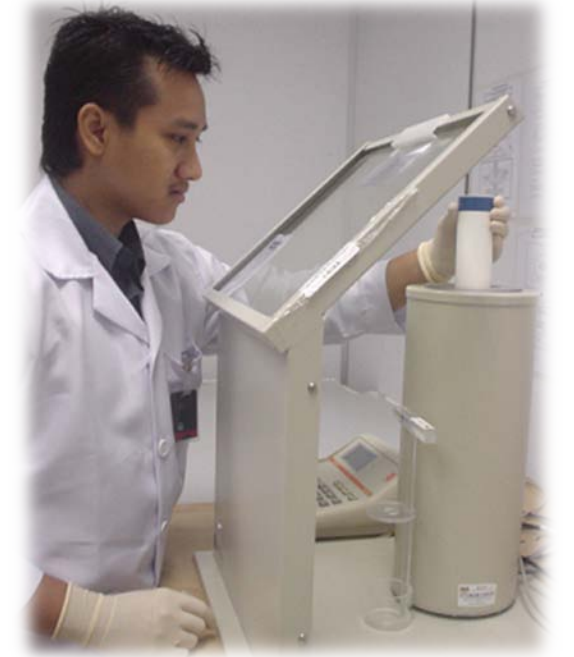


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Calibration of Dose Calibrator:

Calibration of dose calibrator consists of 7 tests including (IAEA's TRS 454):

- Contamination Test
- Accuracy Test
- **Linearity Test**
- Geometry Test
- Stability Test
- Constancy Test
- Precision Test



Linearity test could be performed using either **decay method** or **shield method**.

Decay method vs shield method:

Criteria	Decay Method	Shield Method
Measurement time	• 3 days	• < 6 minutes
User friendly	• require 'datalog'	• Simple
Material	• 500mCi ^{99m} Tc	• 500mCi ^{99m} Tc
Additional equipment	• No	• Calicheck

Calicheck kit:



Each tube has different thickness of lead.

The objective:

to verify the consistency of an equivalent decay time for each lead lined tube.

Methodology:



Result:

Tube	Equivalent Decay time (hour)				Deviation (%)		
	2008	2009	2010	2011	2009	2010	2011
Black	0.000	0.000	0.000	0.000	0.00	0.00	0.00
Black + Red	4.479	4.480	4.504	4.481	0.01	0.56	0.04
Black + Orange	10.452	10.442	10.401	10.487	-0.10	-0.49	0.34
Black + Yellow	20.789	20.802	20.724	20.747	0.06	-0.31	-0.20
Black + Green	32.116	32.046	32.093	32.053	-0.22	-0.07	-0.20
Black + Blue	41.361	41.282	41.326	41.251	-0.19	-0.09	-0.27
Black + Purple	50.773	50.663	50.720	50.633	-0.22	-0.10	-0.28
Black + Purple + Red	55.865	55.757	55.706	55.586	-0.19	-0.28	-0.50
Black + Purple + Orange	61.401	61.423	61.232	61.204	0.04	-0.28	-0.32

Note: Value of equivalent decay time in year 2008 is taken as a reference.

Conclusion:

An equivalent decay time for each lead lined tube varies every year with maximum deviation of 0.56%.