

APPENDIX A

Table 25-1 - A₁ and A₂ values for Radionuclides

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Actinium (89) | | | | | | |
| Ac-225 (a) | 8.0x10 ⁻¹ | 2.2x10 ¹ | 6.0x10 ⁻³ | 1.6x10 ⁻¹ | 2.1x10 ³ | 5.8x10 ⁴ |
| Ac-227 (a) | 9.0x10 ⁻¹ | 2.4x10 ¹ | 9.0x10 ⁻⁵ | 2.4x10 ⁻³ | 2.7 | 7.2x10 ¹ |
| Ac-228 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 8.4x10 ⁴ | 2.2x10 ⁶ |
| Silver (47) | | | | | | |
| Ag-105 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 1.1x10 ³ | 3.0x10 ⁴ |
| Ag-108m (a) | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 9.7x10 ⁻¹ | 2.6x10 ¹ |
| Ag-110m (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.8x10 ² | 4.7x10 ³ |
| Ag-111 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.8x10 ³ | 1.6x10 ⁵ |
| Aluminum (13) | | | | | | |
| Al-26 | 1.0x10 ⁻¹ | 2.7 | 1.0x10 ⁻¹ | 2.7 | 7.0x10 ⁻⁴ | 1.9x10 ⁻² |
| Americium (95) | | | | | | |
| Am-241 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 1.3x10 ⁻¹ | 3.4 |
| Am-242m (a) | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 3.6x10 ⁻¹ | 1.0x10 ¹ |
| Am-243 (a) | 5.0 | 1.4x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 7.4x10 ⁻³ | 2.0x10 ⁻¹ |
| Argon (18) | | | | | | |
| Ar-37 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 3.7x10 ³ | 9.9x10 ⁴ |
| Ar-39 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ¹ | 5.4x10 ² | 1.3 | 3.4x10 ¹ |
| Ar-41 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.5x10 ⁶ | 4.2x10 ⁷ |
| Arsenic (33) | | | | | | |
| As-72 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 6.2x10 ⁴ | 1.7x10 ⁶ |
| As-73 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 8.2x10 ² | 2.2x10 ⁴ |
| As-74 | 1.0 | 2.7x10 ¹ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 3.7x10 ³ | 9.9x10 ⁴ |
| As-76 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 5.8x10 ⁴ | 1.6x10 ⁶ |
| As-77 | 2.0x10 ¹ | 5.4x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 3.9x10 ⁴ | 1.0x10 ⁶ |
| Astatine (85) | | | | | | |
| At-211 (a) | 2.0x10 ¹ | 5.4x10 ² | 5.0x10 ⁻¹ | 1.4x10 ¹ | 7.6x10 ⁴ | 2.1x10 ⁶ |

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|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Gold (79) | | | | | | |
| Au-193 | 7.0 | 1.9x10 ² | 2.0 | 5.4x10 ¹ | 3.4x10 ⁴ | 9.2x10 ⁵ |
| Au-194 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.5x10 ⁴ | 4.1x10 ⁵ |
| Au-195 | 1.0x10 ¹ | 2.7x10 ² | 6.0 | 1.6x10 ² | 1.4x10 ² | 3.7x10 ³ |
| Au-198 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 9.0x10 ³ | 2.4x10 ⁵ |
| Au-199 | 1.0x10 ¹ | 2.7x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 7.7x10 ³ | 2.1x10 ⁵ |
| Barium (56) | | | | | | |
| Ba-131 (a) | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 3.1x10 ³ | 8.4x10 ⁴ |
| Ba-133 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 9.4 | 2.6x10 ² |
| Ba-133m | 2.0x10 ¹ | 5.4x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.2x10 ⁴ | 6.1x10 ⁵ |
| Ba-140 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 3.0x10 ⁻¹ | 8.1 | 2.7x10 ³ | 7.3x10 ⁴ |
| Beryllium (4) | | | | | | |
| Be-7 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ¹ | 5.4x10 ² | 1.3x10 ⁴ | 3.5x10 ⁵ |
| Be-10 | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 8.3x10 ⁻⁴ | 2.2x10 ⁻² |
| Bismuth (83) | | | | | | |
| Bi-205 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 1.5x10 ³ | 4.2x10 ⁴ |
| Bi-206 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 3.8x10 ³ | 1.0x10 ⁵ |
| Bi-207 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 1.9 | 5.2x10 ¹ |
| Bi-210 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.6x10 ³ | 1.2x10 ⁵ |
| Bi-210m (a) | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 2.1x10 ⁻⁵ | 5.7x10 ⁻⁴ |
| Bi-212 (a) | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.4x10 ⁵ | 1.5x10 ⁷ |
| Berkelium (97) | | | | | | |
| Bk-247 | 8.0 | 2.2x10 ² | 8.0x10 ⁻⁴ | 2.2x10 ⁻² | 3.8x10 ⁻² | 1.0 |
| Bk-249 (a) | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ⁻¹ | 8.1 | 6.1x10 ¹ | 1.6x10 ³ |
| Bromine (35) | | | | | | |
| Br-76 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 9.4x10 ⁴ | 2.5x10 ⁶ |
| Br-77 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 2.6x10 ⁴ | 7.1x10 ⁵ |
| Br-82 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁴ | 1.1x10 ⁶ |

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|-------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Carbon (6) | | | | | | |
| C-11 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.1x10 ⁷ | 8.4x10 ⁸ |
| C-14 | 4.0x10 ¹ | 1.1x10 ³ | 3.0 | 8.1x10 ¹ | 1.6x10 ⁻¹ | 4.5 |
| Calcium (20) | | | | | | |
| Ca-41 | Unlimited | Unlimited | Unlimited | Unlimited | 3.1x10 ⁻³ | 8.5x10 ⁻² |
| Ca-45 | 4.0x10 ¹ | 1.1x10 ³ | 1.0 | 2.7x10 ¹ | 6.6x10 ² | 1.8x10 ⁴ |
| Ca-47 (a) | 3.0 | 8.1x10 ¹ | 3.0x10 ⁻¹ | 8.1 | 2.3x10 ⁴ | 6.1x10 ⁵ |
| Cadmium (48) | | | | | | |
| Cd-109 | 3.0x10 ¹ | 8.1x10 ² | 2.0 | 5.4x10 ¹ | 9.6x10 ¹ | 2.6x10 ³ |
| Cd-113m | 4.0x10 ¹ | 1.1x10 ³ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 8.3 | 2.2x10 ² |
| Cd-115 | 3.0 | 8.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.9x10 ⁴ | 5.1x10 ⁵ |
| Cd-115m (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 9.4x10 ² | 2.5x10 ⁴ |
| Cerium (58) | | | | | | |
| Ce-139 | 7.0 | 1.9x10 ² | 2.0 | 5.4x10 ¹ | 2.5x10 ² | 6.8x10 ³ |
| Ce-141 | 2.0x10 ¹ | 5.4x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.1x10 ³ | 2.8x10 ⁴ |
| Ce-143 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.5x10 ⁴ | 6.6x10 ⁵ |
| Ce-144 (a) | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 1.2x10 ² | 3.2x10 ³ |
| Californium (98) | | | | | | |
| Cf-248 | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻³ | 1.6x10 ⁻¹ | 5.8x10 ¹ | 1.6x10 ³ |
| Cf-249 | 3.0 | 8.1x10 ¹ | 8.0x10 ⁻⁴ | 2.2x10 ⁻² | 1.5x10 ⁻¹ | 4.1 |
| Cf-250 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ⁻³ | 5.4x10 ⁻² | 4.0 | 1.1x10 ² |
| Cf-251 | 7.0 | 1.9x10 ² | 7.0x10 ⁻⁴ | 1.9x10 ⁻² | 5.9x10 ⁻² | 1.6 |
| Cf-252 (h) | 5.0x10 ⁻² | 1.4 | 3.0x10 ⁻³ | 8.1x10 ⁻² | 2.0x10 ¹ | 5.4x10 ² |
| Cf-253 (a) | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ⁻² | 1.1 | 1.1x10 ³ | 2.9x10 ⁴ |
| Cf-254 | 1.0x10 ⁻³ | 2.7x10 ⁻² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 3.1x10 ² | 8.5x10 ³ |
| Chlorine (17) | | | | | | |
| Cl-36 | 1.0x10 ¹ | 2.7x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.2x10 ⁻³ | 3.3x10 ⁻² |
| Cl-38 | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 4.9x10 ⁶ | 1.3x10 ⁸ |
| Curium (96) | | | | | | |
| Cm-240 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 7.5x10 ² | 2.0x10 ⁴ |
| Cm-241 | 2.0 | 5.4x10 ¹ | 1.0 | 2.7x10 ¹ | 6.1x10 ² | 1.7x10 ⁴ |
| Cm-242 | 4.0x10 ¹ | 1.1x10 ³ | 1.0x10 ⁻² | 2.7x10 ⁻¹ | 1.2x10 ² | 3.3x10 ³ |

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|-------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Cm-243 | 9.0 | 2.4x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 1.9 | 5.2x10 ¹ |
| Cm-244 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ⁻³ | 5.4x10 ⁻² | 3.0 | 8.1x10 ¹ |
| Cm-245 | 9.0 | 2.4x10 ² | 9.0x10 ⁻⁴ | 2.4x10 ⁻² | 6.4x10 ⁻³ | 1.7x10 ⁻¹ |
| Cm-246 | 9.0 | 2.4x10 ² | 9.0x10 ⁻⁴ | 2.4x10 ⁻² | 1.1x10 ⁻² | 3.1x10 ⁻¹ |
| Cm-247 (a) | 3.0 | 8.1x10 ¹ | 1.0x10 ⁻³ | 2.7x10 ⁻² | 3.4x10 ⁻⁶ | 9.3x10 ⁻⁵ |
| Cm-248 | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 3.0x10 ⁻⁴ | 8.1x10 ⁻³ | 1.6x10 ⁻⁴ | 4.2x10 ⁻³ |
| Cobalt (27) | | | | | | |
| Co-55 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 1.1x10 ⁵ | 3.1x10 ⁶ |
| Co-56 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.1x10 ³ | 3.0x10 ⁴ |
| Co-57 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ¹ | 2.7x10 ² | 3.1x10 ² | 8.4x10 ³ |
| Co-58 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.2x10 ³ | 3.2x10 ⁴ |
| Co-58m | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 2.2x10 ³ | 5.9x10 ⁶ |
| Co-60 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.2x10 ¹ | 1.1x10 ³ |
| Chromium (24) | | | | | | |
| Cr-51 | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ¹ | 8.1x10 ² | 3.4x10 ³ | 9.2x10 ⁴ |
| Cesium (55) | | | | | | |
| Cs-129 | 4.0 | 1.1x10 ² | 4.0 | 1.1x10 ² | 2.8x10 ⁴ | 7.6x10 ⁵ |
| Cs-131 | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ¹ | 8.1x10 ² | 3.8x10 ³ | 1.0x10 ⁵ |
| Cs-132 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 5.7x10 ³ | 1.5x10 ⁵ |
| Cs-134 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 4.8x10 ¹ | 1.3x10 ³ |
| Cs-134m | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.0x10 ⁵ | 8.0x10 ⁶ |
| Cs-135 | 4.0x10 ¹ | 1.1x10 ³ | 1.0 | 2.7x10 ¹ | 4.3x10 ⁻⁵ | 1.2x10 ⁻³ |
| Cs-136 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 2.7x10 ³ | 7.3x10 ⁴ |
| Cs-137 (a) | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.2 | 8.7x10 ¹ |
| Copper (29) | | | | | | |
| Cu-64 | 6.0 | 1.6x10 ² | 1.0 | 2.7x10 ¹ | 1.4x10 ⁵ | 3.9x10 ⁶ |
| Cu-67 | 1.0x10 ¹ | 2.7x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 2.8x10 ⁴ | 7.6x10 ⁵ |
| Dysprosium (66) | | | | | | |
| Dy-159 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ¹ | 5.4x10 ² | 2.1x10 ² | 5.7x10 ³ |
| Dy-165 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.0x10 ⁵ | 8.2x10 ⁶ |
| Dy-166 (a) | 9.0x10 ⁻¹ | 2.4x10 ¹ | 3.0x10 ⁻¹ | 8.1 | 8.6x10 ³ | 2.3x10 ⁵ |

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|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Erbium (68) | | | | | | |
| Er-169 | 4.0x10 ¹ | 1.1x10 ³ | 1.0 | 2.7x10 ¹ | 3.1x10 ³ | 8.3x10 ⁴ |
| Er-171 | 8.0x10 ⁻¹ | 2.2x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 9.0x10 ⁴ | 2.4x10 ⁶ |
| Europium (63) | | | | | | |
| Eu-147 | 2.0 | 5.4x10 ¹ | 2.0x10 ¹ | 5.4x10 ¹ | 1.4x10 ³ | 3.7x10 ⁴ |
| Eu-148 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.0x10 ² | 1.6x10 ⁴ |
| Eu-149 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ¹ | 5.4x10 ² | 3.5x10 ² | 9.4x10 ³ |
| Eu-150 (short lived). | 2.0 | 5.4x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.1x10 ⁴ | 1.6x10 ⁶ |
| Eu-150 (long lived). | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.1x10 ⁴ | 1.6x10 ⁶ |
| Eu-152 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 6.5 | 1.8x10 ² |
| Eu-152m | 8.0x10 ⁻¹ | 2.2x10 ¹ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 8.2x10 ⁴ | 2.2x10 ⁶ |
| Eu-154 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 9.8 | 2.6x10 ² |
| Eu-155 | 2.0x10 ¹ | 5.4x10 ² | 3.0 | 8.1x10 ¹ | 1.8x10 ¹ | 4.9x10 ² |
| Eu-156 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 2.0x10 ³ | 5.5x10 ⁴ |
| Fluorine (9) | | | | | | |
| F-18 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.5x10 ⁶ | 9.5x10 ⁷ |
| Iron (26) | | | | | | |
| Fe-52 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 2.7x10 ⁵ | 7.3x10 ⁶ |
| Fe-55 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 8.8x10 ¹ | 2.4x10 ³ |
| Fe-59 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 1.8x10 ³ | 5.0x10 ⁴ |
| Fe-60 (a) | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻¹ | 5.4 | 7.4x10 ⁻⁴ | 2.0x10 ⁻² |
| Gallium (31) | | | | | | |
| Ga-67 | 7.0 | 1.9x10 ² | 3.0 | 8.1x10 ¹ | 2.2x10 ⁴ | 6.0x10 ⁵ |
| Ga-68 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 1.5x10 ⁶ | 4.1x10 ⁷ |
| Ga-72 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.1x10 ⁵ | 3.1x10 ⁶ |
| Gadolinium (64) | | | | | | |
| Gd-146 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.9x10 ² | 1.9x10 ⁴ |
| Gd-148 | 2.0x10 ¹ | 5.4x10 ² | 2.0 | 5.4x10 ⁻² | 1.2 | 3.2x10 ¹ |
| Gd-153 | 1.0x10 ¹ | 2.7x10 ² | 9.0 | 2.4x10 ² | 1.3x10 ² | 3.5x10 ³ |
| Gd-159 | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.9x10 ⁴ | 1.1x10 ⁶ |

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|-------------------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Germanium (32) | | | | | | |
| Ge-68 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 2.6x10 ² | 7.1x10 ³ |
| Ge-71 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 5.8x10 ³ | 1.6x10 ⁵ |
| Ge-77 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.3x10 ⁵ | 3.6x10 ⁶ |
| Hafnium (72) | | | | | | |
| Hf-172 (a) | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.1x10 ¹ | 1.1x10 ³ |
| Hf-175 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 3.9x10 ² | 1.1x10 ⁴ |
| Hf-181 | 2.0 | 5.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.3x10 ² | 1.7x10 ⁴ |
| Hf-182 | Unlimited | Unlimited | Unlimited | Unlimited | 8.1x10 ⁻⁶ | 2.2x10 ⁻⁴ |
| Mercury (80) | | | | | | |
| Hg-194 (a) | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.3x10 ⁻¹ | 3.5 |
| Hg-195m (a) | 3.0 | 8.1x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 1.5x10 ⁴ | 4.0x10 ⁵ |
| Hg-197 | 2.0x10 ¹ | 5.4x10 ² | 1.0x10 ¹ | 2.7x10 ² | 9.2x10 ³ | 2.5x10 ⁵ |
| Hg-197m | 1.0x10 ¹ | 2.7x10 ² | 4.0x10 ⁻¹ | 1.1x10 ¹ | 2.5x10 ⁴ | 6.7x10 ⁵ |
| Hg-203 | 5.0 | 1.4x10 ² | 1.0 | 2.7x10 ¹ | 5.1x10 ² | 1.4x10 ⁴ |
| Holmium (67) | | | | | | |
| Ho-166 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 2.6x10 ⁴ | 7.0x10 ⁵ |
| Ho-166m | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.6x10 ⁻² | 1.8 |
| Iodine (53) | | | | | | |
| I-123 | 6.0 | 1.6x10 ² | 3.0 | 8.1x10 ¹ | 7.1x10 ⁴ | 1.9x10 ⁶ |
| I-124 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 9.3x10 ³ | 2.5x10 ⁵ |
| I-125 | 2.0x10 ¹ | 5.4x10 ² | 3.0 | 8.1x10 ¹ | 6.4x10 ² | 1.7x10 ⁴ |
| I-126 | 2.0 | 5.4x10 ¹ | 1.0 | 2.7x10 ¹ | 2.9x10 ³ | 8.0x10 ⁴ |
| I-129 | Unlimited | Unlimited | Unlimited | Unlimited | 6.5x10 ⁻⁶ | 1.8x10 ⁻⁴ |
| I-131 | 3.0 | 8.1x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 4.6x10 ³ | 1.2x10 ⁵ |
| I-132 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 3.8x10 ⁵ | 1.0x10 ⁷ |
| I-133 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.2x10 ⁴ | 1.1x10 ⁶ |
| I-134 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 9.9x10 ⁵ | 2.7x10 ⁷ |
| I-135 (a) | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.3x10 ⁵ | 3.5x10 ⁶ |
| Indium (49) | | | | | | |
| In-111 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 1.5x10 ⁴ | 4.2x10 ⁵ |
| In-113m | 4.0 | 1.1x10 ² | 2.0 | 5.4x10 ¹ | 6.2x10 ⁵ | 1.7x10 ⁷ |
| In-114m (a) | 1.0x10 ¹ | 2.7x10 ² | 5.0x10 ⁻¹ | 1.4x10 ¹ | 8.6x10 ² | 2.3x10 ⁴ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| In-115m | 7.0 | 1.9x10 ² | 1.0 | 2.7x10 ¹ | 2.2x10 ⁵ | 6.1x10 ⁶ |
| Iridium (77) | | | | | | |
| Ir-189 (a) | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ¹ | 2.7x10 ² | 1.9x10 ³ | 5.2x10 ⁴ |
| Ir-190 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 2.3x10 ³ | 6.2x10 ⁴ |
| Ir-192 (c) | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.4x10 ² | 9.2x10 ³ |
| Ir-194 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 3.1x10 ⁴ | 8.4x10 ⁵ |
| Potassium (19) | | | | | | |
| K-40 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 2.4x10 ⁻⁷ | 6.4x10 ⁻⁶ |
| K-42 | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 2.2x10 ⁵ | 6.0x10 ⁶ |
| K-43 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.2x10 ⁵ | 3.3x10 ⁶ |
| Krypton (36) | | | | | | |
| Kr-81 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 7.8x10 ⁻⁴ | 2.1x10 ⁻² |
| Kr-85 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ¹ | 2.7x10 ² | 3.0x10 ⁵ | 8.2x10 ⁶ |
| Kr-85m | 8.0 | 2.2x10 ² | 3.0 | 8.1x10 ¹ | 1.5x10 ¹ | 3.9x10 ² |
| Kr-87 | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 1.0x10 ⁶ | 2.8x10 ⁷ |
| Lanthanum (57) | | | | | | |
| La-137 | 3.0x10 ¹ | 8.1x10 ² | 6.0 | 1.6x10 ² | 1.6x10 ⁻³ | 4.4x10 ⁻² |
| La-140 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 2.1x10 ⁴ | 5.6x10 ⁵ |
| Lutetium (71) | | | | | | |
| Lu-172 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.2x10 ³ | 1.1x10 ⁵ |
| Lu-173 | 8.0 | 2.2x10 ² | 8.0 | 2.2x10 ² | 5.6x10 ¹ | 1.5x10 ³ |
| Lu-174 | 9.0 | 2.4x10 ² | 9.0 | 2.4x10 ² | 2.0x10 ² | 5.3x10 ³ |
| Lu-174m | 2.0x10 ¹ | 5.4x10 ² | 1.0x10 ¹ | 2.7x10 ² | 2.3x10 ¹ | 6.2x10 ² |
| Lu-177 | 3.0x10 ¹ | 8.1x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 4.1x10 ³ | 1.1x10 ⁵ |
| Magnesium (12) | | | | | | |
| Mg-28 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 2.0x10 ⁵ | 5.4x10 ⁶ |
| Manganese (25) | | | | | | |
| Mn-52 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.6x10 ⁴ | 4.4x10 ⁵ |
| Mn-53 | Unlimited | Unlimited | Unlimited | Unlimited | 6.8x10 ⁻⁵ | 1.8x10 ⁻³ |
| Mn-54 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 2.9x10 ² | 7.7x10 ³ |
| Mn-56 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 8.0x10 ⁵ | 2.2x10 ⁷ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Molybdenum (42) | | | | | | |
| Mo-93 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ¹ | 5.4x10 ² | 4.1x10 ⁻² | 1.1 |
| Mo-99 (a),(i) | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.8x10 ⁴ | 4.8x10 ⁵ |
| Nitrogen (7) | | | | | | |
| N-13 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.4x10 ⁷ | 1.5x10 ⁹ |
| Sodium (11) | | | | | | |
| Na-22 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 2.3x10 ² | 6.3x10 ³ |
| Na-24 | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 3.2x10 ⁵ | 8.7x10 ⁶ |
| Niobium (41) | | | | | | |
| Nb-93m | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ¹ | 8.1x10 ² | 8.8 | 2.4x10 ² |
| Nb-94 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.9x10 ⁻³ | 1.9x10 ⁻¹ |
| Nb-95 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.5x10 ³ | 3.9x10 ⁴ |
| Nb-97 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 9.9x10 ⁵ | 2.7x10 ⁷ |
| Neodymium (60) | | | | | | |
| Nd-147 | 6.0 | 1.6x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.0x10 ³ | 8.1x10 ⁴ |
| Nd-149 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 4.5x10 ⁵ | 1.2x10 ⁷ |
| Nickel (28) | | | | | | |
| Ni-59 | Unlimited | Unlimited | Unlimited | Unlimited | 3.0x10 ⁻³ | 8.0x10 ⁻² |
| Ni-63 | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ¹ | 8.1x10 ² | 2.1 | 5.7x10 ¹ |
| Ni-65 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 7.1x10 ⁵ | 1.9x10 ⁷ |
| Neptunium (93) | | | | | | |
| Np-235 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 5.2x10 ¹ | 1.4x10 ³ |
| Np-236 (short lived). | 2.0x10 ¹ | 5.4x10 ² | 2.0 | 5.4x10 ¹ | 4.7x10 ⁻⁴ | 1.3x10 ⁻² |
| Np-236 (long lived). | 9.0x10 ⁰ | 2.4x10 ² | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 4.7x10 ⁻⁴ | 1.3x10 ⁻² |
| Np-237 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ⁻³ | 5.4x10 ⁻² | 2.6x10 ⁻⁵ | 7.1x10 ⁻⁴ |
| Np-239 | 7.0 | 1.9x10 ² | 4.0x10 ⁻¹ | 1.1x10 ¹ | 8.6x10 ³ | 2.3x10 ⁵ |
| Osmium (76) | | | | | | |
| Os-185 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 2.8x10 ² | 7.5x10 ³ |
| Os-191 | 1.0x10 ¹ | 2.7x10 ² | 2.0 | 5.4x10 ¹ | 1.6x10 ³ | 4.4x10 ⁴ |
| Os-191m | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ¹ | 8.1x10 ² | 4.6x10 ⁴ | 1.3x10 ⁶ |
| Os-193 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.0x10 ⁴ | 5.3x10 ⁵ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Os-194 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.1x10 ¹ | 3.1x10 ² |
| Phosphorus (15) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 1.1x10 ⁴ | 2.9x10 ⁵ |
| P-32 | | | | | | |
| P-33 | 4.0x10 ¹ | 1.1x10 ³ | 1.0 | 2.7x10 ¹ | 5.8x10 ³ | 1.6x10 ⁵ |
| Protactinium (91) | | | | | | |
| Pa-230 (a) | 2.0 | 5.4x10 ¹ | 7.0x10 ⁻² | 1.9 | 1.2x10 ³ | 3.3x10 ⁴ |
| Pa-231 | 4.0 | 1.1x10 ² | 4.0x10 ⁻⁴ | 1.1x10 ⁻² | 1.7x10 ⁻³ | 4.7x10 ⁻² |
| Pa-233 | 5.0 | 1.4x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.7x10 ² | 2.1x10 ⁴ |
| Lead (82) | | | | | | |
| Pb-201 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 6.2x10 ⁴ | 1.7x10 ⁶ |
| Pb-202 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ¹ | 5.4x10 ² | 1.2x10 ⁻⁴ | 3.4x10 ⁻³ |
| Pb-203 | 4.0 | 1.1x10 ² | 3.0 | 8.1x10 ¹ | 1.1x10 ⁴ | 3.0x10 ⁵ |
| Pb-205 | Unlimited | Unlimited | Unlimited | Unlimited | 4.5x10 ⁻⁶ | 1.2x10 ⁻⁴ |
| Pb-210 (a) | 1.0 | 2.7x10 ¹ | 5.0x10 ⁻² | 1.4 | 2.8 | 7.6x10 ¹ |
| Pb-212 (a) | 7.0x10 ⁻¹ | 1.9x10 ¹ | 2.0x10 ⁻¹ | 5.4 | 5.1x10 ⁴ | 1.4x10 ⁶ |
| Palladium (46) | | | | | | |
| Pd-103 (a) | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 2.8x10 ³ | 7.5x10 ⁴ |
| Pd-107 | Unlimited | Unlimited | Unlimited | Unlimited | 1.9x10 ⁻⁵ | 5.1x10 ⁻⁴ |
| Pd-109 | 2.0 | 5.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 7.9x10 ⁴ | 2.1x10 ⁶ |
| Promethium (61) | | | | | | |
| Pm-143 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 1.3x10 ² | 3.4x10 ³ |
| Pm-144 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 9.2x10 ¹ | 2.5x10 ³ |
| Pm-145 | 3.0x10 ¹ | 8.1x10 ² | 1.0x10 ¹ | 2.7x10 ² | 5.2 | 1.4x10 ² |
| Pm-147 | 4.0x10 ¹ | 1.1x10 ³ | 2.0 | 5.4x10 ¹ | 3.4x10 ¹ | 9.3x10 ² |
| Pm-148m (a) | 8.0x10 ⁻¹ | 2.2x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 7.9x10 ² | 2.1x10 ⁴ |
| Pm-149 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.5x10 ⁴ | 4.0x10 ⁵ |
| Pm-151 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.7x10 ⁴ | 7.3x10 ⁵ |
| Polonium (84) | | | | | | |
| Po-210 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 1.7x10 ² | 4.5x10 ³ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Praseodymium (59) | | | | | | |
| Pr-142 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.3x10 ⁴ | 1.2x10 ⁶ |
| Pr-143 | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.5x10 ³ | 6.7x10 ⁴ |
| Platinum (78) | | | | | | |
| Pt-188 (a) | 1.0 | 2.7x10 ¹ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 2.5x10 ³ | 6.8x10 ⁴ |
| Pt-191 | 4.0 | 1.1x10 ² | 3.0 | 8.1x10 ¹ | 8.7x10 ³ | 2.4x10 ⁵ |
| Pt-193 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 1.4 | 3.7x10 ¹ |
| Pt-193m | 4.0x10 ¹ | 1.1x10 ³ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.8x10 ³ | 1.6x10 ⁵ |
| Pt-195m | 1.0x10 ¹ | 2.7x10 ² | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.2x10 ³ | 1.7x10 ⁵ |
| Pt-197 | 2.0x10 ¹ | 5.4x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.2x10 ⁴ | 8.7x10 ⁵ |
| Pt-197m | 1.0x10 ¹ | 2.7x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.7x10 ⁵ | 1.0x10 ⁷ |
| Plutonium (94) | | | | | | |
| Pu-236 | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ⁻³ | 8.1x10 ⁻² | 2.0x10 ¹ | 5.3x10 ² |
| Pu-237 | 2.0x10 ¹ | 5.4x10 ² | 2.0x10 ¹ | 5.4x10 ² | 4.5x10 ² | 1.2x10 ⁴ |
| Pu-238 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 6.3x10 ⁻¹ | 1.7x10 ¹ |
| Pu-239 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 2.3x10 ⁻³ | 6.2x10 ⁻² |
| Pu-240 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 8.4x10 ⁻³ | 2.3x10 ⁻¹ |
| Pu-241 (a) | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻² | 1.6 | 3.8 | 1.0x10 ² |
| Pu-242 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 1.5x10 ⁻⁴ | 3.9x10 ⁻³ |
| Pu-244 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.0x10 ⁻³ | 2.7x10 ⁻² | 6.7x10 ⁻⁷ | 1.8x10 ⁻⁵ |
| Radium (88) | | | | | | |
| Ra-223 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 7.0x10 ⁻³ | 1.9x10 ⁻¹ | 1.9x10 ³ | 5.1x10 ⁴ |
| Ra-224 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 5.9x10 ³ | 1.6x10 ⁵ |
| Ra-225 (a) | 2.0x10 ⁻¹ | 5.4 | 4.0x10 ⁻³ | 1.1x10 ⁻¹ | 1.5x10 ³ | 3.9x10 ⁴ |
| Ra-226 (a) | 2.0x10 ⁻¹ | 5.4 | 3.0x10 ⁻³ | 8.1x10 ⁻² | 3.7x10 ⁻² | 1.0 |
| Ra-228 (a) | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 1.0x10 ¹ | 2.7x10 ² |
| Rubidium (37) | | | | | | |
| Rb-81 | 2.0 | 5.4x10 ¹ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 3.1x10 ⁵ | 8.4x10 ⁶ |
| Rb-83 (a) | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 6.8x10 ² | 1.8x10 ⁴ |
| Rb-84 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.8x10 ³ | 4.7x10 ⁴ |
| Rb-86 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 3.0x10 ³ | 8.1x10 ⁴ |
| Rb-87 | Unlimited | Unlimited | Unlimited | Unlimited | 3.2x10 ⁻⁹ | 8.6x10 ⁻⁸ |
| Rb (nat) | Unlimited | Unlimited | Unlimited | Unlimited | 6.7x10 ⁶ | 1.8x10 ⁸ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Rhenium (75) | | | | | | |
| Re-184 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 6.9x10 ² | 1.9x10 ⁴ |
| Re-184m | 3.0 | 8.1x10 ¹ | 1.0 | 2.7x10 ¹ | 1.6x10 ² | 4.3x10 ³ |
| Re-186 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.9x10 ³ | 1.9x10 ⁵ |
| Re-187 | Unlimited | Unlimited | Unlimited | Unlimited | 1.4x10 ⁻⁹ | 3.8x10 ⁻⁸ |
| Re-188 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 3.6x10 ⁴ | 9.8x10 ⁵ |
| Re-189 (a) | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.5x10 ⁴ | 6.8x10 ⁵ |
| Re (nat) | Unlimited | Unlimited | Unlimited | Unlimited | 0.0 | 2.4x10 ⁻⁸ |
| Rhodium (45) | | | | | | |
| Rh-99 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 3.0x10 ³ | 8.2x10 ⁴ |
| Rh-101 | 4.0 | 1.1x10 ² | 3.0 | 8.1x10 ¹ | 4.1x10 ¹ | 1.1x10 ³ |
| Rh-102 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 4.5x10 ¹ | 1.2x10 ³ |
| Rh-102m | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 2.3x10 ² | 6.2x10 ³ |
| Rh-103m | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 1.2x10 ⁶ | 3.3x10 ⁷ |
| Rh-105 | 1.0x10 ¹ | 2.7x10 ² | 8.0x10 ⁻¹ | 2.2x10 ¹ | 3.1x10 ⁴ | 8.4x10 ⁵ |
| Radon (86) | | | | | | |
| Rn-222 (a) | 3.0x10 ⁻¹ | 8.1 | 4.0x10 ⁻³ | 1.1x10 ⁻¹ | 5.7x10 ³ | 1.5x10 ⁵ |
| Ruthenium (44) | | | | | | |
| Ru-97 | 5.0 | 1.4x10 ² | 5.0 | 1.4x10 ² | 1.7x10 ⁴ | 4.6x10 ⁵ |
| Ru-103 (a) | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 1.2x10 ³ | 3.2x10 ⁴ |
| Ru-105 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.5x10 ⁵ | 6.7x10 ⁶ |
| Ru-106 (a) | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 1.2x10 ² | 3.3x10 ³ |
| Sulfur (16) | | | | | | |
| S-35 | 4.0x10 ¹ | 1.1x10 ³ | 3.0 | 8.1x10 ¹ | 1.6x10 ³ | 4.3x10 ⁴ |
| Antimony (51) | | | | | | |
| Sb-122 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.5x10 ⁴ | 4.0x10 ⁵ |
| Sb-124 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.5x10 ² | 1.7x10 ⁴ |
| Sb-125 | 2.0 | 5.4x10 ¹ | 1.0 | 2.7x10 ¹ | 3.9x10 ¹ | 1.0x10 ³ |
| Sb-126 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 3.1x10 ³ | 8.4x10 ⁴ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Scandium (21) | | | | | | |
| Sc-44 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 6.7x10 ⁵ | 1.8x10 ⁷ |
| Sc-46 | 5.0x10 ⁻¹ | 1.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 1.3x10 ³ | 3.4x10 ⁴ |
| Sc-47 | 1.0x10 ¹ | 2.7x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 3.1x10 ⁴ | 8.3x10 ⁵ |
| Sc-48 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 5.5x10 ⁴ | 1.5x10 ⁶ |
| Selenium (34) | | | | | | |
| Se-75 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 5.4x10 ² | 1.5x10 ⁴ |
| Se-79 | 4.0x10 ¹ | 1.1x10 ³ | 2.0 | 5.4x10 ¹ | 2.6x10 ⁻³ | 7.0x10 ⁻² |
| Silicon (14) | | | | | | |
| Si-31 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.4x10 ⁶ | 3.9x10 ⁷ |
| Si-32 | 4.0x10 ¹ | 1.1x10 ³ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 3.9 | 1.1x10 ² |
| Samarium (62) | | | | | | |
| Sm-145 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ¹ | 2.7x10 ² | 9.8x10 ¹ | 2.6x10 ³ |
| Sm-147 | Unlimited | Unlimited | Unlimited | Unlimited | 8.5x10 ⁻¹ | 2.3x10 ⁻⁸ |
| Sm-151 | 4.0x10 ¹ | 1.1x10 ³ | 1.0x10 ¹ | 2.7x10 ² | 9.7x10 ⁻¹ | 2.6x10 ¹ |
| Sm-153 | 9.0 | 2.4x10 ² | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.6x10 ⁴ | 4.4x10 ⁵ |
| Tin (50) | | | | | | |
| Sn-113 (a) | 4.0 | 1.1x10 ² | 2.0 | 5.4x10 ¹ | 3.7x10 ² | 1.0x10 ⁴ |
| Sn-117m | 7.0 | 1.9x10 ² | 4.0x10 ⁻¹ | 1.1x10 ¹ | 3.0x10 ³ | 8.2x10 ⁴ |
| Sn-119m | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ¹ | 8.1x10 ² | 1.4x10 ² | 3.7x10 ³ |
| Sn-121m (a) | 4.0x10 ¹ | 1.1x10 ³ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 2.0 | 5.4x10 ¹ |
| Sn-123 | 8.0x10 ⁻¹ | 2.2x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 3.0x10 ² | 8.2x10 ³ |
| Sn-125 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ³ | 1.1x10 ⁵ |
| Sn-126 (a) | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.0x10 ⁻³ | 2.8x10 ⁻² |
| Strontium (38) | | | | | | |
| Sr-82 (a) | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 2.3x10 ³ | 6.2x10 ⁴ |
| Sr-85 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 8.8x10 ² | 2.4x10 ⁴ |
| Sr-85m | 5.0 | 1.4x10 ² | 5.0 | 1.4x10 ² | 1.2x10 ⁶ | 3.3x10 ⁷ |
| Sr-87m | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 4.8x10 ⁵ | 1.3x10 ⁷ |
| Sr-89 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.1x10 ³ | 2.9x10 ⁴ |
| Sr-90 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 5.1 | 1.4x10 ² |
| Sr-91 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.3x10 ⁵ | 3.6x10 ⁶ |
| Sr-92 (a) | 1.0 | 2.7x10 ¹ | 3.0x10 ⁻¹ | 8.1 | 4.7x10 ⁵ | 1.3x10 ⁷ |

APPENDIX A

| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Tritium (1) | | | | | | |
| T(H-3) | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 3.6x10 ² | 9.7x10 ³ |
| Tantalum (73) | | | | | | |
| Ta-178 (long lived). | 1.0 | 2.7x10 ¹ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 4.2x10 ⁶ | 1.1x10 ⁸ |
| Ta-179 | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ¹ | 8.1x10 ² | 4.1x10 ¹ | 1.1x10 ³ |
| Ta-182 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 2.3x10 ² | 6.2x10 ³ |
| Terbium (65) | | | | | | |
| Tb-157 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 5.6x10 ⁻¹ | 1.5x10 ¹ |
| Tb-158 | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 5.6x10 ⁻¹ | 1.5x10 ¹ |
| Tb-160 | 1.0 | 2.7x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 4.2x10 ² | 1.1x10 ⁴ |
| Technetium (43) | | | | | | |
| Tc-95m (a) | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 8.3x10 ² | 2.2x10 ⁴ |
| Tc-96 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.2x10 ⁴ | 3.2x10 ⁵ |
| Tc-96m | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.4x10 ⁶ | 3.8x10 ⁷ |
| Tc-97 | Unlimited | Unlimited | Unlimited | Unlimited | 5.2x10 ⁻⁵ | 1.4x10 ⁻³ |
| Tc-97m | 4.0x10 ¹ | 1.1x10 ³ | 1.0 | 2.7x10 ¹ | 5.6x10 ² | 1.5x10 ⁴ |
| Tc-98 | 8.0x10 ⁻¹ | 2.2x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 3.2x10 ⁻⁵ | 8.7x10 ⁻⁴ |
| Tc-99 | 4.0x10 ¹ | 1.1x10 ³ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.3x10 ⁻⁴ | 1.7x10 ⁻² |
| Tc-99m | 1.0x10 ¹ | 2.7x10 ² | 4.0 | 1.1x10 ² | 1.9x10 ⁵ | 5.3x10 ⁶ |
| Tellurium (52) | | | | | | |
| Te-121 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 2.4x10 ³ | 6.4x10 ⁴ |
| Te-121m | 5.0 | 1.4x10 ² | 3.0 | 8.1x10 ¹ | 2.6x10 ² | 7.0x10 ³ |
| Te-123m | 8.0 | 2.2x10 ² | 1.0 | 2.7x10 ¹ | 3.3x10 ² | 8.9x10 ³ |
| Te-125m | 2.0x10 ¹ | 5.4x10 ² | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.7x10 ² | 1.8x10 ⁴ |
| Te-127 | 2.0x10 ¹ | 5.4x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 9.8x10 ⁴ | 2.6x10 ⁶ |
| Te-127m (a) | 2.0x10 ¹ | 5.4x10 ² | 5.0x10 ⁻¹ | 1.4x10 ¹ | 3.5x10 ² | 9.4x10 ³ |
| Te-129 | 7.0x10 ⁻¹ | 1.9x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 7.7x10 ⁵ | 2.1x10 ⁷ |
| Te-129m (a) | 8.0x10 ⁻¹ | 2.2x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.1x10 ³ | 3.0x10 ⁴ |
| Te-131m (a) | 7.0x10 ⁻¹ | 1.9x10 ¹ | 5.0x10 ⁻¹ | 1.4x10 ¹ | 3.0x10 ⁴ | 8.0x10 ⁵ |
| Te-132 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 1.1x10 ⁴ | 3.0x10 ⁵ |

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| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Thorium (90) | | | | | | |
| Th-227 | 1.0x10 ¹ | 2.7x10 ² | 5.0x10 ⁻³ | 1.4x10 ⁻¹ | 1.1x10 ³ | 3.1x10 ⁴ |
| Th-228 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 1.0x10 ⁻³ | 2.7x10 ⁻² | 3.0x10 ¹ | 8.2x10 ² |
| Th-229 | 5.0 | 1.4x10 ² | 5.0x10 ⁻⁴ | 1.4x10 ⁻² | 7.9x10 ⁻³ | 2.1x10 ⁻¹ |
| Th-230 | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 7.6x10 ⁻⁴ | 2.1x10 ⁻² |
| Th-231 | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 2.0x10 ⁴ | 5.3x10 ⁵ |
| Th-232 | Unlimited | Unlimited | Unlimited | Unlimited | 4.0x10 ⁻⁹ | 1.1x10 ⁻⁷ |
| Th-234 (a) | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 8.6x10 ² | 2.3x10 ⁴ |
| Th (nat) | Unlimited | Unlimited | Unlimited | Unlimited | 8.1x10 ⁻⁹ | 2.2x10 ⁻⁷ |
| Titanium (22) | | | | | | |
| Ti-44 (a) | 5.0x10 ⁻¹ | 1.4x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 6.4 | 1.7x10 ² |
| Thallium (81) | | | | | | |
| Tl-200 | 9.0x10 ⁻¹ | 2.4x10 ¹ | 9.0x10 ⁻¹ | 2.4x10 ¹ | 2.2x10 ⁴ | 6.0x10 ⁵ |
| Tl-201 | 1.0x10 ¹ | 2.7x10 ² | 4.0 | 1.1x10 ² | 7.9x10 ³ | 2.1x10 ⁵ |
| Tl-202 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 2.0x10 ³ | 5.3x10 ⁴ |
| Tl-204 | 1.0x10 ¹ | 2.7x10 ² | 7.0x10 ⁻¹ | 1.9x10 ¹ | 1.7x10 ¹ | 4.6x10 ² |
| Thulium (69) | | | | | | |
| Tm-167 | 7.0 | 1.9x10 ² | 8.0x10 ⁻¹ | 2.2x10 ¹ | 3.1x10 ³ | 8.5x10 ⁴ |
| Tm-170 | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.2x10 ² | 6.0x10 ³ |
| Tm-171 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ |
| Uranium (92) | | | | | | |
| U-230 (fast lung absorption) (a)(d). | 4.0x10 ¹ | 1.1x10 ³ | 1.0x10 ⁻¹ | 2.7 | 1.0x10 ³ | 2.7x10 ⁴ |
| U-230 (medium lung absorption) (a)(e). | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ⁻³ | 1.1x10 ⁻¹ | 1.0x10 ³ | 2.7x10 ⁴ |
| U-230 (slow lung absorption) (a)(f). | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ⁻³ | 8.1x10 ⁻² | 1.0x10 ³ | 2.7x10 ⁴ |
| U-232 (fast lung absorption) (d). | 4.0x10 ¹ | 1.1x10 ³ | 1.0x10 ⁻² | 2.7x10 ⁻¹ | 8.3x10 ⁻¹ | 2.2x10 ¹ |
| U-232 (medium lung absorption) (e). | 4.0x10 ¹ | 1.1x10 ³ | 7.0x10 ⁻³ | 1.9x10 ⁻¹ | 8.3x10 ⁻¹ | 2.2x10 ¹ |
| U-232 (slow lung absorption) (f). | 1.0x10 ¹ | 2.7x10 ² | 1.0x10 ⁻³ | 2.7x10 ⁻² | 8.3x10 ⁻¹ | 2.2x10 ¹ |
| U-233 (fast lung absorption) (d). | 4.0x10 ¹ | 1.1x10 ³ | 9.0x10 ⁻² | 2.4 | 3.6x10 ⁻⁴ | 9.7x10 ⁻³ |

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| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|----------------------------------------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| U-233 (medium lung absorption) (e). | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 3.6x10 ⁻⁴ | 9.7x10 ⁻³ |
| U-233 (slow lung absorption) (f). | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻³ | 1.6x10 ⁻¹ | 3.6x10 ⁻⁴ | 9.7x10 ⁻³ |
| U-234 (fast lung absorption) (d). | 4.0x10 ¹ | 1.1x10 ³ | 9.0x10 ⁻² | 2.4 | 2.3x10 ⁻⁴ | 6.2x10 ⁻³ |
| U-234 (medium lung absorption) (e). | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 2.3x10 ⁻⁴ | 6.2x10 ⁻³ |
| U-234 (slow lung absorption) (f). | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻³ | 1.6x10 ⁻¹ | 2.3x10 ⁻⁴ | 6.2x10 ⁻³ |
| U-235 (all lung absorption types) (a),(d),(e),(f). | Unlimited | Unlimited | Unlimited | Unlimited | 8.0x10 ⁻⁸ | 2.2x10 ⁻⁶ |
| U-236 (fast lung absorption) (d). | Unlimited | Unlimited | Unlimited | Unlimited | 2.4x10 ⁻⁶ | 6.5x10 ⁻⁵ |
| U-236 (medium lung absorption) (e). | 4.0x10 ¹ | 1.1x10 ³ | 2.0x10 ⁻² | 5.4x10 ⁻¹ | 2.4x10 ⁻⁶ | 6.5x10 ⁻⁵ |
| U-236 (slow lung absorption) (f). | 4.0x10 ¹ | 1.1x10 ³ | 6.0x10 ⁻³ | 1.6x10 ⁻¹ | 2.4x10 ⁻⁶ | 6.5x10 ⁻⁵ |
| U-238 (all lung absorption types) (d),(e),(f). | Unlimited | Unlimited | Unlimited | Unlimited | 1.2x10 ⁻⁸ | 3.4x10 ⁻⁷ |
| U (nat) | Unlimited | Unlimited | Unlimited | Unlimited | 2.6x10 ⁻⁸ | 7.1x10 ⁻⁷ |
| U (enriched to 20% or less) (g). | Unlimited | Unlimited | Unlimited | Unlimited | See Table 25-4 | See Table 25-4 |
| U (dep) | Unlimited | Unlimited | Unlimited | Unlimited | See Table 25-4 | See Table 25-4 |
| Vanadium (23) | | | | | | |
| V-48 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 6.3x10 ³ | 1.7x10 ⁵ |
| V-49 | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 3.0x10 ² | 8.1x10 ³ |
| Tungsten (74) | | | | | | |
| W-178 (a) | 9.0 | 2.4x10 ² | 5.0 | 1.4x10 ² | 1.3x10 ³ | 3.4x10 ⁴ |
| W-181 | 3.0x10 ¹ | 8.1x10 ² | 3.0x10 ¹ | 8.1x10 ² | 2.2x10 ² | 6.0x10 ³ |
| W-185 | 4.0x10 ¹ | 1.1x10 ³ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 3.5x10 ² | 9.4x10 ³ |
| W-187 | 2.0 | 5.4x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 2.6x10 ⁴ | 7.0x10 ⁵ |
| W-188 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 3.0x10 ⁻¹ | 8.1 | 3.7x10 ² | 1.0x10 ⁴ |
| Xenon (54) | | | | | | |
| Xe-122 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.8x10 ⁴ | 1.3x10 ⁶ |
| Xe-123 | 2.0 | 5.4x10 ¹ | 7.0x10 ⁻¹ | 1.9x10 ¹ | 4.4x10 ⁵ | 1.2x10 ⁷ |
| Xe-127 | 4.0 | 1.1x10 ² | 2.0 | 5.4x10 ¹ | 1.0x10 ³ | 2.8x10 ⁴ |

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| Element, Atomic No. Radionuclide | A ₁ | | A ₂ | | Specific Activity | |
|-------------------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| | (TBq) | (Ci) ^b | (TBq) | (Ci) ^b | (TBq/g) | (Ci/g) |
| Xe-131m | 4.0x10 ¹ | 1.1x10 ³ | 4.0x10 ¹ | 1.1x10 ³ | 3.1x10 ³ | 8.4x10 ⁴ |
| Xe-133 | 2.0x10 ¹ | 5.4x10 ² | 1.0x10 ¹ | 2.7x10 ² | 6.9x10 ³ | 1.9x10 ⁵ |
| Xe-135 | 3.0 | 8.1x10 ¹ | 2.0 | 5.4x10 ¹ | 9.5x10 ⁴ | 2.6x10 ⁶ |
| Yttrium (39) | | | | | | |
| Y-87 (a) | 1.0 | 2.7x10 ¹ | 1.0 | 2.7x10 ¹ | 1.7x10 ⁴ | 4.5x10 ⁵ |
| Y-88 | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 5.2x10 ² | 1.4x10 ⁴ |
| Y-90 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 2.0x10 ⁴ | 5.4x10 ⁵ |
| Y-91 | 6.0x10 ⁻¹ | 1.6x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 9.1x10 ² | 2.5x10 ⁴ |
| Y-91m | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 1.5x10 ⁶ | 4.2x10 ⁷ |
| Y-92 | 2.0x10 ⁻¹ | 5.4 | 2.0x10 ⁻¹ | 5.4 | 3.6x10 ⁵ | 9.6x10 ⁶ |
| Y-93 | 3.0x10 ⁻¹ | 8.1 | 3.0x10 ⁻¹ | 8.1 | 1.2x10 ⁵ | 3.3x10 ⁶ |
| Ytterbium (70) | | | | | | |
| Yb-169 | 4.0 | 1.1x10 ² | 1.0 | 2.7x10 ¹ | 8.9x10 ² | 2.4x10 ⁴ |
| Yb-175 | 3.0x10 ¹ | 8.1x10 ² | 9.0x10 ⁻¹ | 2.4x10 ¹ | 6.6x10 ³ | 1.8x10 ⁵ |
| Zinc (30) | | | | | | |
| Zn-65 | 2.0 | 5.4x10 ¹ | 2.0 | 5.4x10 ¹ | 3.0x10 ² | 8.2x10 ³ |
| Zn-69 | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.8x10 ⁶ | 4.9x10 ⁷ |
| Zn-69m (a) | 3.0 | 8.1x10 ¹ | 6.0x10 ⁻¹ | 1.6x10 ¹ | 1.2x10 ⁵ | 3.3x10 ⁶ |
| Zirconium (40) | | | | | | |
| Zr-88 | 3.0 | 8.1x10 ¹ | 3.0 | 8.1x10 ¹ | 6.6x10 ² | 1.8x10 ⁴ |
| Zr-93 | Unlimited | Unlimited | Unlimited | Unlimited | 9.3x10 ⁻⁵ | 2.5x10 ⁻³ |
| Zr-95 (a) | 2.0 | 5.4x10 ¹ | 8.0x10 ⁻¹ | 2.2x10 ¹ | 7.9x10 ² | 2.1x10 ⁴ |
| Zr-97 (a) | 4.0x10 ⁻¹ | 1.1x10 ¹ | 4.0x10 ⁻¹ | 1.1x10 ¹ | 7.1x10 ⁴ | 1.9x10 ⁶ |

- a A₁ and/or A₂ values include contributions from daughter nuclides with half-lives less than 10 days.
- b The values of A₁ and A₂ in Curies (Ci) are approximate and for information only, the regulatory standard units are Terabecquerels (TBq).
- c The quantity may be determined from a measurement of the rate of decay or a measurement of the radiation level at a prescribed distance from the source.
- d These values apply only to compounds of uranium that take the chemical form of UF₆, UO₂F₂ and UO₂(NO₃)₂ in both normal and accident conditions of transport.

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- e These values apply only to compounds of uranium that take the chemical form of UO_3 , UF_4 , UCl_4 and hexavalent compounds in both normal and accident conditions of transport.
- f These values apply to all compounds of uranium other than those specified in notes (d) and (e) of this table.
- g These values apply to unirradiated uranium only.
- h $A_1 = 0.1 \text{ TBq (2.7 Ci)}$ and $A_2 = 0.001 \text{ TBq (0.027 Ci)}$ for Cf-252 for domestic use.
- i $A_2 = 0.74 \text{ TBq (20 Ci)}$ for Mo-99 for domestic use.