

SGC Group, LLC

Radiation Dosimeter Badge

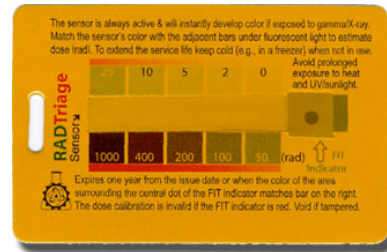
Prepared for: Distribution

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April 8, 2011

Proposal number: 002-08042011

Self-reading dosimeters are now included in the DHS's [FEMA Preparedness Grants and Authorized Equipment List](#). The DHS Authorized Equipment List (AEL) includes the RAD Triage 2.0 as Item 07RD-01-DOSS and is an allowable expenditure for DHS Grants.



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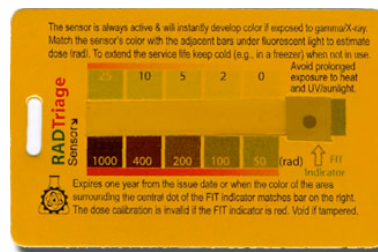
Radiation Dosimeter

- Instant detection
- No batteries needed
- No calibration needed
- Military grade
- Impervious to EMP
- Discreet and affordable
- Fits wallet or badge holder
- Made in the U.S.A.

A U.S. Military-grade personal dosimeter that instantly detects radiation exposure in the event of a dirty bomb, nuclear reactor accident and other sources of radiation. This always-on wallet card/badge radiation detector does not require batteries or calibration. The sensor bar instantly changes color when it detects harmful levels of radiation. The darker the sensor bar turns, the higher the radiation dose.

Objective of the RADTriage

The RADTriage 2.0, a stockpileable personal radiation detector, provides wearers, medical personnel and law enforcement personnel timely personal radiation exposure information in an event of a terrorist radiological incident or industrial accident. RADTriage 2.0, with the amber laminated filter, provides significantly longer life in direct sunlight. **RADTriage 2.0**, part of the **SIRAD (Self-Indicating Radiation Alert Dosimeter)** family of SMART dosimeters, is uniquely designed to prevent erroneous readings. It has a sensor (a rectangular strip between the color bars) with 0, 2, 5, 10 & 25 rads bars on its top and 50, 100, 200, 400 & 1,000 rads bars on its bottom for triaging information in emergencies. If, during or after the incident, the color of sensor has not changed, the wearer has not received radiation exposure large enough to cause acute medical effects and therefore has peace of mind. If the sensor changes color, radiation exposure is indicated. In this case, further exposure should be avoided. If the Sensor has developed a darker color, e.g., above 25 or 50 rads, the user should seek a medical evaluation. A person exposed to a dose higher than 50 rads should immediately contact the emergency room of the nearest hospital.



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Introduction

The RADTriage 2.0 (USP# 7,227,158 and others) is always active and ready to use. It is a smart dosimeter and has the capability of monitoring shelf life, false positives/negatives and tampering. When exposed to radiation, e.g., from a "dirty bomb", the sensor of the RADTriage 2.0 changes color instantly. The color changes are permanent, cumulative and proportional to dose, thereby providing the wearer and medical personnel instantaneous, easy to read information on radiation exposure of the wearer to assess the health risks and guide medical treatment.

Types of Radiation

The RADTriage 2.0 sensor responds to gamma/X-ray (energy higher than 30 KeV) and high energy (e.g., above 1 MeV) electrons/beta particles. Color development of the Sensor is essentially independent of dose rate. However, protective films attenuate low energy (below 200 KeV) X-ray. RADTriage 2.0 will not be affected by normal exposures to diagnostic X-rays (e.g., chest or dental) or security/airport X-ray/CAT scan machines, except that multiple exposures (more than five) to such will result in sufficient enough exposure to produce a detectable color change in the sensor.

How to Read Dose with RADTriage 2.0

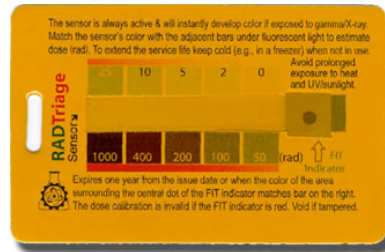
Estimate the exposure dose by comparing the color of the sensor with the Sensor Reference Bars. Find a bar which closely matches the color of the sensor and read the dose in rads/mSv printed adjacent to those bars. If the Sensor develops a color in-between any two adjacent bars, this indicates an in-between dose. For a nearly tissue equivalent dosimeter, such as RADTriage 2.0, 1 rad = 1 rem = 10 mSv. It can be viewed in any light. However, we recommend reading the dose under fluorescent lights for better accuracy. Color matching under other lights may not be as accurate. Dose can be estimated with an uncertainty of about 20% with a color-matching reference chart. Where additional accuracy is needed, a spectrophotometer or an optical densitometer can be used to determine the dose to within 10%.

False Positive and Tamper Indicators

If used as per instructions, it is unlikely that the RADTriage 2.0 will provide false positives or false negatives. Your RADTriage 2.0 is a SMART personal dosimeter, equipped with a simple-to-use revolutionary indicator for monitoring the deliberate or inadvertent exposure to high temperatures or ultraviolet light. We call it the FIT Indicator (**F**alse-positive, **I**nactivation and **T**amper) and it is located on the right hand end of the sensor. The FIT Indicator simultaneously monitors false positives & negatives, overexposure to heat & UV/ sunlight, shelf-life, inactivation and/or altered sensitivity.

Inactivation & False Negative Indicator:

If the central dot of the FIT Indicator is dark blue, the sensor is active, it is monitoring radiation and the calibration is valid. However, if it has changed to red, your RADTriage 2.0 has been heated near or above 175°F/80°C which has made the sensor inactive to radiation or of altered sensitivity to radiation. DO NOT USE the dosimeter if the central dot of the FIT Indicator is red. Turn the dosimeter in to the issuing organization with a description of the circumstances. The heat treatment can be used by medical authorities to fix the sensor for permanently documenting the radiation exposure as a part of a medical record.



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False Positive Indicator:

The shelf life (expiration date) of the dosimeter is based on storage of the RADTriage 2.0 at room temperature (77°F/25°C) or below and continuous protection from ultraviolet/sunlight exposures. Shelf life will be reduced if it is stored at higher temperatures and/or exposed to UV/sunlight for a prolonged period (e.g., more than a few hours of direct sunlight). The area surrounding the central dot should be lighter in color when issued/purchased. If it has developed a color matching or darker than the Color Reference Bar on its right, the shelf-life of the RADTriage 2.0 has expired; it was overexposed to UV light, and/or exposed to higher temperatures for a prolonged period. The sensitivity of the FIT Indicator to X-rays is hundreds of times lower than that of the sensor.

Shelf-Life

The sensor of the RADTriage 2.0 will develop color equivalent to about 1 rad in about one year if stored at 77°F/25°C. The shelf-life/guaranty of the RADTriage 2.0 expires one year from the issue date and definitely when the color of the area surrounding the central dot of the FIT Indicator matches or is darker than the Color Reference Bar on the right hand side. **However, the shelf-life of the RADTriage 2.0 can be extended to about five years if kept in a freezer until ready to use.**

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A Veteran's Administration verified Service Disabled Veteran Owned Small Business headquartered in Franklin, TN.

SGC Group specializes in supporting EOD, SOCOM and Law Enforcement communities with superior protocols, processes, training, devices and equipment.

