

Mine Safety Appliances Co. (MSA), Inc. - HAZMATCAD and HAZMATCAD Plus (Hazardous Material Chemical Agent Detector)



GENERAL DESCRIPTION:

The HAZMATCAD series instruments are designed to detect chemical warfare agents (CWA) and toxic industrial chemicals (TICs). This product was designed for 1st responder application for an easy to operate instrument that can quickly determine to threats are present.

TECHNICAL DESCRIPTION:

The HAZMATCAD series uses a hybrid configuration of electrochemical cell array for the detection of blood (HCN), choke (COCl₂), halogens (Cl₂) and (Br₂) and hydride gases (arsine, phosphine). It also use surface acoustic wave array for chemical agent detection.



CONTACT INFORMATION

Mine Safety Appliances Co. (MSA), Inc.
1000 Cranberry Woods Drive
Carnberry Township, PA 16066

COST

- \$8,000/HAZMATCAD Plus system; \$5,500/HAZMATCAD system
- <\$1/analysis

Tier Selection

Final tier assignment is based on overall product score.

- Top Tier ● Second Tier ● Third Tier
● Fourth Tier ● Bottom Tier

RANKINGS

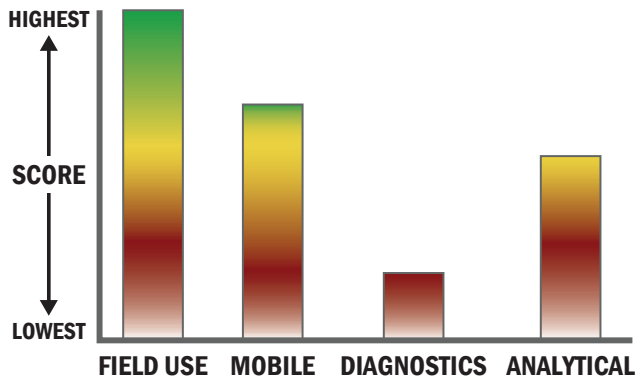
	Biological	Chemical	Radiological
FIELD USE System	N/A	●	N/A
MOBILE Laboratory	N/A	●	N/A
DIAGNOSTIC Laboratory	N/A	●	N/A
ANALYTICAL Laboratory	N/A	●	N/A

Survey Source

Vendor and Internet Supplied Information

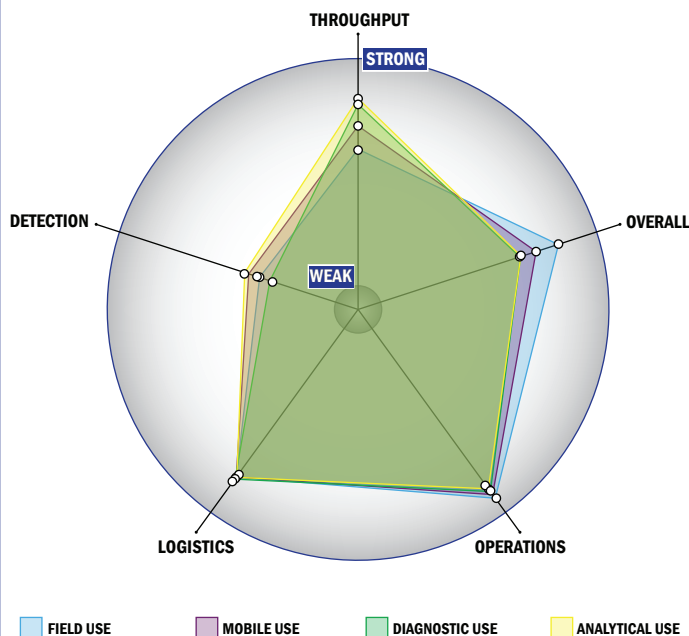
Scoring Analysis

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.



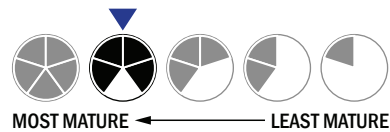
Evaluation Criteria

Throughput:

- 2 minutes or less for detection
- Multiple samples, multiple tests/sample per run
- System is continuous and provides real time analysis with no defined tests/samples
- The system or device is currently fully automated
- Device or system is intended for multiple detection assays
- 0-1 solutions, buffer, eluents, and/or reagents
- 1 component
- 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
- Wireless and wired connections are available
- System or device uses batteries
- 4-8 hours battery life



Operations:

- Can be used from -21 °C to 41 °C
- Performance is not influenced by relative humidity
- Between 1 to 3 years shelf life
- 3-5 years expected life
- Results can be viewed in real-time
- The system or device is currently fully autonomous
- The system software is open and available for modification
- The system hardware is open and available for modification

Detection:

- This system does not test liquids
- Superior specificity. System has a false alarm rate approaching zero (~0%)
- $>1 \times 10^{-3} \text{ mg/m}^3$
- 1 ppb-1 ppm
- Possible system could identify liquid chemical agent