

Rad Pro Calculator PDA for Pocket PC Updates

Version 1.0 (12-15-2006)

First release. Included unit conversions and decay and half-life.

Version 1.2 (1-13-2007)

Major upgrade. Added the most popular Rad Pro Calculator, gamma dose-rate and shielding.

Version 1.3 (1-20-2007)

Medium upgrade. Added the ability to calculate shield thickness from initial and desired dose-rates to the gamma calculator. Added additional error checking. Now you cannot type anything into answer boxes and you can only type needed characters into input boxes (no letter A but letter E for exponent is allowed).

Version 1.4 (4-7-2007)

Major upgrade. Added ALARA calculator. It includes the best of the gamma calculator, including shielding, and the Inverse Square Law calculator with the addition of dose limits and stay times. This includes the most common time, distance and shielding calculations done by ALARA engineers and emergency response personnel.

Added Cl-36, Ba-133 and Zr-89 to the decay calculator. Minor code fixes, including the Rb-83 gamma bug. Added Y-88, Zr-89 and I-124 to the gamma calculator. Fixed bug where actinium isotopes were listed twice in the decay calculator upon program startup.

Version 1.41 (5-6-2007)

Minor upgrade. Added Pa-233 to the Decay, Gamma and ALARA calculators.

Version 1.42 (7-2-2007)

Medium bug fix. On the gamma calculator, the ability to calculate activity from a known dose-rate was not functioning. Also the calculate shield thickness calculation was possibly slightly compromised. It is functioning properly now in this revision.

Version 1.43 (7-21-2007)

Medium bug fix. On the decay calculator, if the user selected the "Calculate Half-Life" option, the ability to type in the new activity was lost. It now works.

Version 1.44 (8-6-2007)

Minor upgrade. Deleted use of all energies below 18 keV in gamma fluence rate equations. Deleted the energies from both the Gamma activity \leftrightarrow dose-rate calculator and the ALARA calculator. Chart below shows which isotopes were affected and by how much.

mR/hr @ 1 foot for 1 mCi			mR/hr @ 40 feet for 10 Ci		
Isotope	Old	New	Isotope	Old	New
Co-57	0.99	0.53	Co-57	3.37	3.16
Zn-65	7.54	3.33	Zn-65	19.95	19.95
Pb-210	1.98	0.02	Pb-210	0.13	0.11
Pa-233	1.6	1.23	Pa-233	7.88	7.37
U-238	6.29	5.72	U-238	34.27	34.22
Am-241	1.61	0.18	Am-241	0.56	0.99
Cm-243	1.72	0.65	Cm-243	4.33	3.93

Version 1.45 (1-17-2008)

Minor upgrade. Added Pd-103 and Cs-131 to the gamma dose-rate-activity calculator and the ALARA calculator at the request of an oncologist. These are two either new or up and coming isotopes used therapeutically in brachytherapy seeds.

For right now, the software is on hold for major upgrades. I have changed careers and I now get my software creativity stimulated at work as a software engineer, allowing me to focus my spare time at home on music projects. Bug fix requests and minor upgrade requests, such as this one for adding new isotopes, etc will still be fulfilled.

Version 1.46 (4-23-2008)

Minor Upgrade. Fixed a bug in the Decay calculator. On Thallium-201, the decay time displayed as 72.91 Hourss. Since part of the formula choice is based on the time label, the extra s in Hourss made the calculation act erratically. Sometimes it would use the label from the last isotope used (Days, Weeks, Years) and sometimes it did not know what to use so the user got a divide by zero error (overflow or NaN for not a number). The label was corrected to read Hours and now TI-201 works just fine. Note that only TI-201 was affected by this bug.

Version 1.47 (5-10-2009)

Minor Upgrade. Added Ra-223 to the gamma calculator.

Version 1.48 (5-24-2009)

Minor Upgrade. Updated the energy spectrum for Mo-99 on the gamma and ALARA calculators.