Chemring Detection Systems - PGR-1064™

GENERAL DESCRIPTION:

PGR-1064™ provides actionable data through handheld narcotic, explosive and chemical identification device that utilizes Raman spectroscopy. Solids and liquids are identified without sample preparation. The Raman 1064 nm wave source is not susceptible to water interference.

A key differentiator of the PGR-1064™ from other products is that it can prevent substance contamination and provide safety benefits because samples can be analyzed through clear and colored plastic and glass containers. Additionally, 1064 nm allows the detection of chemicals such as Semtex, degraded TNT and potassium permanganate that would otherwise be blind to fluorescence with the 785 nm wave source technology. PGR-1064™ can typically capture, analyze and identify a substance in less than 10 seconds.

PGR-1064™ Benefits Include:

- Lighted Screen
- Handheld Pistol Grip
- Immediate Start-up
- Straightforward Menu of Options
- Training in Under 1 hour
- Lightweight < 1.0kg
- Battery Life of up to 12 Hours

PGR-1064™ Technology Features:

- Identifies chemicals that are susceptible to fluorescence at 785nm
- Able to identify >5000 chemicals
- Expandable, customizable and qualified (by category) library
- Recordable spectra for further analysis and evidence retrieval
- Maximum potential discriminating power - Category A (DoJ Scientific Working Group)
- Quantifiable Results
- Mixture Analysis
- Ruggedized (Meets MIL-STD 810G, IP67 Compliant)

TECHNICAL DESCRIPTION:

PGR-1064™ Pistol Grip Raman's spectrometer identifies solid and liquid chemical samples with a typical analysis time of less than 10 seconds. From a composite database of over 5000 elements, PGR-1064™ identifies explosives, TICs, CWAs, and narcotics in fielded environments. The 1064 nm Raman laser mitigates both sample and background fluorescence, allowing PGR-1064 to reliably identify more substances in more situations.

PGR-1064™ utilizes Raman Spectroscopy and an onboard processor that compares the sample to the Raman signature compound library. Raman Spectroscopy is a precise and selective optical technique and is accepted by the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) as a Category A analytical technique. A correlation algorithm identifies the best match and notifies the operator of the result. PGR-1064™ screens through most common clear or translucent containers without opening the container or compromising the integrity of the sample.

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	🟢 (half)	N/A
ANALYTICAL Laboratory	N/A	⚪	N/A

Survey Source

Vendor Supplied Information
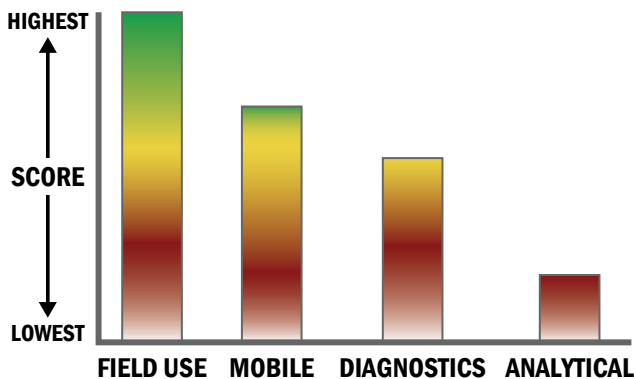
CONTACT INFORMATION

Chemring Detection Systems
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4205 Westinghouse Commons Drive
Charlotte, NC 28273

COST

- $32,500/system
- $0/analysis

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.


■ FIELD USE   ■ MOBILE USE   ■ DIAGNOSTIC USE   ■ ANALYTICAL USE
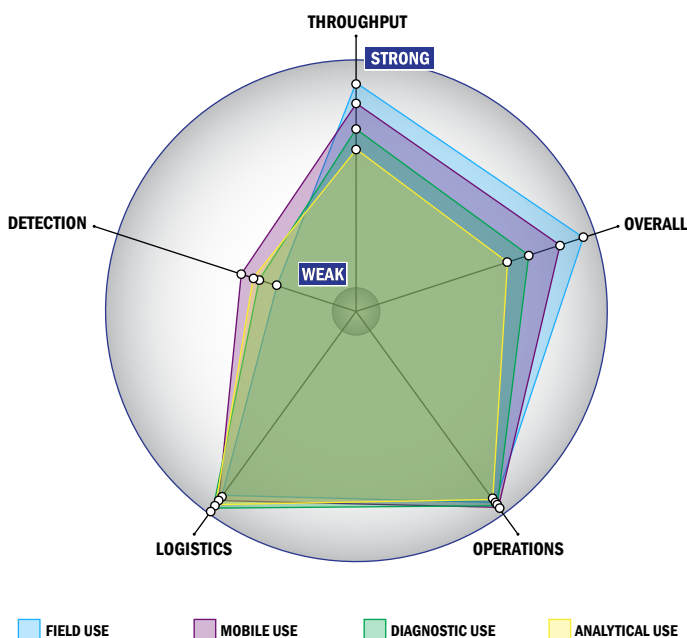
Evaluation Criteria

Throughput:
• Detection is instantaneous
• 1 sample, single test/sample per run
• 349-96 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
• 1-2 steps are required for detection

Logistics:
• Very brief (minutes-hours) training and minimal technical skills
• Approximately the size of a soda can
• Less than 1 kg
• Wired connections are available
• System or device uses batteries
• 4–8 hours battery life

MOST MATURE ◄———— LEAST MATURE
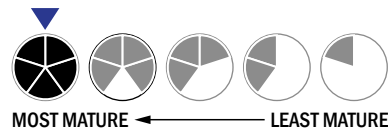
Operations:
• Can be used from < -21°C to > 42°C (All temperatures)
• This system does not require consumable components
• Performance is not influenced by relative humidity
• Greater than 10 years expected life
• Results can be viewed in real-time
• The system could easily be adapted into a fully autonomous system
• The system software is open and available for modification
• The system hardware is closed and not available for modification

Detection:
• Not possible for the system to achieve 510K clearance
• Not possible for the system to achieve FDA approval
• Less than 250 μl
• Excellent specificity. System has occasional false alarms under certain conditions (<2%)
• > 1 ppt
• Not possible for the system to identify aerosolized chemical agent
• System currently can identify liquid chemical agent