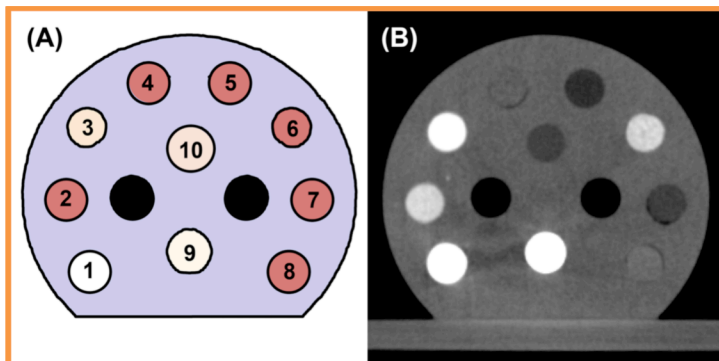
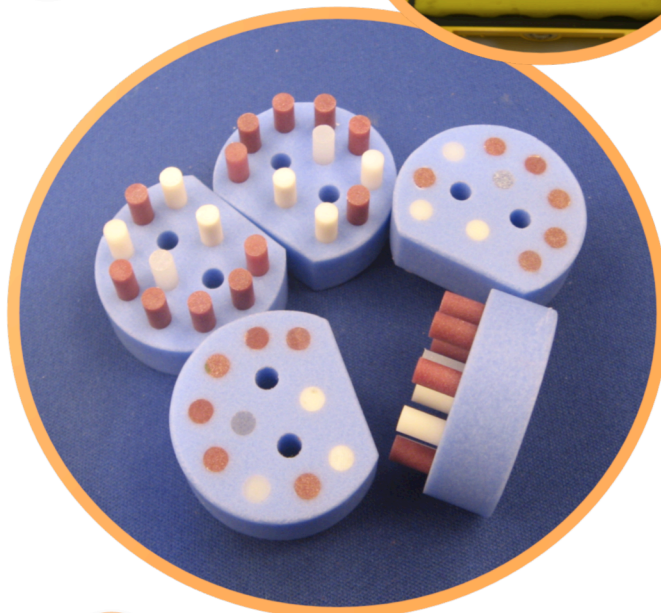




### $\mu$ -CT imaging calibration phantom for quantitative imaging and dose calculations

- $\mu$ -CT calibration phantom:
- 30 mm diameter (fits any  $\mu$ CT scanner)
  - Baseplate of solid water
  - 16 mm long tissue-equivalent inserts (see Table 1)
  - 10 inserts + 2 air holes

Can be used for single and dual energy CT calibration



(A) Depiction of CT calibration phantom and the respective tissue-equivalent inserts listed in table; (B)  $\mu$ CT scan at 50 kV.

Tissue insert	#	$Z_{eff}$	$\rho_e^w$	$\rho_{ref}$	H	C	N	O	Mg	Al	P	Cl	Ca
Brain	10	6.09	1.04	1.05	10.83	72.54	1.69	14.86	0.00	0.00	0.00	0.08	0.00
Adipose	5	6.21	0.93	0.95	9.06	72.29	2.25	16.27	0.00	0.00	0.00	0.13	0.00
Breast	7	6.93	0.96	0.98	8.59	70.10	2.33	17.90	0.00	0.00	0.00	0.13	0.95
Solid Water	4	7.74	0.99	1.02	8.00	67.29	2.39	19.87	0.00	0.00	0.00	0.14	2.31
Liver	8	7.74	1.06	1.10	8.06	67.01	2.47	20.01	0.00	0.00	0.00	0.14	2.31
Inner bone	6	10.42	1.09	1.13	6.67	55.65	1.96	23.52	0.00	0.00	3.23	0.11	8.86
Bone (B200)	2	10.42	1.10	1.15	6.65	55.51	1.98	23.64	0.00	0.00	3.24	0.11	8.87
Cortical bone CB2-30%	3	10.90	1.28	1.33	6.68	53.47	2.12	25.61	0.00	0.00	0.00	0.11	12.01
Cortical bone CB2-50%	1	12.54	1.47	1.56	4.77	41.61	1.52	32.00	0.00	0.00	0.00	0.08	20.02
Cortical bone (SB3)	9	13.64	1.69	1.82	3.41	31.41	1.84	36.50	0.00	0.00	0.00	0.04	26.80

**Table 1.** DECT dowel insert tissue mimicking name, location position (#), effective atomic number ( $Z_{eff}$ ), relative-to-water electron density ( $\rho_e^w$ ), mass density ( $\rho_{ref}$ ), elemental compositions by relative weight, respectively.

