

# COFFEE ANALYSIS: ENHANCED SELECTIVITY USING NEGATIVE IONS

Detection of all classes of aroma compounds without discrimination (no chromatography)

Very high selectivity through application of positive and negative reagent ions

Analytical results in seconds

Detection limits in the pptv range

Easy to integrate and use

Ready for the R&D lab, pilot plant, and production line

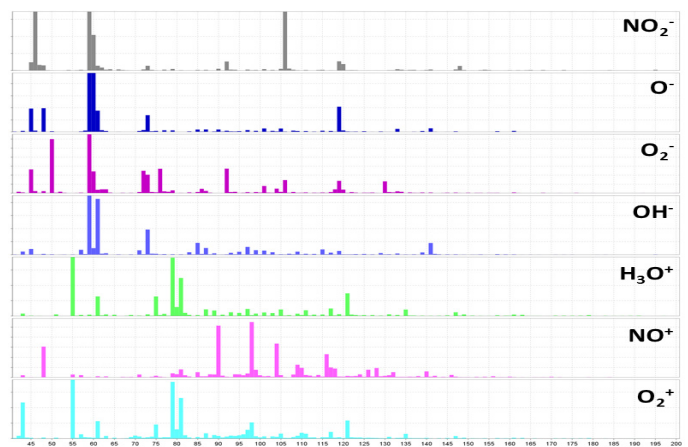


Coffee aroma is derived from the volatile organic compounds (VOCs) emitted. VOC signatures vary significantly with the country of origin, seasonal conditions, and process changes.

Over 1000 VOCs have been identified in the headspace of coffee, with a much smaller number characterized as key aroma compounds. Selective analysis of the individual compounds within this complex matrix is a difficult challenge for traditional process monitoring technologies and direct mass spectrometry techniques. However, it is one which the Syft Voice200 *ultra* SIFT-MS instrument excels at with the recent addition of four negative ions.

Selected ion flow tube mass spectrometry (SIFT-MS) provides rapid, highly selective analysis of trace gases. The high selectivity arises from the different reaction mechanisms provided by each of the reagent ions. Traditionally SIFT-MS has used positive reagent ions ( $\text{H}_3\text{O}^+$ ,  $\text{NO}^+$ , and  $\text{O}_2^+$ ). Recent innovation has added four negatively charged reagent ions:  $\text{O}^-$ ,  $\text{O}_2^-$ ,  $\text{OH}^-$ , and  $\text{NO}_2^-$ . With seven rapidly switchable reagent ions, SIFT-MS has greatly enhanced selectivity for real-time analysis of coffee aroma.

**This advance, coupled with the part-per-trillion level (pptv) detection limits, means that SIFT-MS provides an excellent solution for rapid process-line monitoring of important aroma compounds.**



Ground coffee headspace analyzed in full scan mode with seven reagent ions