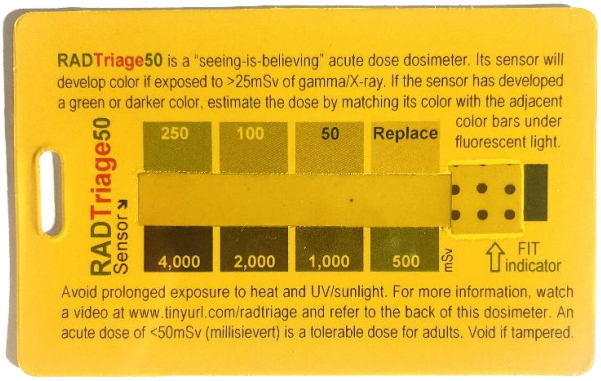
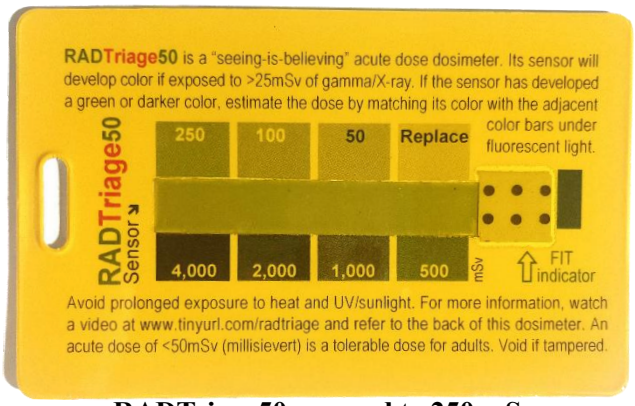
User manual of a family pack of one RADTriage50 and three RADSticker50

Scan QR code for a video

RADTriage, credit card sized (8.50cm x 5.40cm), and RADSticker50 (2cm x 3.30cm), a smaller version of RADTriage50, are "seeing is believing" acute doe radiation dosimeters. The dose range for RADTriage50 is wider, 50 mSv to 4,000 mSv, while that for RADSticker is 50 mSv to 500 mSv. "mSv" (millisievert) is a unit of radiation dose. Both dosimeters have the same sensor and FIT indicator. RADTriage50, which can be carried in a wallet or around a neck with a lanyard (not supplied), is more useful in an event of a nuclear explosion where one may get exposed to such high dosages while RADSticker can be applied onto a credit card, driver's license and IDs of family members for everyday use. Peel off the release liner from the back of RADSticker50 and apply anywhere you want. This family pack of one RADTriage50 and three RADSticker50 is jointly referred herein as SIRAD50 (Self-Indicating Instant Radiation Alert dosimeters having a lower limit of detection of 50 mSv) or dosimeters.



RADTriage50 Control



RADTriage50 exposed to 250 mSv

The sensors of SIRAD50 instantly develop a noticeable faint color if exposed to dose ≥50 mSv. Under normal circumstances, it is least likely that you will be exposed to an acute dose of 50 mSv (a tolerable dose, the lower limit of SIRAD50) in your lifetime unless you are near a major radiological incident, such as an accident at a nuclear plant or a nuclear explosion. SIRAD50 are for your "peace-of-mind" to know that you are not exposed to a harmful high dose and to minimize panic and worry. If one does not carry a dosimeter, one may become a dosimeter, i.e., a blood sample is taken to determine the dose. For useful information, watch a video at www.tinyurl.com/radtriage for RADTriage50 and ~~www.tinyurl/???~~ for RADSticker50.



Control



Exposed to 250 mSv

RADSticker50

Read and follow the instructions provided in the front and back of SIRAD50 and in this manual. SIRAD50 are personal casualty, acute dose emergency radiation monitors. They are intended to be used for monitoring a medically significant dose of 50 mSv (a tolerable dose for adults) or greater. 10,000 mSv is a lethal dose. SIRAD50 supplement but do not replace, any other radiation monitoring devices that a user may be required to use. Each SIRAD50 has two monitors: (1) a sensor (the rectangular strip in the center) which monitors ionizing radiations, such as gamma/X- ray, above 50 mSv (yearly allowed dose limit for occupational workers in USA) and (2) a FIT indicator (located at the end of the sensor with one or more dark dots) which monitors tampering, service life and the effects of undesired ambient conditions such as prolonged exposed to heat and UV/sunlight. When received, the area surrounding the dark dot(s) of the FIT indicator may have a slight coloration.

How to read the exposure/dose: SIRAD50 are always active and ready to use. They do not require a

battery or calibration. They have no moving or electronic parts. The sensors have a radiation sensitive coating which instantly develops color if exposed to gamma/X-ray & neutrons and the color intensifies with increasing dose. Color development is irreversible and cumulative. In the least likely event that the sensors of your SIRAD50 have developed a green or darker color, estimate the exposure dose (accuracy ~20%) by comparing the color of the sensors with the color reference bars printed on the sides of the sensors, preferably under a fluorescent light. If the sensors develop a color in-between any two adjacent reference bars, it indicates an in-between dose. SIRAD50 should not be used for monitoring dose below 50 mSv, even though it may indicate a lower dose.

Sensors' limitations: The sensors of SIRAD50 have the following major limitations and undesired properties:

i. the sensors will not monitor gamma/X-ray below 30 KeV, electrons/beta below 0.5 MeV and alpha particles,
ii. the sensors will not monitor X-ray dose from chest, dental or airport security X-ray machines. Multiple (e.g., ~50) exposures to such exposures and a few CAT scans may result in sufficient exposure to produce a detectable faint color in the sensors,
iii. the radiated sensors are bathochromic (i.e., they display different color shades under different lights). In the event SIRAD50 are exposed to >50 mSv, estimate the exposure under fluorescent light,
iv. the sensors have slight thermal reactivity and because of natural background radiation, an estimated service life of SIRAD50 is two years at room temperature (25°C/77°F). Avoid prolonged exposure to heat,
v. the sensors also develop faint color upon prolonged (e.g., a few days) exposure to sunlight. Avoid prolonged exposure to UV/sunlight, and
vi. cosmetic defects do not affect the performance of the dosimeters.

FIT Indicators: The sensors of SIRAD50 also develop faint color upon prolonged exposure to heat and UV light and hence SIRAD50 are equipped with an indicator called FIT for monitoring such exposures. If used as per instructions, it is least likely that the sensors will provide false positives or negatives. The FIT indicator simultaneously monitors (1) service-life and false positives from overexposure to heat & UV/sunlight which will be indicated by the darkening of the area surrounding its dark dots and (2) and in a least likely event, a false negative if the dosimeters are heated above 90°C/195°F.

The FIT indicator monitors many parameters simultaneously and therefore the uncertainty in monitoring the service life is high (~50%).

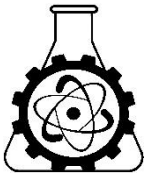
Service life: The estimated service life of SIRAD50 is two years at room temperature/25°C/77°F in the absence of contributions from other environmental effects such as prolonged exposures to heat and sunlight.

- Depending upon prolonged exposure to time, temperature above the room temperature, and/or UV/sunlight, the service life of SIRAD50 will be reduced proportional to the exposures.
- Service life of SIRAD50 can be extended to ~10 years if stored in a freezer below -15°C/5°F.
- If possible, keep RADTriage50 in a freezer in a plastic bag and carry RADSticker50.

When to replace? Replace SIRAD50 when: (i) the area surrounding the dark dots of the FIT indicator is noticeably darker than the color reference bars on their sides and/or (ii) after 2 years of use at ~25°C/77°F.

Additional information: For additional information or questions related to SIRAD50 visit *www.jplabs.com* or contact:

JP Laboratories, Inc.,
120 Wood Avenue
Middlesex, NJ 08846 (USA)
Phone: +1 732 469 6670
Email: sirad@jplabs.com



LIMITED LIABILITY: SIRAD50 are expected to perform as specified if used as recommended and instructions are followed. In an event that the products do not perform as specified, JP Labs will replace the products for the first year. JP Labs specifically disclaims all other warranties and liabilities expressed or implied. All warranties are null and void if (1) the area surrounding the dark dots of the FIT is noticeably darker than that of its color reference bar, (2) SIRAD50 are tampered with in any way and/or heated above 90°C.