

Thermal Desorption Inletting for Portable Mass Spectrometers

Stuart Cairns,

DSTL, Fort Halstead, Kent, TN14 7BP, UK

A number of different sample collection and analysis techniques are available for field analysis using commercial portable mass spectrometers. There is however no widely available technique for the simple collection and analysis of contamination on surfaces using wipes. This type of technique is widely available for ion mobility spectrometry type equipments, and is often used for wiping/swabbing of baggage in airports. This sample collection technique offers quick, cheap and simple sampling of contamination on surfaces that are hard to collect by other techniques. Thermal desorption (TD) is the most common method for the analysis of surface wipes. The difficulties of attaching an efficient TD device to a portable mass spectrometer with size and power limitations will be discussed. This will also be linked with the need for separation of sample after TD and prior to mass spectral analysis. The preliminary results from the coupling of a thermal desorption inlet to a commercial portable ion trap mass spectrometer will be shown and discussed. A comparison of TD desorption of wipes followed by sample separation, with new soft ionisation surface sampling techniques such as desorption electrospray ionisation (DESI) and direct analysis in real time (DART) will be made.