

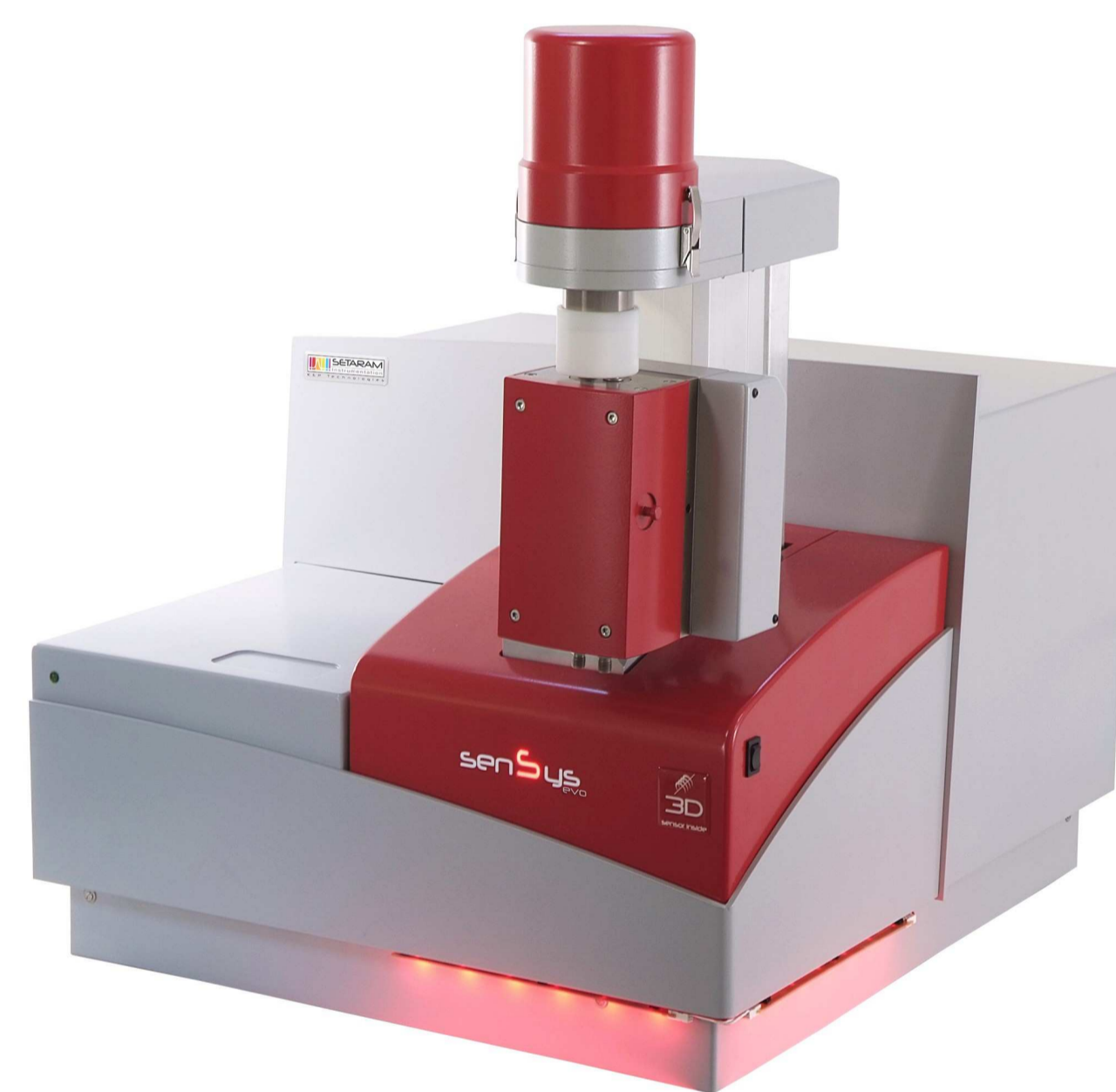
VistoMS: an innovative coupling between thermogravimetric analyzers and high resolution mass spectrometer

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INTRODUCTION

The combination of a thermogravimetric technique with a gas analyser, such as a quadrupole mass spectrometer, allows the detection of gases emitted by the sample during its heating. This kind of coupling is particularly well suited for the detection of permanent gases as CO, CO₂ or H₂O... Infrared detection is another solution which can be also limited. Interpretation of results can also be highly complex. Therefore, analysis in real time can become a fastidious task.

VistoMs, an innovative coupling between Setaram thermogravimetric analysers (Labsys evo, Setsys Evolution, Sensys evo) and an AlyXan high resolution mass spectrometer (B-trap), has been developed to solve this problem of gas identification. This solution offers the possibility for an easy real time monitoring of traces of volatile organic compounds emitted by the sample. This is an essential information for a better comprehension of the thermal phenomenon.



INSTRUMENT

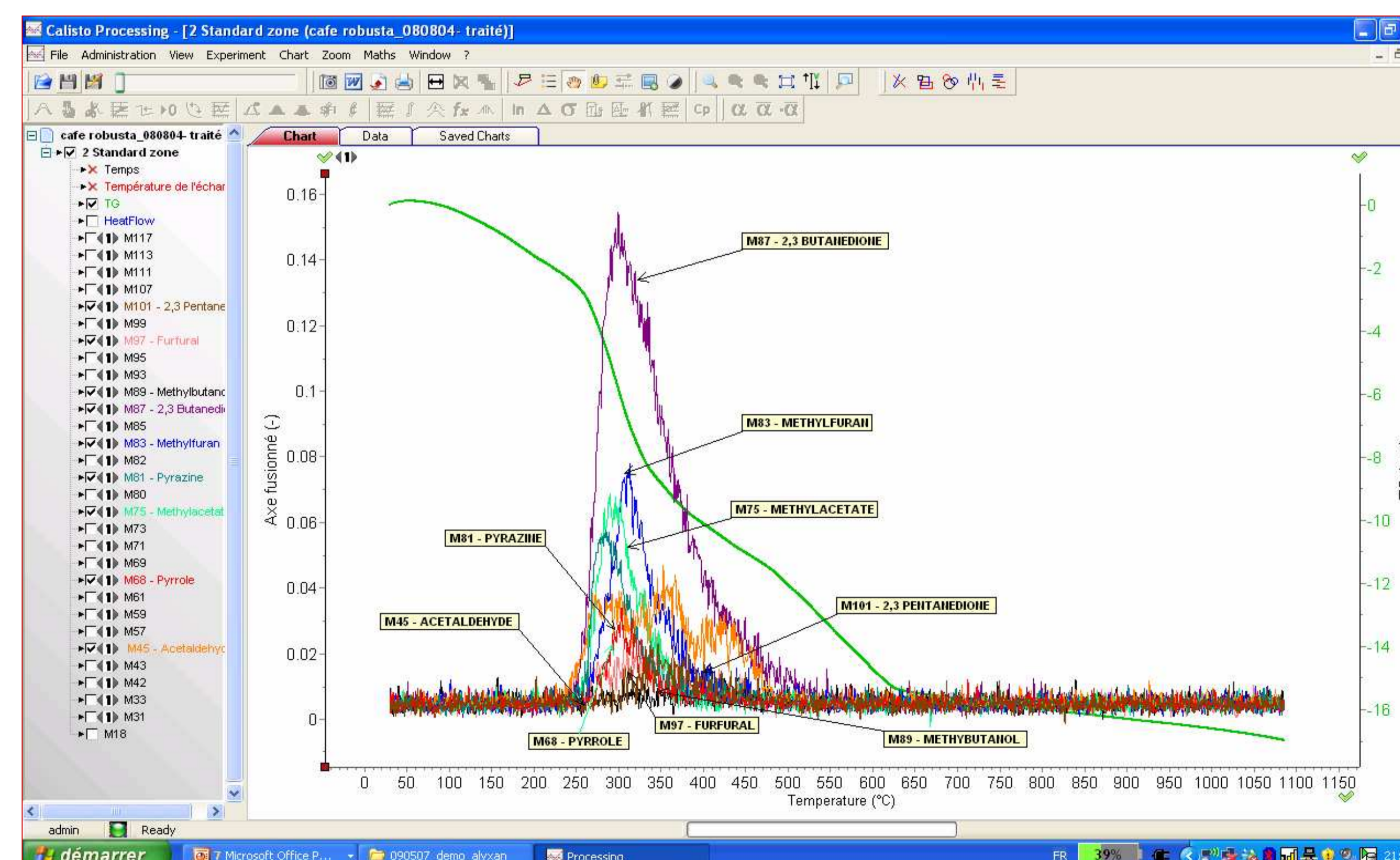
The B-Trap technology is based on Fourier Transform Ion Cyclotron Resonance – Mass Spectrometry (FTICR – MS) technology. The coupling with the thermogravimetric analyzers have the following advantages:

- High mass resolution and precision (0.01 amu) } **Identification of the molecular formulas**
- Chemical ionisation methods }
- Simultaneous detection of all the VOCs } **Realtime monitoring, screening**
- Quantitative measurement } **Absolute quantification**

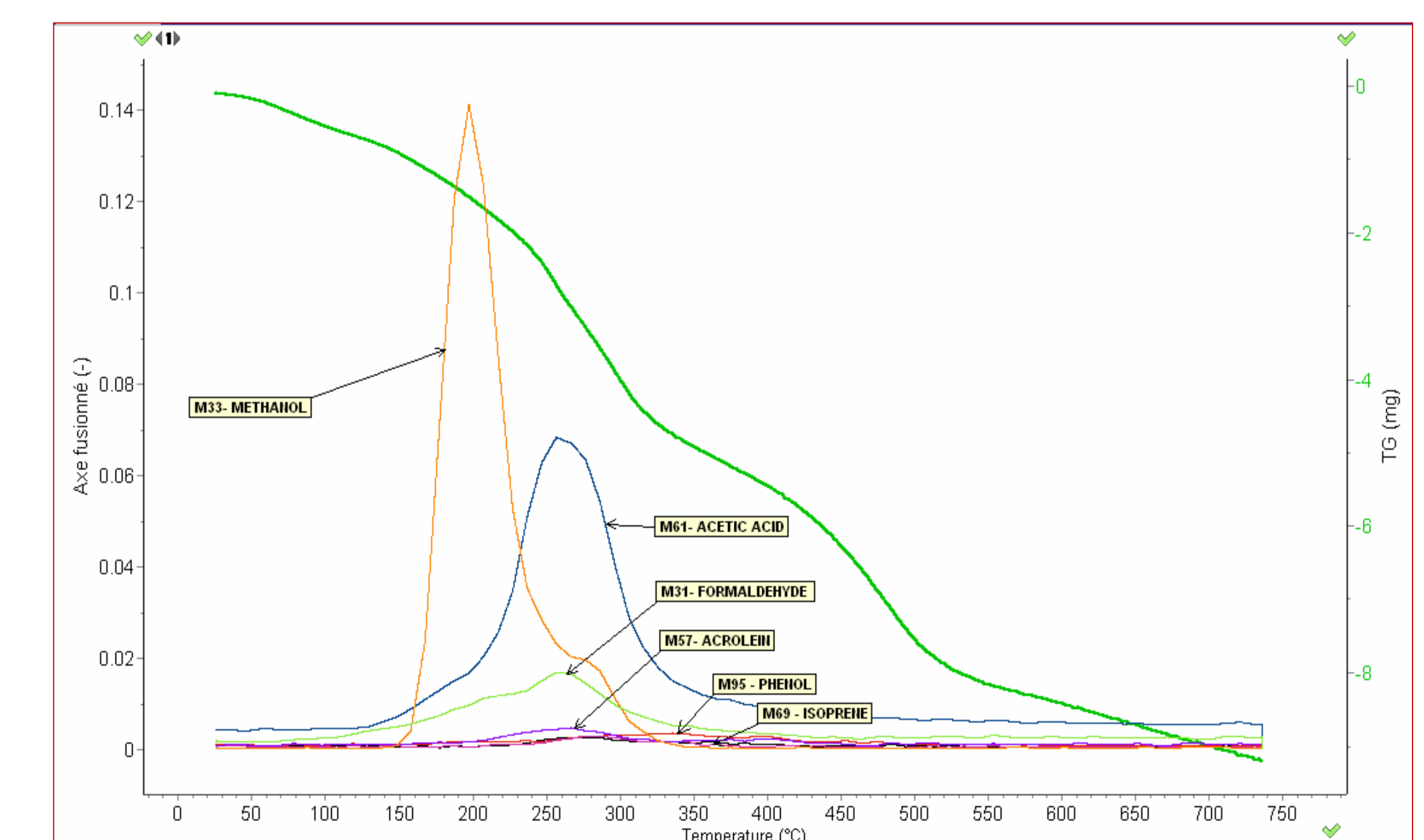


APPLICATIONS

- Direct attribution of the molecular formula of each compound present in the gas evolved (examples with coffee and tobacco)
- Comprehensive identification and quantification of emitted gases even for the smallest trace of evolved species.
- Applications to foodstuffs, food packaging, polymers, petroleum products, electronic components, pharmaceutical materials, wastes, cellulosic products...



TA-VistoMS of coffee



TA-VistoMS of tobacco