# On-site Applications of MIMS and the Importance of Interface Design as Exemplified by Highly Unusual "Fragments" in MIMS Mass Spectra of Chloramines and Bromamines

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This talk will give an overview of MIMS applications for analyzing gaseous, liquid and solid samples for both volatile and very low volatility analytes. The focus will be upon the different interface designs needed for the different sample types and a number of industrial on-site uses will be presented using a MIMS instrument that can simply and in the field be shifted from one type of interface to another.

The talk will in detail discuss an example, where a "standard" flow through MIMS system previously used with success for analyzing volatile organic compounds in hundreds of applications behaved in an un-acceptable way with a new type of analytes. Under certain ion source and interface setups the analysis of haloamines (monochloramine, dichloramine, monobromamine and dibromamine) gave rise to mass spectra, where unusual "fragment" ions corresponding to pick up of 1 or 2 atomic hydrogen radicals (H•). Most prominent were the "fragment" ions at m/z 52 $[NH_3{}^{35}Cl]^+$ and m/z 54 $[NH_3{}^{37}Cl]^+$ from dichloramine ($NHCl_2$) and at m/z 96 $[NH_3{}^{79}Br]^+$ and m/z 98 $[NH_3{}^{81}Br]^+$ from dibromamine ($NHBr_2$).