

## E2M – The Enhanced Environmental Mass Spectrometer: Case Studies using the Mobile MS

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E2M is a compact robust quadrupole mass filter with a membrane inlet. It has been designed for mobile application. It affords reliable identification of organic compounds in solid, liquid or gaseous samples. The instruments air/surface probe provides fast results in monitoring modes. Combined with a gas chromatograph over the complete E2M system delivers a versatile field deployable GC/MS capability. Non-complicated controls and data acquisition enhance the instruments ease of operation. Data evaluation is fully automated. User configuration enables several spectra libraries to be selected for substance identification.

The ruggedized instrument can be installed on a vehicle and run from the vehicles power supply. Typical applications are environmental protection, mobile on-site analysis, event monitoring, first responders or homeland defence.

Applications range from direct surface sampling allowing rapid identification, for a multitude of drugs using the air/surface probe or identification of drugs in complex mixtures using the GC oven. Compared to quick tests the latter method is not limited to substance specific reactions. Thus the constitution of different drug compositions (thinned down compounds, impurities etc.) can be clarified. Other applications include on-site analysis of volatile organic compounds in soil and air, carried out at a ground polluted site caused by industrial processes. E2M with mounted GC oven in thermodesorption mode was used to analyse air from a dump trapped on TENAX®-tubes. Different volatile substances were detected and identified using the NIST library. At another former industrial site soil samples from drill cores were analyzed using direct application of the air/surface probe. Several chlorinated solvents could be detected.