

# Radionuclide and Chemical Nomenclature



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| Nomenclature and Half-Life for Radionuclides |        |                          |                   |         |                          |
|----------------------------------------------|--------|--------------------------|-------------------|---------|--------------------------|
| Radionuclide                                 | Symbol | Half-life <sup>a,b</sup> | Radionuclide      | Symbol  | Half-life <sup>a,b</sup> |
| Actinium-228                                 | Ac-228 | 6.15 h                   | Iodine-129        | I-129   | 1.57E7 y                 |
| Americium-241                                | Am-241 | 432.7 y                  | Iodine-131        | I-131   | 8.020 d                  |
| Americium-243                                | Am-243 | 7.37E3 y                 | Iodine-133        | I-133   | 20.8 h                   |
| Antimony-124                                 | Sb-124 | 60.20 d                  | Krypton-85        | Kr-85   | 10.76 y                  |
| Antimony-125                                 | Sb-125 | 2.758 y                  | Lead-212          | Pb-212  | 10.64 h                  |
| Argon-39                                     | Ar-39  | 269 y                    | Lead-214          | Pb-214  | 27 m                     |
| Barium-133                                   | Ba-133 | 10.53 y                  | Manganese-54      | Mn-54   | 312.1 d                  |
| Beryllium-7                                  | Be-7   | 53.3 d                   | Mercury-203       | Hg-203  | 46.61 d                  |
| Bismuth-212                                  | Bi-212 | 1.009 h                  | Neptunium-237     | Np-237  | 2.14E6 y                 |
| Bismuth-214                                  | Bi-214 | 19.9 m                   | Neptunium-239     | Np-239  | 2.355 d                  |
| Carbon-14                                    | C-14   | 5715 y                   | Nickel-59         | Ni-59   | 7.6E4 y                  |
| Cerium-141                                   | Ce-141 | 32.50 d                  | Nickel-63         | Ni-63   | 101 y                    |
| Cerium-144                                   | Ce-144 | 284.6 d                  | Niobium-94        | Nb-94   | 2.0E4 y                  |
| Cesium-134                                   | Cs-134 | 2.065 y                  | Niobium-95        | Nb-95   | 34.99 d                  |
| Cesium-137                                   | Cs-137 | 30.07 y                  | Plutonium-238     | Pu-238  | 87.7 y                   |
| Chromium-51                                  | Cr-51  | 27.702 d                 | Plutonium-239     | Pu-239  | 2.41E4 y                 |
| Cobalt-57                                    | Co-57  | 271.8 d                  | Plutonium-240     | Pu-240  | 6.56E3 y                 |
| Cobalt-58                                    | Co-58  | 70.88 d                  | Plutonium-241     | Pu-241  | 14.4 y                   |
| Cobalt-60                                    | Co-60  | 5.271 y                  | Plutonium-242     | Pu-242  | 3.75E5 y                 |
| Curium-242                                   | Cm-242 | 162.8 d                  | Potassium-40      | K-40    | 1.27E9 y                 |
| Curium-244                                   | Cm-244 | 18.1 y                   | Praseodymium-144  | Pr-144  | 17.28 m                  |
| Curium-245                                   | Cm-245 | 8.5E3 y                  | Praseodymium-144m | Pr-144m | 7.2 m                    |
| Curium-246                                   | Cm-246 | 4.76E3 y                 | Promethium-147    | Pm-147  | 2.6234 y                 |
| Europium-152                                 | Eu-152 | 13.54 y                  | Protactinium-231  | Pa-231  | 3.28E4 y                 |
| Europium-154                                 | Eu-154 | 8.593 y                  | Protactinium-233  | Pa-233  | 26.967 d                 |
| Europium-155                                 | Eu-155 | 4.75 y                   | Protactinium-234  | Pa-234  | 6.69 h                   |

<sup>a</sup> m = minute; h = hour; d = day; y = year

<sup>b</sup> Reference: Chart of the Nuclides, 16th edition, revised 2002, Lockheed Martin Company

| Nomenclature and Half-Life for Radionuclides (cont.) |        |                          |                      |        |                          |
|------------------------------------------------------|--------|--------------------------|----------------------|--------|--------------------------|
| Radionuclide                                         | Symbol | Half-life <sup>a,b</sup> | Radionuclide         | Symbol | Half-life <sup>a,b</sup> |
| Radium-226                                           | Ra-226 | 1599 y                   | Thorium-234          | Th-234 | 24.10 d                  |
| Radium-228                                           | Ra-228 | 5.76 y                   | Tin-113              | Sn-113 | 115.1 d                  |
| Ruthenium-103                                        | Ru-103 | 39.27 d                  | Tin-126              | Sn-126 | 2.3E5 y                  |
| Ruthenium-106                                        | Ru-106 | 1.020 y                  | Tritium (Hydrogen-3) | H-3    | 12.32 y                  |
| Selenium-75                                          | Se-75  | 119.78 d                 | Uranium-232          | U-232  | 69.8 y                   |
| Selenium-79                                          | Se-79  | 2.9E5 y                  | Uranium-233          | U-233  | 1.592E5 y                |
| Sodium-22                                            | Na-22  | 2.604 y                  | Uranium-234          | U-234  | 2.46E5 y                 |
| Strontium-89                                         | Sr-89  | 50.52 d                  | Uranium-235          | U-235  | 7.04E8 y                 |
| Strontium-90                                         | Sr-90  | 28.78 y                  | Uranium-236          | U-236  | 2.342E7 y                |
| Technetium-99                                        | Tc-99  | 2.13E5 y                 | Uranium-238          | U-238  | 4.47E9 y                 |
| Thallium-208                                         | Tl-208 | 3.053 m                  | Xenon-135            | Xe-135 | 9.10 h                   |
| Thorium-228                                          | Th-228 | 1.912 y                  | Zinc-65              | Zn-65  | 243.8 d                  |
| Thorium-230                                          | Th-230 | 7.54E4 y                 | Zirconium-85         | Zr-85  | 7.9 m                    |
| Thorium-232                                          | Th-232 | 1.40E10 y                | Zirconium-95         | Zr-95  | 64.02 d                  |

<sup>a</sup> m = minute; h = hour; d = day; y = year

<sup>b</sup> Reference: Chart of the Nuclides, 16th edition, revised 2002, Lockheed Martin Company