

# Hotzone Identifier Explosives Kit

## On-the-Spot Information

The Hotzone Identifier Explosives kit enables rapid assessment and identification of explosives and their precursors. Easy to use, rugged and reliable tools provide the user with information on homogeneity, sensitivity to impact and flammability of the tested materials.

The number of specific and generic analytical assays identifies commercial, military and homemade explosives (HME) and components. The kit is self-contained and features the step-by-step field guide in colour.

The Hotzone Identifier Explosives kit features a set of tools and procedures to provide its user with the critical information on the unknown substances flammability, explosive behaviour, acid- base properties, aggressive/corrosive behaviour, reactivity with water, relative solubility and density. Wet and strip tests detect explosive fuel precursors such as hydrocarbons, carbohydrates, heavy metals, sulphur and phosphorus. Oxidiser tests identify species known to be used with the explosive mixtures. Specific analytical assays target ammonium nitrate based explosives (ANAL, ANFO, ANS), PETN, RDX, TNT, Semtex, C3, C4, HMX, urea nitrate, chlorates, and azides.



Responders faced with an apparent, but not entirely characterised explosive threat have several options to consider. Waiting on the scene increases risk and delays decision making, therefore a fast action is the prerequisite. “Blow in place” practice with unknown chemicals could bring safety issues, bad public relations and it destroys the forensic evidence.

Identifying the explosive components means understanding the threat, retaining the evidence and assuming the operations. On the spot analysis is preferable, since collection and transport of samples for the off-site identification is time consuming. Portable Raman and FTIR chemical analysis devices have caused a paradigm shift in field identification tactics. However, both technologies have limits and their use on unknown, potentially explosive materials bears safety concerns.

The Raman technology commonly utilises a 785 nm laser, which can heat and eventually ignite some energetic materials. FTIR may require pressing of a powder sample to the sensor. A number of primary explosives are shock sensitive and easily detonate under pressure. The sample may be a complex mixture containing heavy metal powders, hydrocarbons, carbohydrates, plastic binders and plasticisers, all interfering with the Raman and FTIR identification.



The Hotzone Identifier Explosives kit ideally complements both technologies as it allows for rapid assessment of shock sensitivity and thermal hazard of the materials, providing safety protocols to the operators. The specific analytic assays enable quick identification of the explosives not amenable to the Raman and FTIR. All tools from the Explosives kit are carefully selected to be used with the potentially sensitive materials. The kit is self-contained with the reagents, test strips and utensils provided in sufficient quantities to last for relatively large number of tests.

