

Building Your Recon Toolbox



“No Incident Commander should send a reconnaissance team downrange without all of the necessary tools to safely assess the environment they are about to enter. Now there is another, more effective tool that needs to be on that list...the XplorIR.”

- **BRANDON GAYLE**, HAZMAT LIEUTENANT
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Introduction

When considering what instruments and technologies to deploy for reconnaissance on a hazardous materials incident, one must first consider what hazards that could be encountered. Flammability, toxicity, corrosivity, reactivity and radioactivity are the five chemical hazards that should be considered for any unknown atmosphere. Traditionally, most teams will make an initial entry with no less than a 4-gas, PID (or 5-gas), gamma detector, temperature gun, and various colormetric papers to try and assess any of the five potential hazards above. There are, however, some limitations to this assembly of technologies.

Problem

All current air monitoring technologies (e.g. PID, Catalytic Bead LEL, Electrochemical, and colormetrics) have cross-sensitive gases and vapors that could give vastly different results on each of the sensors or papers. Because of this, most teams will set action levels for each sensor that includes turn-backs, donning of respirators, or a change of personal protective equipment. Unfortunately, these action levels are typically based on commonly encountered contaminants, not worst case scenarios. The reason for this is if every action level was based on worst case, no



responder would ever make entry and that would be an untenable situation as someone has to mitigate the incident.

Solution: A New Recon Technology

A logical addition to this set of reconnaissance tools is the new RedWave XplorIR. With the addition of real-time gas and vapor identification, the threat of cross-sensitive false readings on traditional sensors is no longer an issue. A responder could, within 20 seconds, know what gas or vapor is present and, based on published exposure guidelines, do a more rapid risk assessment and determine if moving forward is reasonable and safe, or make the decision to fall back and change to a higher level of protection. The XplorIR would allow correlation factors to be



used on the LEL and PID readings, understand if there are cross-sensitive gases detected on their CO, H₂S or O₂ sensors, and actually identify what is causing a color change on their pH, KI or Fluorine papers.

A Key Tool for Downrange Air Monitoring

Our industry has never had a technology available that would identify chemicals in real-time like Hydrogen Fluoride, Hydrogen Chloride, Nitric Oxide, Ethylene Oxide, Phosgene, Phosphine, Sulfur Dioxide, and the list goes on. Another common hazard that is often overlooked is the prevalence of Carbon Dioxide in public spaces. A leaking CO₂ dewar inside of a restaurant poses a tremendous hazard as this is an Oxygen displacing, acid gas that has a cross-sensitivity to O₂ sensors and can give false, normal O₂ readings in an oxygen deficient atmosphere. This scenario has nearly killed several responders and patrons.

With the addition of the XplorIR to our standard recon tool set, we would be able to better assess

these environments and make quicker, safer decisions about the environment. In my opinion, no Incident Commander should ever send a reconnaissance team in without all of the necessary tools to safely assess the environment they are about to enter and now there is another, more effective tool that needs to be on that list...the XplorIR.

In collaboration with:



"...training those that protect."

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