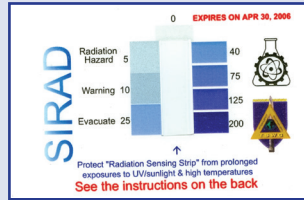


JP Laboratories, Inc. - SIRAD-TLD



GENERAL DESCRIPTION:

This is dual sensor dosimeter. SIRAD-TLD dosimeter offers the most desired properties SIRAD (instantly seeing the dose above 10 mSv) and TLD-dosimeter (measuring very low dose accurately). TLD - Thermo Luminescence Detector. SIRAD can monitor above ~10 mSv (+20%) visually and instantly. The TLD-dosimeter can monitor dose as low as 0.01 mSv (+7%) with a TLD reader. Both sensors (SIRAD/diacetylene and TLD/lithium fluoride chip) are tissue equivalent, light, rugged, can be carried 24/7, affordable and do not need a power source. The TLD-dosimeter can be reused many times and can be assigned to the user for a life time.



Highly sensitive lithium fluoride (LiF) TLD sensors (LiF:Cu,Mg,P or LiF:Cu,Na,Si) are used for SIRAD-TLD as they do not require metal filters for energy corrections. The TLD materials have a negligible effect of ambient conditions and an almost linear response with energy & dose. The TLD-sensor is very sensitive (LLD = 10 micro Sievert/0.01 mSv), the most widely used worldwide and a field proven technology over several decades. TLD readers and certified facilities to the dose are available worldwide for reading the dose.

The SIRAD and TLD sensors are small, pre-calibrated, rugged, sealed against moisture and contamination and further protected from ambient conditions in the pocket of the card. Each TLD-dosimeter and the RADTriage card have their own barcodes.

TECHNICAL DESCRIPTION:

The second sensor is TLD, Thermo Luminescence detector. Radiated TLD emits light proportional to dose. A reader is required to read the dose. Highly sensitive lithium fluoride (LiF) TLD sensors (LiF:Cu,Mg,P or LiF:Cu,Na,Si) are used for SIRAD-TLD as they do not require metal filters for energy corrections. The TLD materials have a negligible effect of ambient conditions and an almost linear response with energy & dose. The TLD-sensor is very sensitive (LLD = 10 micro Sievert/0.01 mSv), the most widely used worldwide and a field proven technology over several decades. TLD readers and certified facilities to the dose are available worldwide for reading the dose.

Tier Selection

Final tier assignment is based on overall product score.

- Top Tier
- Second Tier
- Third Tier
- ◐ Fourth Tier
- Bottom Tier

RANKINGS

| | Biological | Chemical | Radiological |
|------------------------------|------------|----------|------------------------------------|
| FIELD USE System | N/A | N/A | ● |
| MOBILE Laboratory | N/A | N/A | ● |
| DIAGNOSTIC Laboratory | N/A | N/A | ◐ |
| ANALYTICAL Laboratory | N/A | N/A | ◐ |

CONTACT INFORMATION

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COST

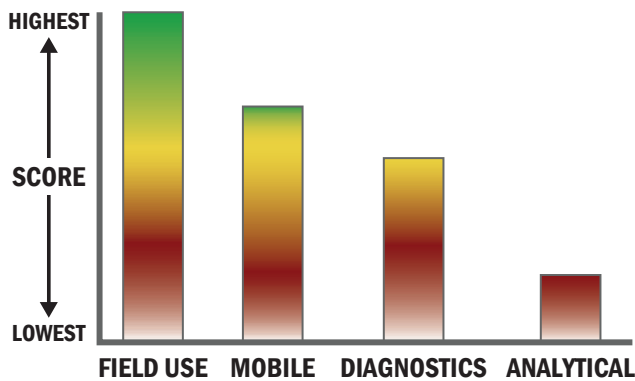
- \$25/system
- \$10/analysis

Survey Source

Vendor Supplied Information

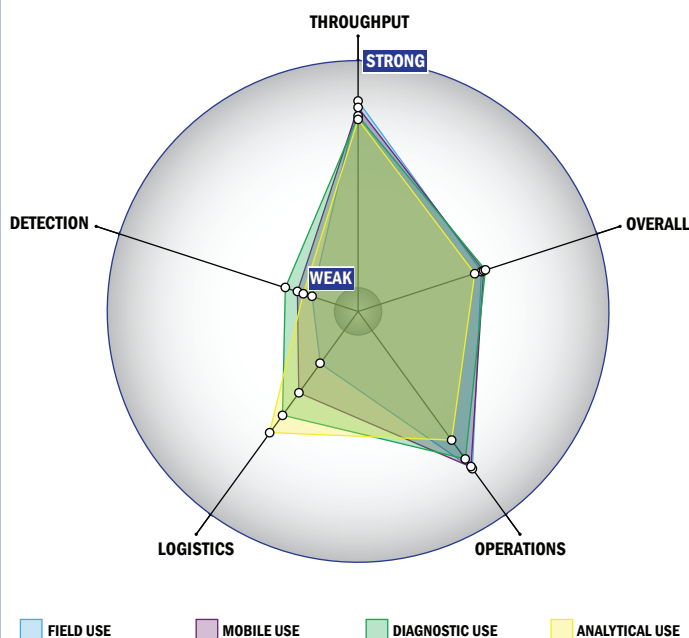
Scoring Analysis

System scores are compared across the four scenarios and ranked from highest to lowest.



Impact Chart

The Impact Chart is a spider graph representing specific categories and designed to give the reader a visual depiction of how a particular system is expected to operate across the four different scenarios. The score for each of the seven categories is presented as the percentage of the total possible score. Higher category scores extend the spokes of a graphic toward the outer edge of the chart. The area graphed for each of the four scenarios relates to how well the system performed in that scenario. Graphics for each of the four scenarios are super-imposed for ease of comparison.



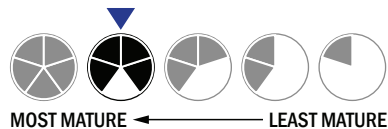
Evaluation Criteria

Throughput:

- Detection is instantaneous
- Continuous operation with no defined runs
- 95-32 samples every 2 hours
- The system or device is currently semi-automated
- Device or system is intended for multiple detection assays
- 0-1 solutions, buffer, eluents, and/or reagents
- 0 components
- No set-up of the system is required
- Automatic detection

Logistics:

- Very brief (minutes-hours) training and minimal technical skills
- This system is not capable of transmitting data
- There is no electrical requirement



Operations:

- Can be used from $< -21^{\circ}\text{C}$ to $> 42^{\circ}\text{C}$ (All temperatures)
- Performance is not influenced by relative humidity
- Between 1 to 3 years shelf life
- Results can be viewed in real-time
- The system or device is currently fully autonomous

Detection:

- This system does not test liquids
- System is used for personnel detection

