Application Note RAD9110

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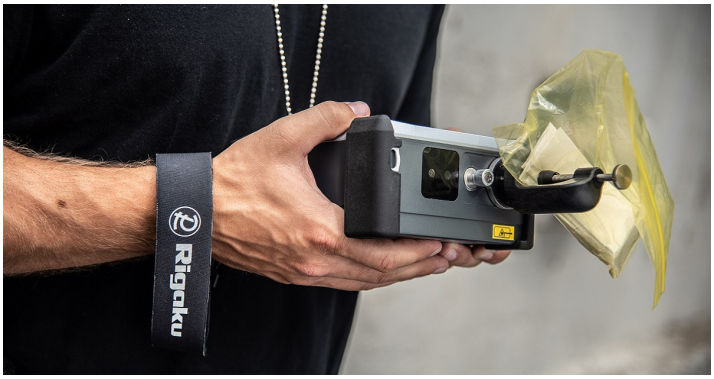
PRESUMPTIVE FIELD TESTING NARCOTICS-EXPLOSIVES-CHEMICAL WARFARE AGENTS

Introduction



Traditional testing techniques for illegal and illicit materials can be time consuming, with samples required to be sent to off-site analytical laboratories. Results typically take days to months with the resultant time to conviction being placed on hold to await the lab results. Additionally, laboratory analysis requires the use of trained personnel, costly analytical instruments and expensive consumables and chemicals.

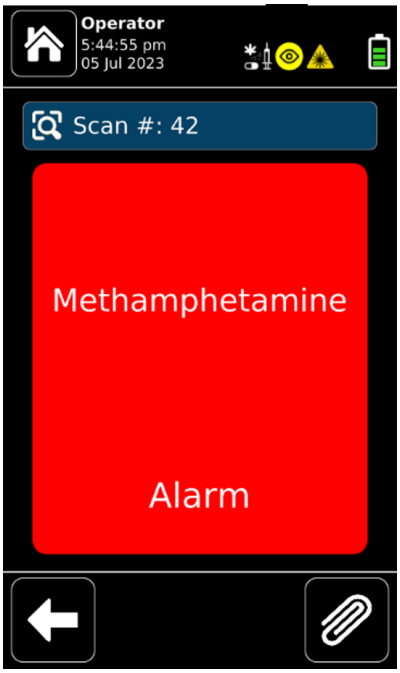
The advent of on-site chemical kits attempted to address the backlog and slow time of analysis by taking some of the chemical testing to the field. However, the chemical kits themselves tend to not be specific enough and suffer from high false positive rates which place an additional burden on the judiciary process. Further, colorimetric testing is considered a Class C designation by the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG), and thus requires an additional, testing technique. Additionally, these tests can be destructive to the sample or require exposure by the user, which poses potential hazardous sampling issues and are subject to user interpretation.

Raman spectroscopy is a well-established technique widely used in the pharmaceutical, chemical and safety & security areas. In safety & security environments, the use of handheld Raman instruments has revolutionized presumptive field testing of various chemical threats. Overall, the use of handheld Raman instruments has resulted in faster response times for on-site analysis by first responders - helping them resolve potential hazardous situations rapidly and safely. Further, SWGDRUG recognizes Raman spectroscopy as an analytical technique with the highest potential discriminating ability for the detection and identification of narcotics (Class A analytical technique).[1]

Optimized Technology for use in the Field

With the advent of portable field instruments, many of these issues that included timely and costly analysis, as well as subjectivity of the user, have been removed. The Rigaku CQL Series of handheld 1064 nm Raman analyzers include the CQL Max-ID,™ CQL Gen-ID,™ and CQL Narc-ID,™ and provide rapid, on-site identification of narcotics, explosives, chemical warfare agents, as well as other chemical threats - for any budget. Testing can be done through translucent packaging, with results in about one minute or less. Rigaku analyzers include an on-board library that is updated regularly, with access to a library management system by the user.

Features of the Rigaku CQL Series include an on-board camera for capturing evidentiary images for reports, as well as a fleet management system for departments that have multiple units used in the field. Unique features include 4C™ Technology - automatically warns the user of individual scan results for potential recipe combinations, and QuickDetect™ Mode - provides the ability to scan non-visible substance.



Methamphetamine result using a Rigaku 1064 nm Raman analyzer.

Conclusion

Designed for the non-scientist with results that are easy to interpret, Rigaku's 1064 nm handheld Raman analyzers enable first responders to respond quickly and confidently to unknown chemicals. The rapid response time, easy operation, and ability to scan through packaging, demonstrates how the Rigaku CQL Series are the tool of choice for presumptive analysis in the field.

References

1. SWGDRUG Recommendations Version 7-1, 2016 June 9. Retrieved from http://www.swgdrug.org.

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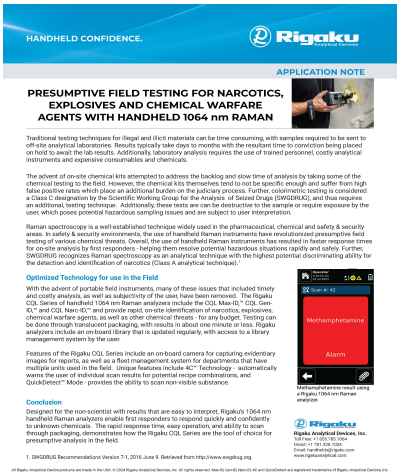

HANDHELD CONFIDENCE.

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APPLICATION NOTE

PRESUMPTIVE FIELD TESTING FOR NARCOTICS, EXPLOSIVES AND CHEMICAL WARFARE AGENTS WITH HANDHELD 1064 nm RAMAN

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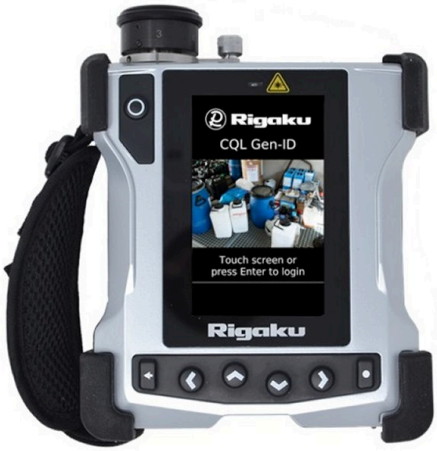
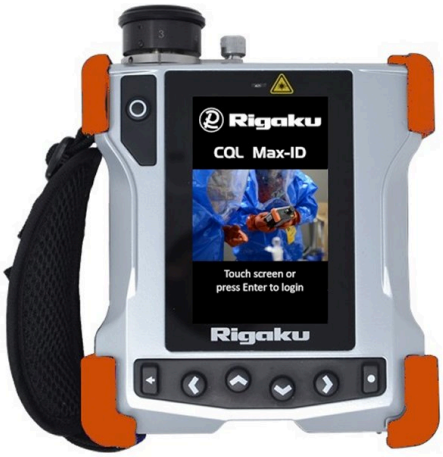
Related products



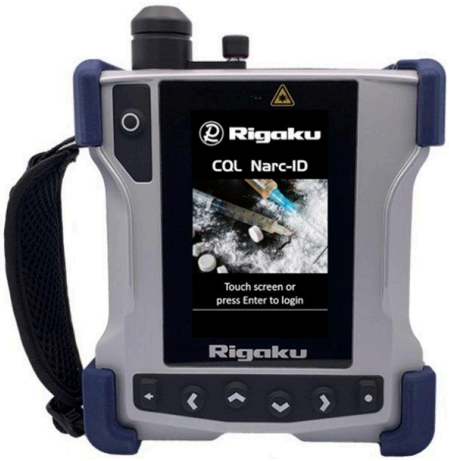
CQL Gen-ID

A cost-effective solution for departments looking for target ed chemical threat analysis



CQL Max-ID

Offers features and benefits that maximize chemical threat analysis in safety and security applications



CQL Narc-ID

Provides presumptive identification of narcotics, precursor chemicals, and cutting agents