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A COMPARISON OF CI MODES AND APPLICATIONS ON ION TRAP AND QUADRUPOLE GCMS

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Gas phase ionization of sample molecules or Chemical Ionization has been extensively studied over the last 40 years and is now used as routine analytical technique in GCMS

This paper examines and compares some of the different modes of CI on both ion trap and quadrupole benchtop GCMS instruments including a new mode of hybrid CI.

Ion trap instruments have flexibility in the modes of CI possible. On internal ionization traps trap the use of liquid CI reagents is possible for PCI and reagents such as methanol and acetonitrile have proven to be useful for both structural elucidation of compounds such as fatty acids as well as in routine quantitative analyses of drugs and environmental materials.

Ion trap GCMS now has a new form of CI available – named “Hybrid CI”.

In hybrid CI ionization of the reagent occurs in the external ion source, the reagent ions are transferred into the trap where the gas phase ion/molecule reaction occurs in the ion trap. This allows unique selectivity of reagent ions and reaction times. Applications of this technique will be shown.