



K12 Rapid Blood Alcohol Analysis With a New Automated Headspace-Gas Chromatographic System

Roger L. Firor, PhD, Agilent Technologies, 2850 Centerville Road, Wilmington, DE 19808; Manuela Bergna, Dani Instruments S.p.A., Viale Brianza, 87, 20093 Cologno Monzese (MI), Milan, Italy; Philip Wylie, PhD, Agilent Technologies, 2850 Centerville Road, Wilmington, DE 19808*

After attending this presentation, attendees will have knowledge of state-of-the-art hardware and methods for performing high throughput blood alcohol analyses.

The determination of blood alcohol levels is one of the most frequent analyses performed in forensic toxicology laboratories. In particular, results by gas chromatography are widely respected by the courts.

A new automated 70-sample headspace sampler has been developed utilizing an inert flow path for improved sample repeatability, accuracy, and reduced carryover. These and other improvements in the headspace hardware reduce the frequency of calibration and performance check samples. High sample throughput is possible with the combination of optimized sample heating overlap and new capillary columns developed for rapid separation. Complete GC blood alcohol analysis in under 4 minutes with cycle times of less than 7 minutes are achieved while maintaining baseline separation of methanol, ethanol, isopropanol, n-propanol, and n-butanol. Additionally, the system will resolve many other common interferents like acetaldehyde and acetone.

Headspace control software will be described that integrates headspace parameters and sequencing into the chromatographic data system. Detailed information on sample vial number and result logging essential for proper tracking of samples is included.

Blood Alcohol, Headspace, Gas Chromatography