

	<p>“Secure societies – Protecting freedom and security of Europe and its citizens”</p> <p><b>Expression of Interest</b>  rafael.cuesta@seadm.com  <a href="http://www.seadm.com">www.seadm.com</a></p>
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<p><b>TOPICS OF INTEREST:</b></p> <ul style="list-style-type: none"> <li>✓ <u>SEC-11-FCT-2016</u>: Detection techniques on explosives: Countering an explosive threat, across the timeline of a plot</li> <li>✓ <u>CIP-01-2016-2017</u>: Prevention, detection, response and mitigation of the combination of physical and cyber threats to the critical infrastructure of Europe.</li> <li>✓ <u>SEC-05-DRS-2016-2017</u>: Chemical, biological, radiological and nuclear (CBRN) cluster</li> <li>✓ <u>SEC-08-FCT-2016</u>: Forensics techniques on: a) trace qualification, and b) broadened use of DNA</li> </ul>
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**1. SEADM: Excellence in Trace Detection and Analysis**

SEADM, (*transl. European Society of Differential Mobility Analysis*) is a Spanish **SME** developing and commercializing advanced instruments based in proprietary ion mobility spectrometry techniques (see Annex I), for the detection and chemical analysis of vapours at trace levels for the security, health and environmental markets.

The main area of expertise is **explosives detection by trace vapours**, in which we have obtained outstanding results:

**SEADM’s vapour analysis system has achieved the lowest limits of detection for explosives including a figure as small as 0.01 parts per quadrillion (0.01 ppq) for RDX**

This unparalleled performance has enabled us to work with a range of well-reputed collaborators and customers, including national laboratories and agencies, particularly for the detection of hidden explosives in cargo (see Fig. 1).


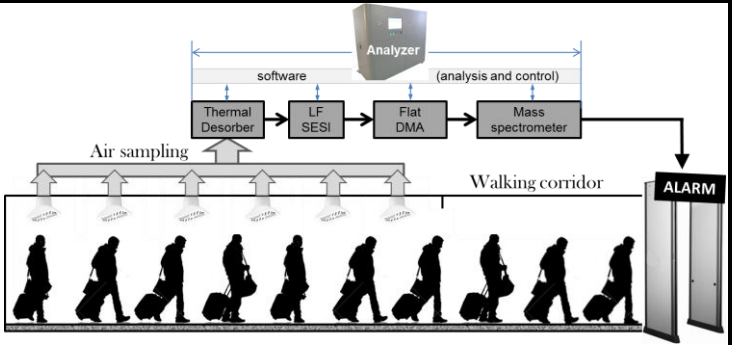




**Fig. 1 Some of the references of SEADM in the framework of explosives detection**

									
 <b>UK</b>	Defense Science and Technology Laboratory	 <b>FR</b>	Service Technique de l’aviation civile	 <b>GER</b>	Federal Police Technology Centre	 <b>ISR</b>	Israeli Security Agency	 <b>HOL</b>	TNO (Reference laboratory)

**2. Applications**

The extraordinary flexibility of our vapour analysis technology (See Annex I), actually decoupling the sampling (which can be mobile) and the analysis stages as well as its unbeatable performance, enables its use for a wide range of explosives detection applications, as shown in Figure 2.

**Fig. 2 Some application examples of SEADM’s vapour analysis system for hidden explosives detection**

	
<p><b>Cargo</b></p>	<p><b>Passengers at the entrance of airport terminals</b></p>
<p>The equipment is currently undergoing certification within the H2020-SME project <a href="#">ACES</a></p> 	<p>Delivering maximum performance (highest probability of detection and lowest false alarm rate) without slowing passenger flow down (confidential results). Besides, a similar application can be used for the control of cars entering the terminal using external sampling.</p>
	
<p><b>Cars (for example, entering critical infrastructures)</b></p>	<p><b>Buried mines, hidden explosives in buildings</b></p>
<p>Example of application: EFFISEC project           Click <a href="#">here</a> for informative video          (information of the system goes from 4:03 to 4:50)</p>	<p>Collaboration with the Spanish army through the affiliated company SEDET. Learn more about this application <a href="#">here</a></p>

Similar applications can be seemingly developed for trace analysis in the framework of forensics.

**By joining SEADM in, your project will benefit from the most powerful technology currently available for trace chemicals detection and analysis**

**ANNEX I: Our Technology in brief**

The outstanding performance of our equipment is based upon the Differential Mobility Analyzer (DMA) cell coupled with mass spectrometry (MS), allowing the separation of substances from complex matrices in real time, with excellent transmission (> 50% vs. other IMS-based competing technologies of just 0.01%) and limits of detection in the sub-ppq range.

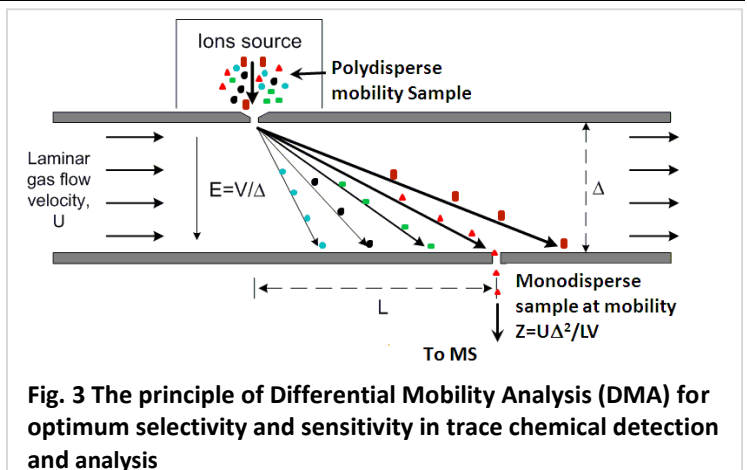
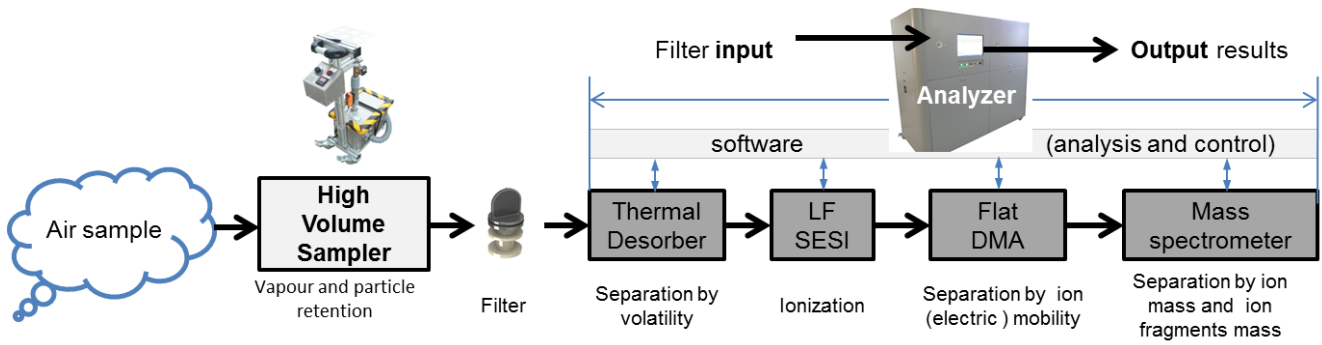


Figure 3 shows the principle of operation of the DMA cell, whereas Figure 4 shows the operation of the complete system. To learn more about our technology, click [here](#).

**Fig. 4 SEADM’s vapour analysis system**



**Interested?**

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