

Liquid and homemade explosives

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Abstract: *Improvised Explosive Devices (IEDs) pose a threat to both military forces deployed in foreign regions and to civil society. The threat from military and commercial explosives used in IEDs has shifted to homemade explosives (HMEs). Examples of liquid explosives, solid explosives and explosive mixtures used as HMEs are presented. Properties of importance for detection of these energetic species are listed and described. Some examples are provided. Vapour pressure, performance, density, elemental composition, detonability, ignitability, sensitivity, stability, chemical reactivity, UV absorbance, mass spectrum, IR and Raman absorbance, dielectric constant, purity, viscosity, particle adhesion and particle size are factors affecting the probability of detecting an explosive compound and have to be considered when developing and designing novel detection methods and instrumentations, but also when improving existing techniques and methods for explosives detection. Disposal personnel (military IEDD/EOD, 1 police bomb disposal) also have to consider many of these properties when handling HMEs, in order to reduce risks during transportation and disposal.*

Today, Improvised Explosive Devices (IEDs) pose a serious threat to the military forces in Iraq and Afghanistan [1]. In the military conflict zones, military explosives are frequently being used in IEDs, but the threat from homemade explosives (HMEs), however, is always present. In civilian society, IEDs has shifted from commercial and military explosives to the use of HMEs. The latest events in London in July 2005 [2] and the terrorist plot arrests in UK in August 2006 [3] have showed that there is a significant threat from liquid and homemade explosives. Organic peroxides have been used in attacks with HMEs in Scandinavia. Methyl Ethyl Ketone Peroxide (MEKP) is believed to have been used in Vantaa, Finland, in 2002, when an IED was detonated in a shopping mall, killing the perpetrator and six other, innocent people [4]. In Sweden and Denmark, Triacetone Triperoxide (TATP) is troubling the police bomb disposal personnel when found at miscellaneous crime scenes [5]. The way perpetrators use liquid or solid explosives or explosive mixtures is widening and the challenge for society is to detect these energetic compounds before they can pose a threat to civilians, rescue services, police or military personnel.

References

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