TABLE 3.4 Approximate radiographic absorption equivalence for several metals relative to steel[A] (ASTM E 94[B]) [3].

	Energy Level, X-Rays									Gamma Rays		
Metal	50 kV	100 kV	150 kV	220 kV	250 kV	400 kV	1 MV	2 MV	4 to 25 MV	Ir 192	Cs 137	Co 60
Magnesium	0.03	0.05	0.05	0.08								
Aluminum	0.06	0.08	0.12	0.18		0.22				0.35	0.35	0.35
Aluminum alloy		0.10	0.14	0.18						0.35	0.35	0.35
Titanium			0.54	0.54		0.71	0.9	0.9	0.9	0.9		0.9
Iron/Steel	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copper	1.3	1.5	1.6	1.4	1.4	1.4	1.1	1.1	1.2	1.1	1.1	1.1
Zinc			1.4	1.3		1.3			1.2	1.1	1.0	1.0
Brass			1.4	1.3		1.3	1.2	1.1	1.0	1.1	1.1	1.0
Inconel X			1.4	1.3		1.3	1.3	1.3	1.3	1.3	1.3	1.3
Monel		1.7		1.2								
Zirconium		2.4	2.3	2.0	1.7	1.5	1.0	1.0	1.0	1.2		1.0
Lead		14.0	14.0	12.0			5.0	2.5	2.7	4.0	3.2	2.3
Hafnium				14.	12.	9.0	3.0					
Uranium				20.	16.	12.	4.0		3.9	12.6	5.6	3.4

[A]Example: At 220 kV, 1 cm of lead is equivalent to 12 cm of steel in absorption.
[B]ASTM standards referenced herein are cited at the end of the chapter.