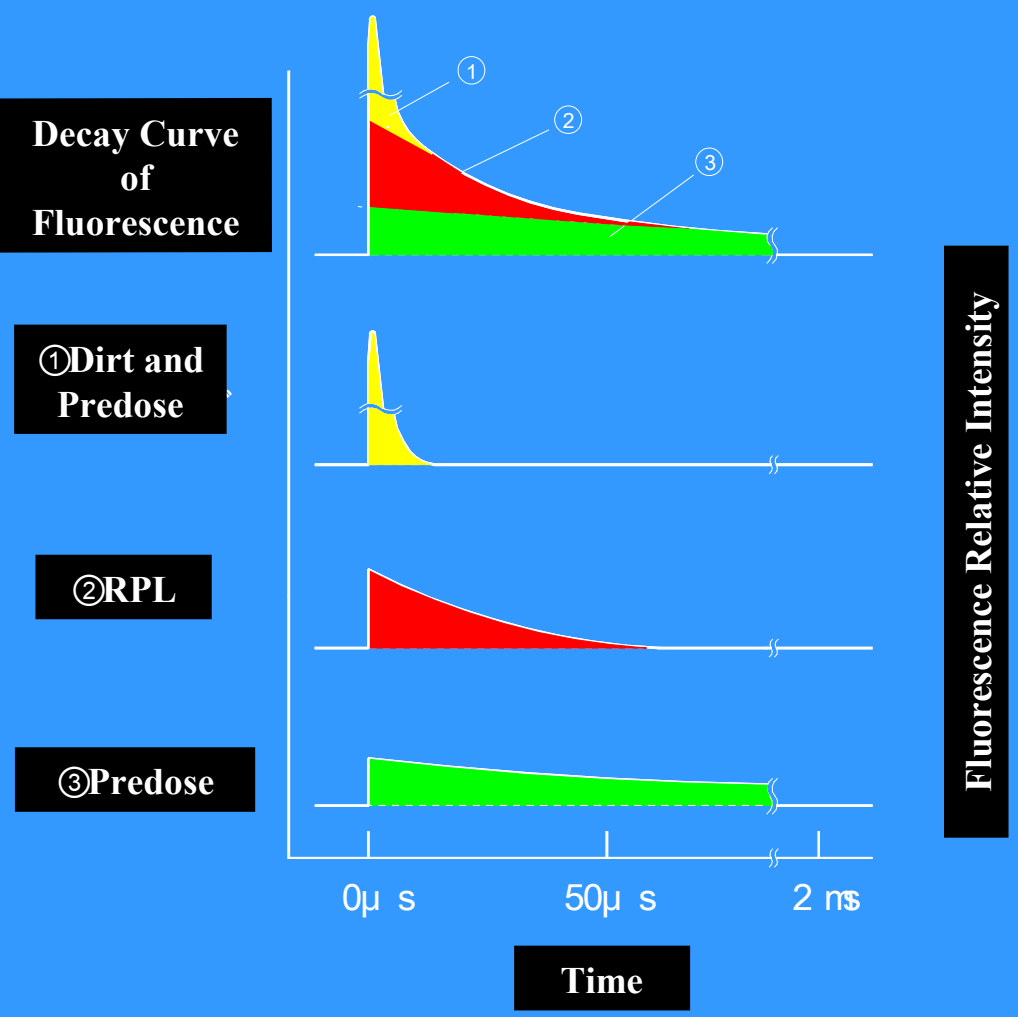
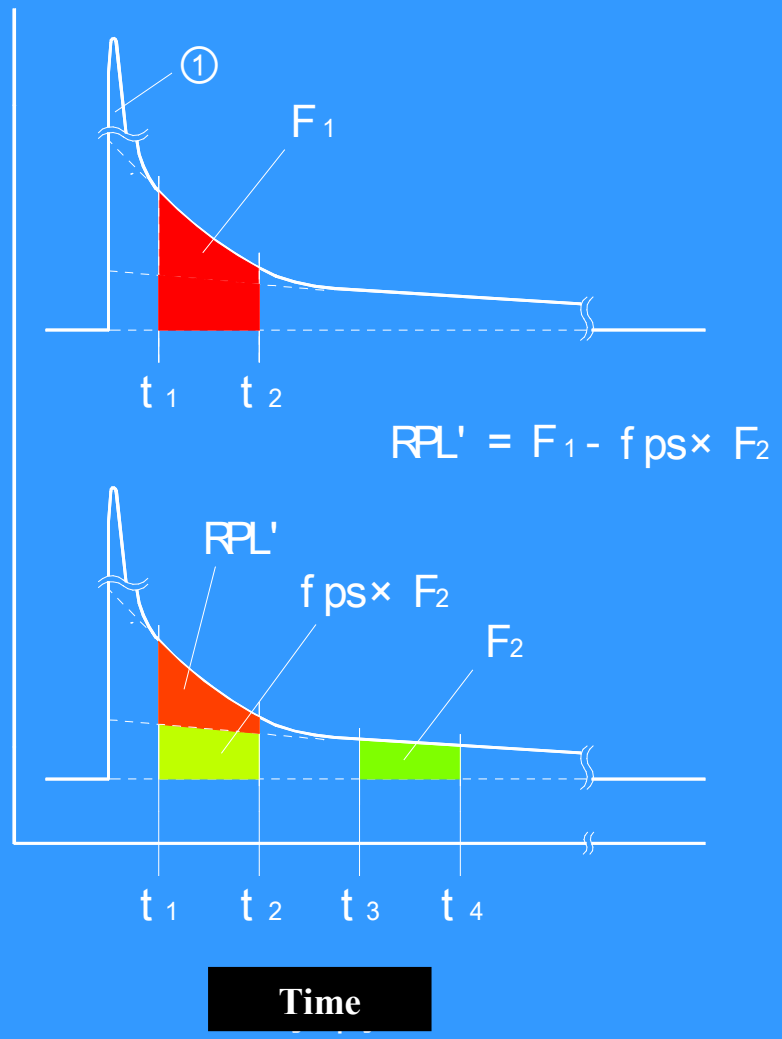
Fluorescence Components of Glass



Time Division of Fluorescence Signal



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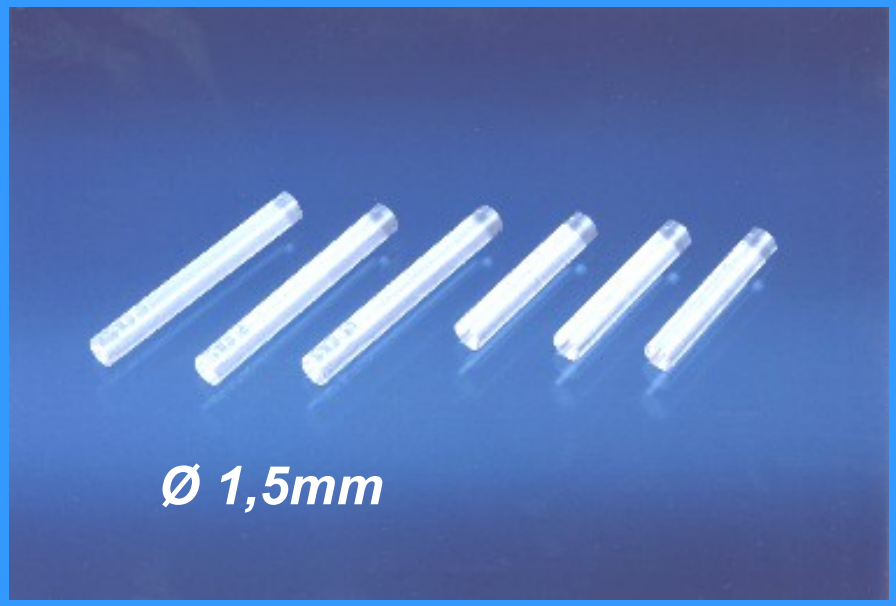
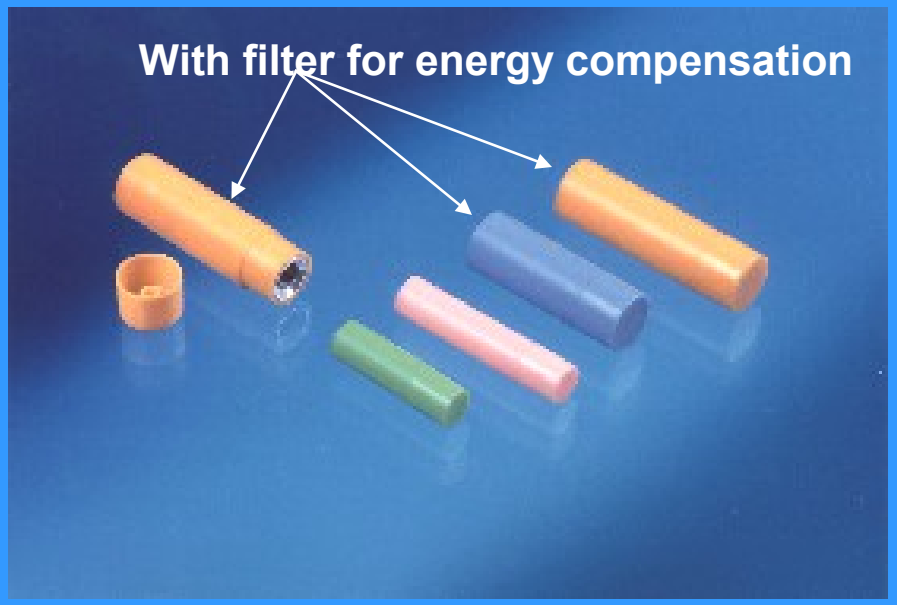
Glas - Dosimeter Element Typ GD-300

Glass Dosimeter Element



ABS Holder for Glass Element



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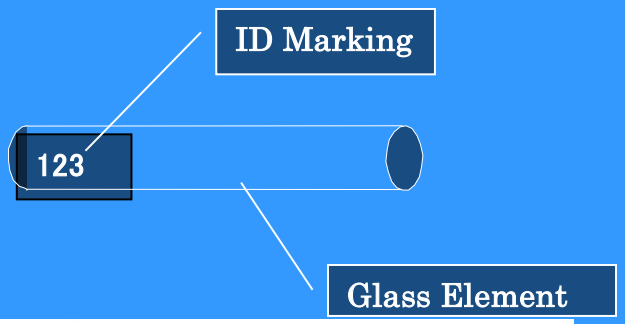
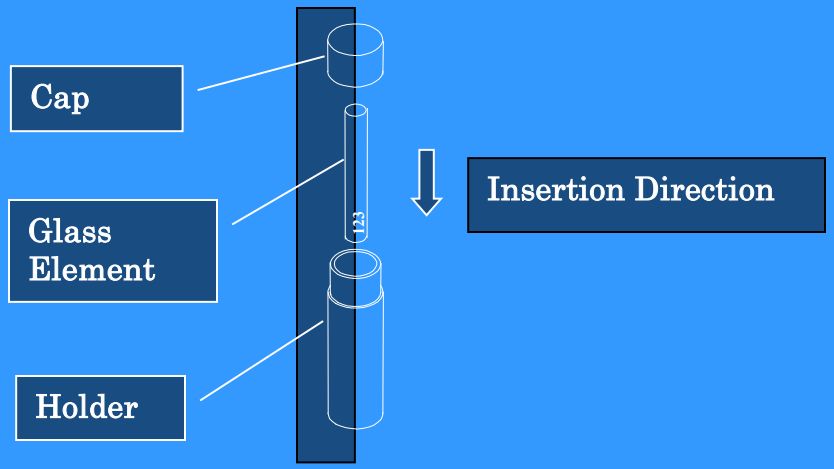
Glas - Dosimeter Element Typ GD-300 - Details

Type	Size of glass element	ID marking to glass element	Size of holder	Filter for energy compensation
GD−301	φ1.5×8.5mm	Nothing	φ2.8×9.5mm	Nothing
GD−302M	φ1.5×12.0mm	Figure (treble)	φ2.8×13.0mm	Nothing
GD−351	φ1.5×8.5mm	Nothing	φ4.3×12.0mm	With Sn filter
GD−352M	φ1.5×12.0mm	Figure (treble)	φ4.3×14.5mm	With Sn filter





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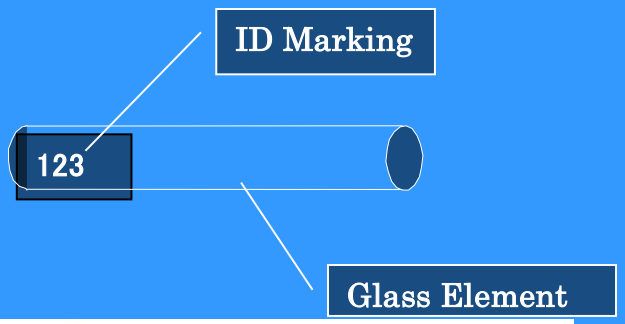

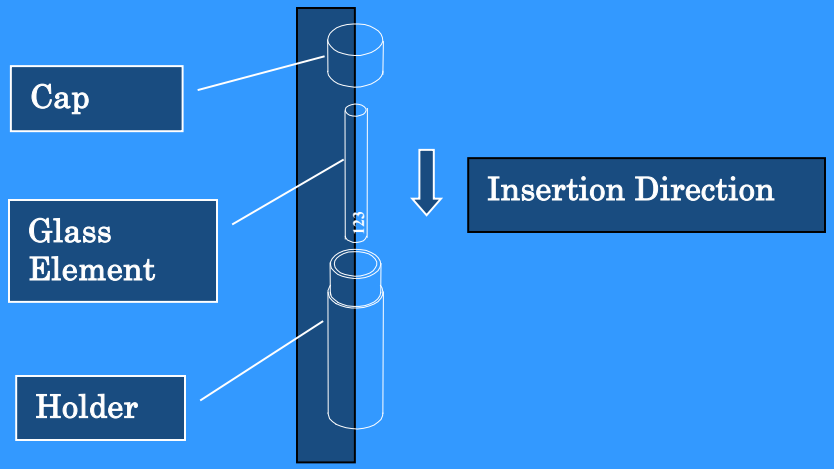

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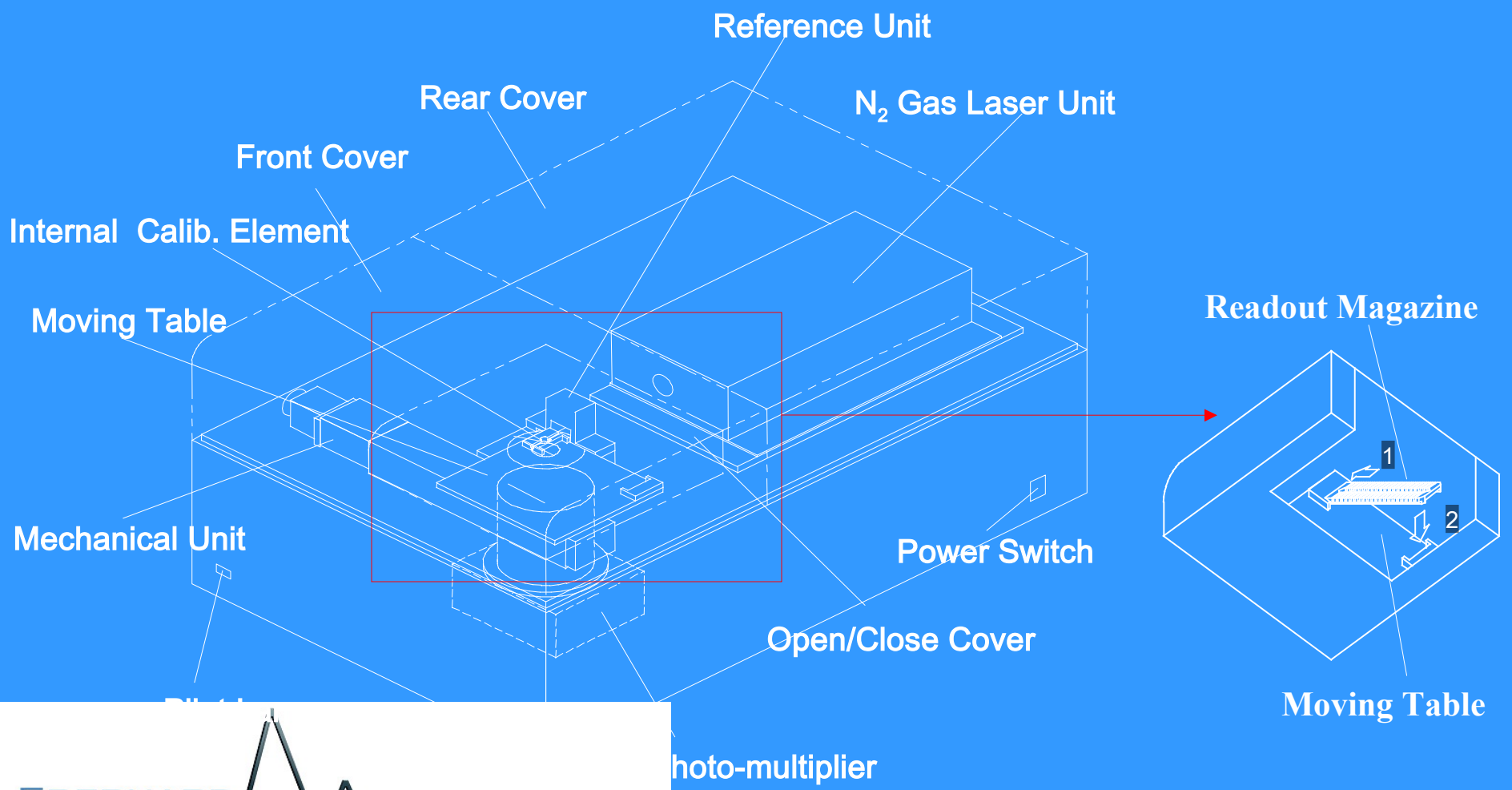
Interner Aufbau des DoseAce Readers (FGD-1000)



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- **Unbegrenztes Auslesen der bestrahlten Glas-Dosimeter ohne Limitierung >>> sehr genaue Messwerte**
- **Das RPL – Lumineszentrum wird durch den Ausleseprozess nicht verändert oder gelöscht >>> Dosisakkumulation**
- **Sehr geringes thermisches fading**
- **Nicht toxisch**
- **Sehr kleines Element z.B. auch für SRS bis Ø4mm Feldgrössen**

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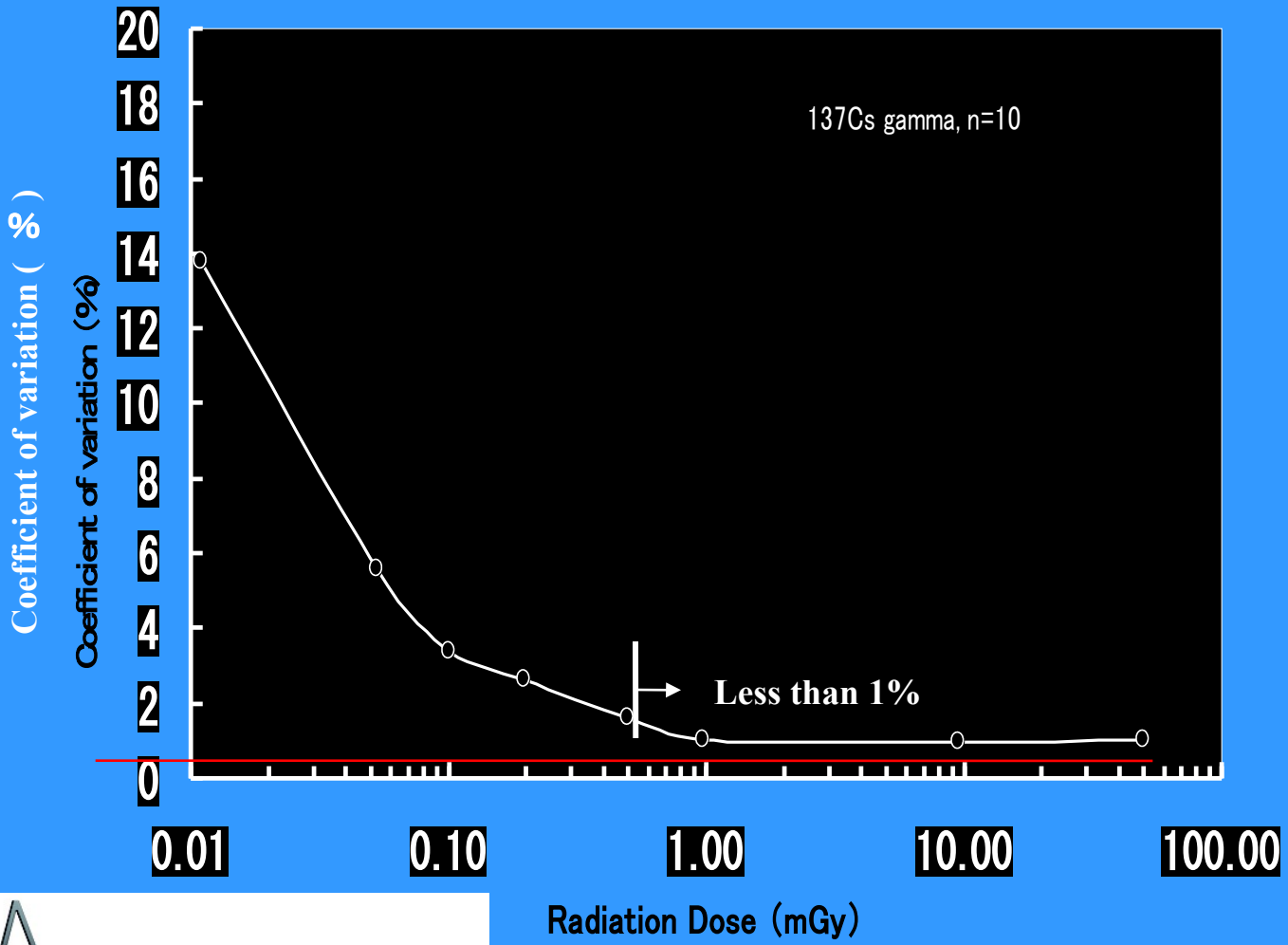
Variation in sensitivity between elements



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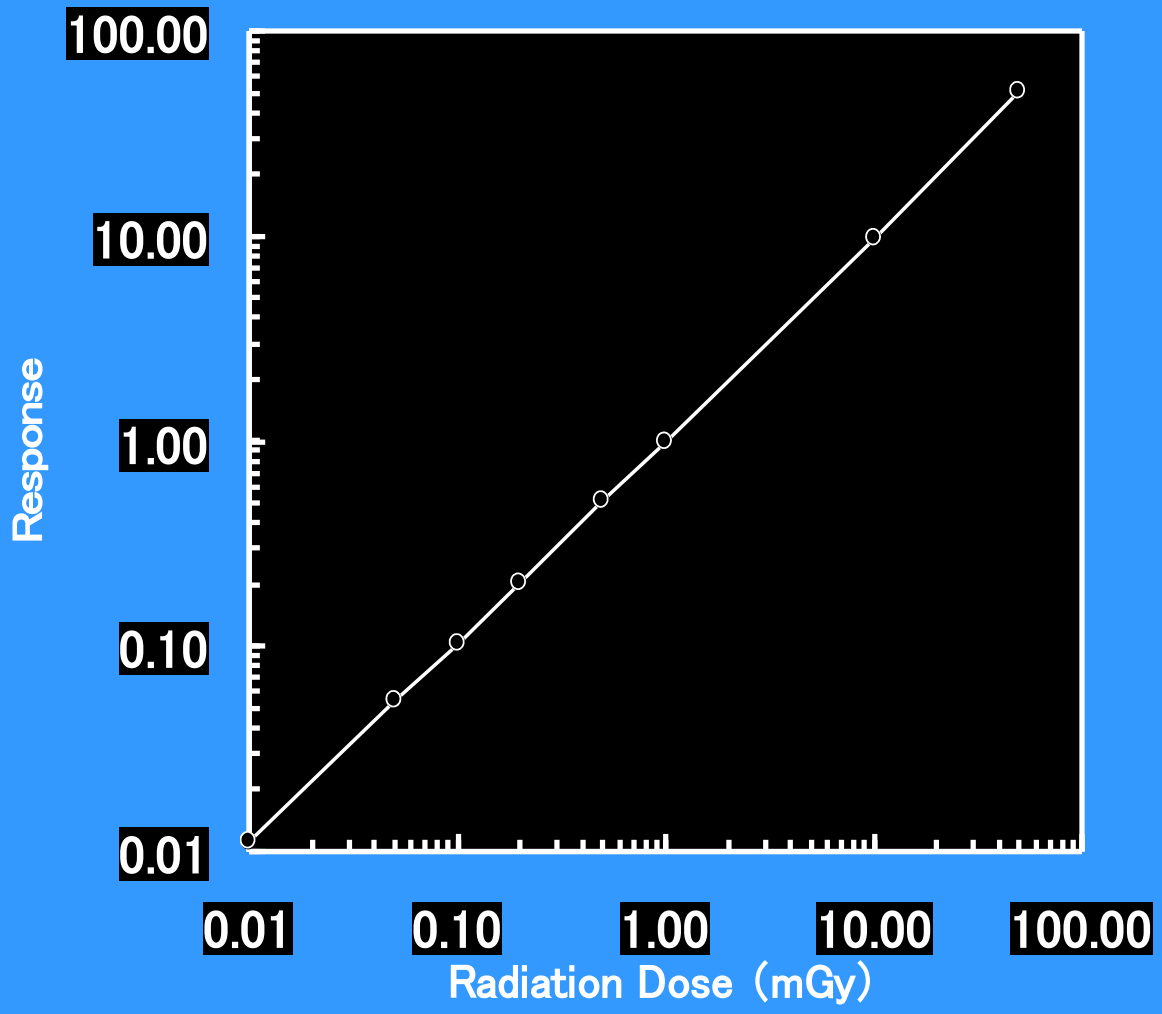
Linearity 線量直線性



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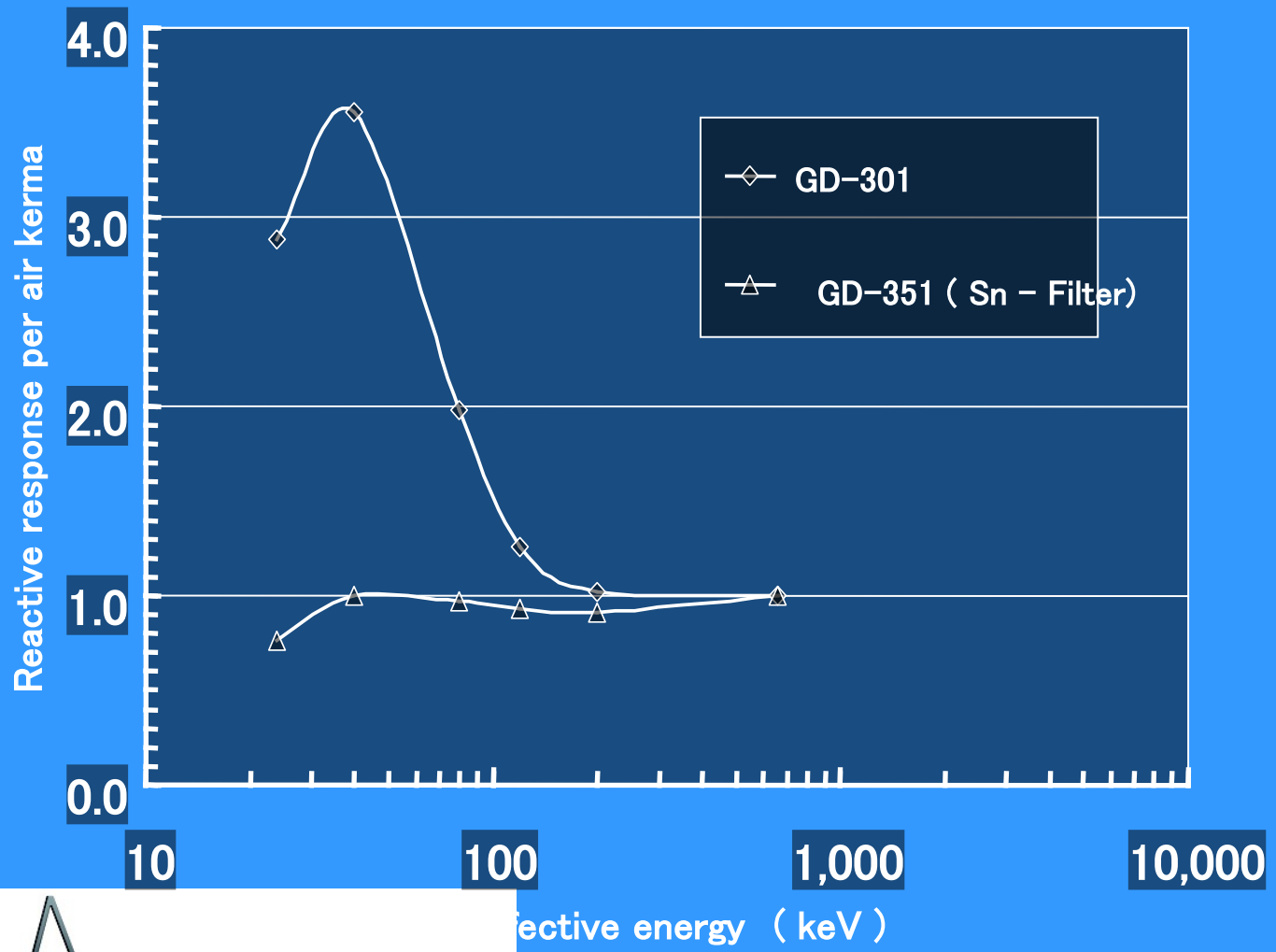
Energy dependence to air kerma (free in air)



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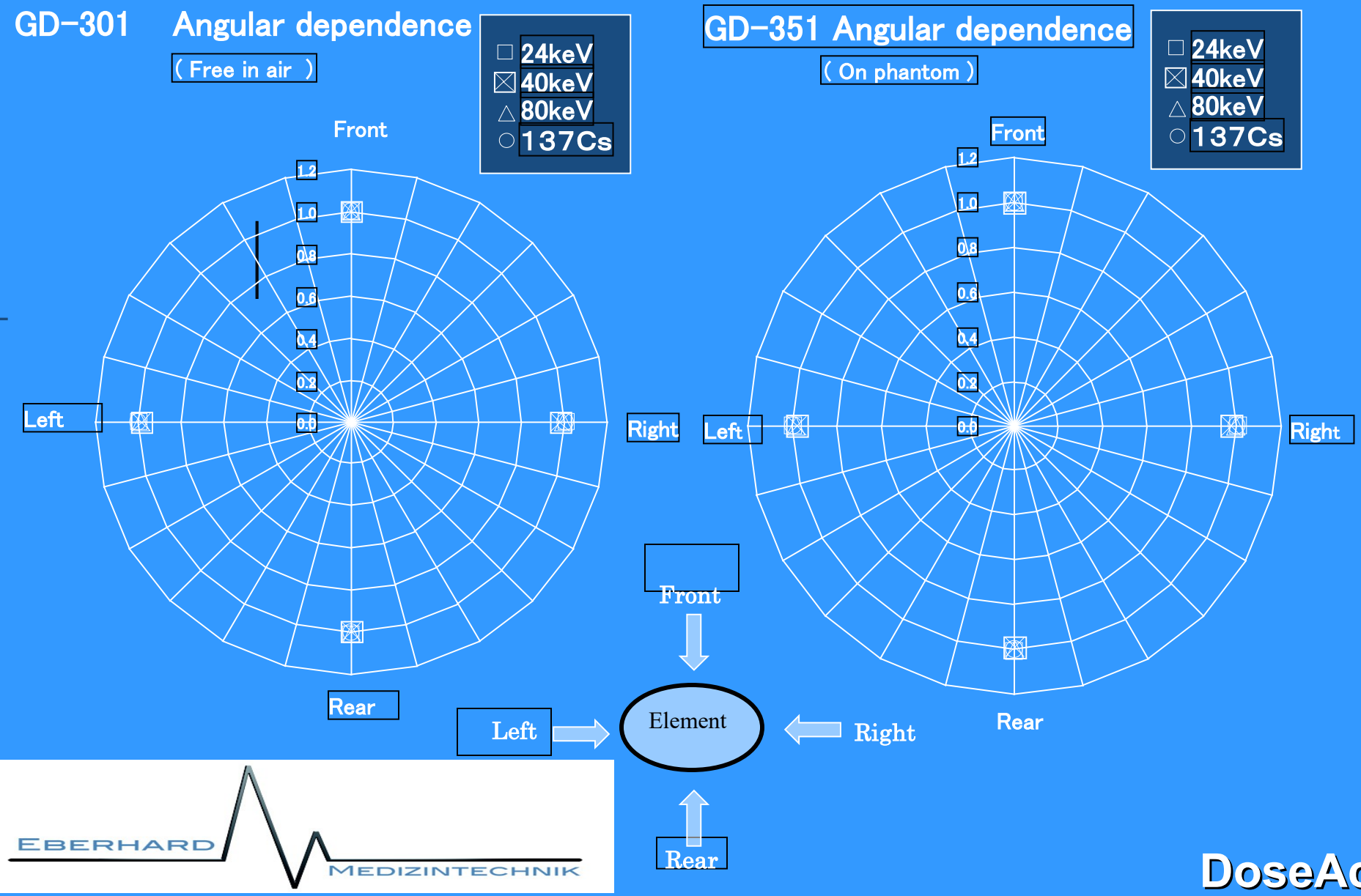

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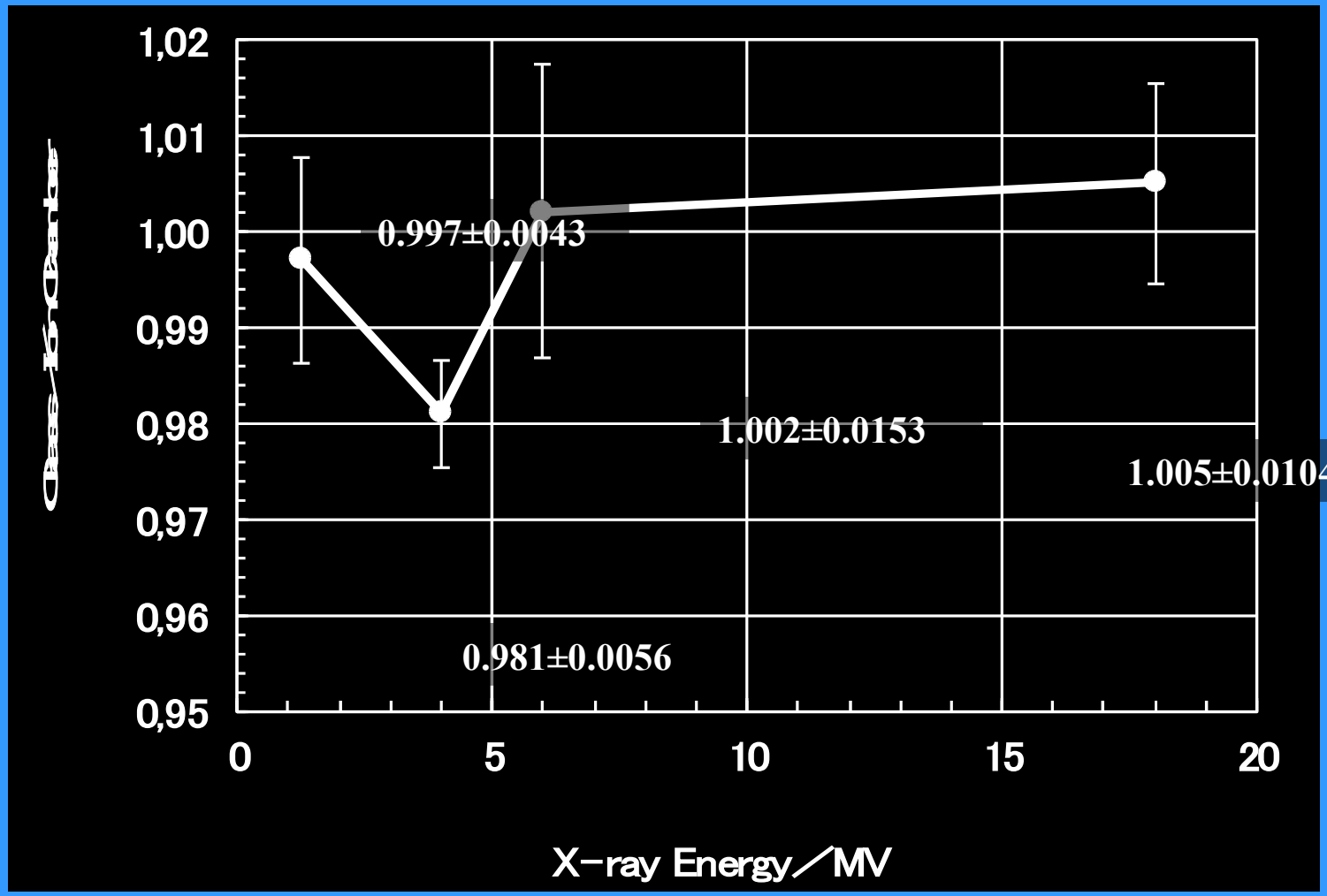

Comparison of measured values between Glass and Ion Chamber at standard depth

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- **Automatischer Messbereich 10µGy bis 500Gy in µGy Auflösung**
- **Homogenität der batches -Produktionslose <1%**
  >>> keine Selektion notwendig
- **Hohe Reproduzierbarkeit von <0,3%bei z.B. 50mGy oder höher**
- **Kein Schutzgas-Einsatz**
- **Einfache Bedienung – bis zu 20 Elemente in einem Durchgang**
  >>> Messergebnis innerhalb von 6s – pro Glas-Dosimeter

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