THURSDAY, DECEMBER 10

09:40  Bus Transfer from Crowne Plaza Manchester Airport Hotel to Waters MS Headquarters

10:00  Registration

10:30  Introduction to Waters Wilmslow and Welcome to APGC 2015
       Jody Dunstan, Senior Product Manager GC/MS, Waters Corporation

11:15  APPI- and APCI-GC/MS-MS for Petroleum and Environmental Applications
       Vlad Lobodin, Ph.D., Future Fuels Institute, National High Magnetic Field Laboratory, Florida State University, USA

11:45  Utilization of Atmospheric Pressure Ionization coupled to Triple Quadrupole Mass Spectrometry for the Analysis of Mixed-Halogenated Dioxins and Furans
       Frank L. Dorman, Biochemistry, Microbiology, and Molecular Biology Department, The Pennsylvania State University, USA

12:15  LUNCH - Networking

13:15  Identification of Bromo/Chloro Dibenzo-p-Dioxins by Negative Atmospheric Pressure Chemical Ionization: A Resurgent Application of APGC
       Karl Jobst, Department of Chemistry and Chemical Biology, McMaster University, Ontario, Canada

13:45  The APGC-Xevo® G2-XS QToF as a Tool for Targeted, Suspected and Non-Target Screening of Raw and Drinking Water
       Michael Petri, Lake Constance Water Supply, Quality Assurance and Research Laboratory, Sipplingen, Germany

14:15  GC-APCI-MS/MS Determination of Persistent Organobromine Compounds including Brominated Dioxins
       Ingrid Ericson Jogsten, MTM research centre, Örebro University, Sweden

14:45  COFFEE BREAK - Networking

15:15  WORKSHOPS  Demonstration Laboratory Hands-on (3 sessions)

   • Pesticide Analysis using the APGC with Xevo TQ-Sµ – New and Innovative Methodologies
     Wim Broer, NOFALAB, The Netherlands and Simon Hird, Principle Scientist, Waters Corporation

   • Use of Nitrogen instead of Helium as the Carrier Gas, while Maintaining the Exact Same Separation Efficiency
     Jaap de Zeeuw, Restek Corporation, Middelburg, The Netherlands

   • Meet The Expert – APGC
     Rhys Jones, Senior Research Scientist, Waters Corporation

17:00  GC-APCI and Environmental Monitoring for the Oil Sands Region of Alberta, Canada
       Mark P. Barrow, Department of Chemistry, University of Warwick, Coventry, United Kingdom

17:30  Bus Transfer from Waters MS Headquarters to Crowne Plaza Manchester Airport Hotel

18:40  Bus Transfer from Crowne Plaza Manchester Airport Hotel to Stanneylands Restaurant
       Address: Stanneylands Road, Wilmslow SK9 4EY

19:00  Cocktail Reception

19:30  Dinner

22:00  Bus Transfer from Stanneylands Restaurant to the hotel
SESSION 1 – Pesticides and POPs Analysis

09:00 Fast GC Method for Pesticides/PCBs in Feed Matrices using GC-APCI-MS/MS
Marc Tienstra, RIKILT–Wageningen UR, Wageningen, The Netherlands

09:30 APGC-QTOF: Useful Tool for Tracking New POPs (PCN, SCCP, MCCP, PCT...) in Biological Matrices?
An Overview of its Screening and Quantitative Capabilities
Pierre Dumas, Centre de Toxicologie de l’Institut National de Santé Publique du Québec (INSPQ), Quebec City, Canada

10:00 How APGC-MS/MS May Change Chemical Residue and Contaminants Analysis at Ultra-Trace Level in Complex Biological Matrices
Emmanuelle Bichon, LABERCA/ONIRIS, Nantes, France

SESSION 2 – Petroleum Constituents Analysis by Mass Spectrometry

09:00 Targeted Analysis of Petroleum Biomarkers
Peter Hancock, Senior Scientific Operations Manager, Waters Corporation

09:30 PetroOrg Petrolemics Software Demonstration and Discussion
Eleanor Riches, Principal Scientist, Waters Corporation

10:00 Review of Recent Publications on the Analysis of Petroleum Constituents Using MS
Patrick Boyce, Marketing Team Manager, Waters Corporation

10:30 COFFEE BREAK - Networking
Please contact the event manager to organise your airport transfer.

11:00 ROUND TABLE SESSION: The Future of APGC
Chaired by Jody Dunstan

12:00 LUNCH - Networking

13:00 New Applications in APGC
Adam Ladak, Senior Strategic Marketing Manager, Waters Corporation

13:30 Waters Wilmslow Building and Factory Tour

14:30 Conclusion and Departure
Airport transfers organised as requested during the morning break.
Jody Dunstan  Senior Product Manager GC/MS, Waters Corporation

I joined Waters in 2004 in the Applications Laboratory looking after the GC/MS products doing training, sample analysis and demonstrations and customer support. I also had a dabble with UPLC®. This role took me to many places around Europe, Scandinavia and occasionally a bit further afield. In 2012 I joined MS Systems Evaluation working with R&D and Projects on several projects. In 2013 I joined the MS Product Management team working again with GC/MS products. Most recently working on the launch of the Xevo TQ-S with APGC for Ultra-Trace Quantification. Before Waters I worked as an Environmental Analyst in an Environmental Laboratory and at the Environment Agency and studied at the Universities of Portsmouth and Plymouth.

When not working I enjoy rugby, I no longer play but fill my time coaching the younger generation at a local club. I am an avid powerlifter and have just started strongman training. I also try to find some time to spend at my allotment and grow some nice, fresh food.

Dr. Vlad Lobodin  Ph.D.  Future Fuels Institute, National High Magnetic Field Laboratory, Florida State University, USA

Dr. Lobodin is a research faculty at the National High Magnetic Field Laboratory (Tallahassee, Florida) and a member of Future Fuels Institute (Florida State University). Area of his research interests and activities includes comprehensive characterization of ultra-complex organic mixtures (petroleum, bio-fuels, environmental samples etc.) with Fourier transform- ion cyclotron resonance mass spectrometry and various MS-platforms (LC/MS, GC/MS, APGC/MS, and GCxGC/MS)-This field is known Petrolemics now), Organic mass spectrometry, Environmental mass spectrometry.

He is an author over 30 scientific publications in various peer-reviewed journals and 40 conference presentations. He is also co-authored a book chapter on “Petrolemics and the Analysis of Complex Organic Mixtures with Fourier Transform Ion Cyclotron Resonance” in Comprehensive Environmental Mass Spectrometry, ILM Publications: St Albans, 2012. Vlad Lobodin is a recipient of Glenn Award from the Energy and Fuels Division of the American Chemical Society (2013).

APPI- and APCI-GC/MS-MS for Petroleum and Environmental Applications.

We utilize Atmospheric Pressure Gas Chromatography (APGC) combined with tandem mass spectrometry for a trace analysis of petroleum biomarkers in natural oils seeps (GC600), crude oils (MC252, GC645), and environmental samples collected from Gulf of Mexico after the Macondo oil spill. Hopenes and steranes (biomarkers) resist biodegradation and are widely used for oil source identification, differentiation, and extent of oil weathering/degradation processes under various environmental conditions. A commercially available APGC ion source achieves Atmospheric Pressure Chemical Ionization (APCI), producing abundant molecular ions for subsequent MS/MS analysis. The APCI-GC/MS-MS results allow us to differentiate oil spill samples from natural seeps and other crude oils produced in GoM. We also use an Atmospheric Pressure Photolization (APPI) source that, in contrast to APCI-GC, is not commercially available and was designed in our laboratory. APPI-GC selectively ionizes aromatic hydrocarbons for advanced source identification and weathering trends. Aromatic hydrocarbons (PAHs and alkylated PAHs) and their sulfur- and nitrogen-containing analogues (PASHs and PANHs), although low in abundance in the Macondo crude oil, persist after release into the environment and have the potential to negatively impact native flora and fauna. Ionization of petroleum compounds under atmospheric conditions (APCI and APPI) with subsequent mass spectrometry detection provides a very sensitive and reliable tool for targeted analysis, fingerprinting the oil source, and tracking a fate and transport of oil spill residues. This work was supported by Florida State University, NSF DMR-11-57490, GOMRI, Waters Corporation, and the State of Florida.

Frank L. Dorman  Biochemistry, Microbiology, and Molecular Biology Department, The Pennsylvania State University, USA

Frank Dorman is currently an Associate Professor in the Department of Biochemistry and Molecular Biology at Penn State University in University Park, PA. Additionally, Frank is also a member of the Graduate Faculty for the Forensics Science, and Biogeochemistry Programs, at Penn State, where he teaches both traditional forensic chemistry and environmental forensics. In addition to Undergraduate and Graduate student instruction, Frank’s research interests are in gas and liquid chromatography fundamental characterization, instrumentation and column development, and application to trace analysis in complex sample matrices directed towards traditional forensic chemistry and environmental forensics, as well as human exposure concerns. Prior to joining the faculty at PSU, Frank was at Restek Corporation for 14 years as the Director of Technical Development, and prior to that he was at InChcape Testing Services for 5 years as a Senior Chemist.

Utilization of Atmospheric Pressure Ionization Coupled to Triple Quadrupole Mass Spectrometry for the Analysis of Mixed-Halogenated Dioxins and Furans

Halogenated dioxins and furans have long been persistent organic pollutants of environmental concern produced as byproducts from a variety of sources. It has become important to be able to accurately detect a range of dioxins and furans at trace levels in a diverse range of matrices. Historically, the preferred method of analysis has utilized GC-HRMS systems employing double-focusing, or “sector” based instruments that monitor specific mass-to-charge fragments for each target compound. In this study, an alternate method utilizing atmospheric pressure ionization gas chromatography(APGC) coupled to a triple quadrupole mass spectrometer (TQ) is discussed to allow identification of a more comprehensive list of compounds in a single run, as well as its use as a discovery tool.
Through an extensive comparison of samples analyzed using both methodologies, APGC-TQS analysis has demonstrated to be a comparable technique to sector-based HRMS analyses for trace level identification of dioxins and furans in environmental samples. Another benefit of this instrumentation is the ability to report a limit of detection on the single femtogram level. An initial method was developed to simultaneously monitor for tetra- through octa- chlorinated dioxin and furan congeners, including the seventeen toxic congeners, in a single run. Furthermore, methods have successfully been developed for identification of a wide range of polybromo- and mixed bromo/chloro- dioxins and furans. These methods have been applied in the characterization of fire debris to further understand the risk of firefighter exposure.

**Karl Jobst**  Department of Chemistry and Chemical Biology, McMaster University, Ontario, Canada

Karl Jobst obtained a Ph.D. degree at McMaster University (2011) under the guidance of Professor Johan K. Terlouw. His thesis focused on the study of catalysis in the chemistry of gas-phase organic ions and neutrals using mass spectrometry and computational chemistry. Some of this research was relevant to the chemistry of interstellar space, but Karl ultimately pursued more Earth-oriented studies as a Postdoctoral Fellow at Environment Canada. He is presently a Scientist at the Ontario Ministry of the Environment and Climate Change and holds adjunct status at his alma mater.

**Identification of Bromo/Chloro Dibenzo-p-dioxins by Negative Atmospheric Pressure Chemical Ionization**

Mixed halogenated dibenzo-p-dioxins and dibenzofurans (PXDD/Fs) may well be more toxic than 2,3,7,8-tetrachlorodibenzo-p-dioxin (2378-TCDD), a compound reputed as one of the most toxic chemicals known. Identification of toxic PXDD congeners using traditional electron ionization (EI) mass spectrometry is of limited value, due in part to the lack of structure diagnostic fragmentation. A more promising approach involves structure diagnostic reactions with O2•−, which has been described in early studies of chlorinated dioxins. Mitchell’s experiments employed gas chromatography, hyphenated with atmospheric pressure chemical ionization, a technique that has recently attracted renewed interest. This contribution reports on the analogous reactions involving PXDD/Fs studied using a modern atmospheric pressure gas chromatography (APGC) quadrupole time-of-flight (Q-TOF) mass spectrometer.

**Michael Petri** Lake Constance Water Supply, Quality Assurance and Research Laboratory, Sipplingen, Germany

1985-1989: Engineering School Fresenius in Wiesbaden, Germany
Since 1991: Working in the quality assurance and research laboratory of Lake Constance Water Supply in Sipplingen, Germany
Since 2004: Laboratory manager in the chemical analytical department of the quality assurance and research laboratory of Lake Constance Water Supply

**The APGC-Xevo G2-XS QToF as a Tool for Targeted, Suspected and Non-Target Screening of Raw and Drinking Water**

Atmospheric pressure ionization is a much more advantageous ionization technique for gas chromatography than electron impact or chemical ionization. The atmospheric pressure ionization is a very soft and unselective ionisation technique and generates preferably molecular ions or protonated molecular ions with a low fragmentation rate. The detection of molecular ions or protonated molecular ions combined with an accurate mass determination using a high resolution mass spectrometer (e.g. Xevo-G2 XS-QToF) is a quite interesting tool for target, suspected and non-target screening approaches. With the MS−acquisition two scan events can be obtained in one single run: one scan with low collision energy to detect molecular ions or protonated molecular ions and another scan with higher energy collision ramp to generate fragment spectra of the molecular or protonated molecular ions. The fragment spectra can be used to confirm targets or suspected analytes or to support the identification of unknown or non-targeted compounds in the sample. The Lake Constance Water Supply has developed a wide-scope screening and monitoring method for GC amenable compounds with an APGC-Xevo-G2 XS-QToF for water from Lake Constance and its tributaries according to the German Surface Water Quality Guidelines and German Drinking Water Directive. In the presentation we give a short overview of the development for a screening method and explores the possibilities of the analysis of micro-pollutants like polycyclic aromatic hydrocarbons, polychlorinated biphenyls, polybrominated diphenyl ethers, tin organics and chlorinated pesticides.

**Ingrid Ericson Jogsten**  MTM research centre, Örebro University, Sweden

I have a M Sc in Chemistry from Örebro university. Doctoral studies on Human exposure to Per- and Polyfluoroalkyl substances, received my Ph D in Chemistry in 2011. Post Doc in collaboration with Waters looking at ion mobility separation of small environmental molecules (critical pairs of dioxins and PAHs), especially high resolution/ion mobility mass spectrometry for the detection of PFOS isomers in complex matrices. Currently I am a research fellow at MTM Research Centre, School of Science and Technology, Örebro university, Sweden. My main focus is developing analytical methods for the trace level determination of environmental pollutants (mainly those regulated by the Stockholm Convention).
Dr. Mark P. Barrow  
Department of Chemistry, University of Warwick, Coventry, United Kingdom

Dr. Mark P. Barrow is a Senior Research Fellow at the University of Warwick (Coventry, United Kingdom). Dr. Barrow’s research interests are based upon the usage of high field Fourier transform ion cyclotron resonance (FTICR) mass spectrometry to characterize complex samples, with particular focus upon petroleum since 2000 and also upon oil sands-related water samples since 2003. Based in the Ion Cyclotron Resonance Laboratory, Dr. Barrow works with a 12 T solariX FTICR mass spectrometer and uses a range of ionization methods, chromatographic techniques, and dissociation methods to gain greater insight into the composition of complex mixtures. Encompassing collaboration with the petroleum industry and with Environment Canada, his work involves both development of analytical methods and applications using real world samples.

GC-APCI and Environmental Monitoring for the Oil Sands Region of Alberta, Canada

It has become increasingly necessary to turn to less conventional sources of petroleum, such as the Athabasca oil sands. During processing of the oil sands, approximately three barrels of water are consumed for every barrel of synthetic oil produced. Release of oil sands process water (OSPW) into the environment is not permitted, and so it is retained on-site in large tailings ponds. There is an increasing need to employ a wider range of analytical tools for monitoring water quality. One OSPW sample and two groundwater samples were collected from a given transect along a groundwater flow path in a region of the Athabasca River Basin, Alberta, Canada. Gas chromatography (GC) has been coupled with an atmospheric pressure chemical ionization (APCI) source, which was fitted to a 12 T Fourier transform ion cyclotron resonance (FTICR) mass spectrometer. The combination of GC with ultrahigh resolution mass spectrometry can improve the characterization of complex mixtures where components cannot be resolved by GC alone. The ability to resolve multiple components with the same nominal mass and to observe isomers is important for a better understanding of toxicity. The data was visualized using different methods and the Ox and OxS compound classes predominated, with OxS classes being particularly relevant to the oil sands industry.
Fast GC Method for Pesticides/PCBs in Feed Matrices using GC-APCI-MS/MS

Significant speed improvement for instrumental runtime would make GC/MS much more attractive for determination of pesticides and contaminants and as complementary technique to LC/MS. This was the trigger to develop a fast method (time between injections less than 10 min) for the determination of pesticides and PCBs that are not (or less) amenable to LC/MS. The presentation will firstly provide some background information on the soft ionisation used in APGC and the corresponding benefits for use in combination with gas chromatography. Method development and validation of the fast method using fortified extracts of different feed matrices will be described. Finally the results of the validation will be presented. A paper concerning this work has been published recently in Journal of Chromatography A.

APGC-QTOF: Useful Tool for Tracking New POPs (PCN, SCCP, MCCP, PCT...) in Biological Matrices? An Overview of its Screening and Quantitative Capabilities

INSPQ’s laboratory designed a new analytical procedure for the analysis of persistent organic pollutants (POPs) that are being considered for possible inclusion in Annex A of the Stockholm convention, and others of emerging public health interest. Our strategy was to expand the coverage our already validated and reliable method for measuring legacy POPs (E-458), by taking advantage of an innovative technology: atmospheric pressure gas chromatography (APGC) coupled to high resolution quadrupole-time of flight mass spectrometry (QTOF-MS). The work flow of the new analytical procedure based on the existing method cover new families of emerging contaminants POPs, using the same volume of plasma as in the original method (2 mL) and no additional sample preparation steps with simply adding three additional injections on APGC-QTOF 1. One injection with specific ionisation conditions for optimised short and medium chain chlorinated paraffin (SCCP, MCCP) quantification with new calibration strategies 2. Second injection with specific conditions enabling highly sensitive detection and quantification of 19 polychlorinated naphthalene (PCN) congeners 3. Third injection with general conditions for targeted and untargeted screening POPs (detection, identification and possible quantification). Targeted screening includes over hundred compounds from sixteen different types of POPs families. The new method is currently in validation process according to INsPQ IsO 17025 criteria which include methodological limits of detection and quantification, linearity, reproducibility (intra-day and between-day precisions), matrix effects and recovery. We already planning to use this new tool to track emerging POPs in different circumpolar countries.

How APGC-MS/MS May Change Chemical Residue and Contaminants Analysis at Ultra-Trace Level in Complex Biological Matrices?

Since 2000, the European regulations and recommendations published by the European Food Safety Authority (EFSA) are encouraging member states to monitor residues and contaminants at lower and lower levels down to pg.g-1 in food items. At the same time, the lists of compounds to monitor are updated, such as for brominated flame retardants (BFR) where the EU Commission recommended (2014/118/EU) the monitoring of traces of brominated flame retardants in food items including 17 emerging and 12 novel BFR. Their various physicochemical properties (e.g. LogP, MW…) make a multi-residue analysis approach
quite difficult, if not impossible, to achieve: adapted extraction techniques (e.g. volatile versus high boiling point’s analytes), multiple purification fractions, different chromatography (e.g. GC vs LC) and various mass analyzers (e.g. MS/MS vs HRMS). The work presented in this seminar assessed GC/APCI/MS/MS capability to cover the largest range of analytes in each class of compounds (examples will be mainly given on classical, novel and emerging BFR). Gas chromatography variables were optimised (injector, column and post-column). The APCI source was used in the positive ion mode under dry conditions to promote cation radical formation. A 2 μA current Corona was used for better sensitivity and signal stability. A focus will be made on the analytical performances given by the APGC system (high sensitivity, compounds stability, high throughput analysis) for routine analysis purposes.

Peter Hancock  Senior Scientific Operations Manager, Waters Corporation

Peter Hancock is the Senior Scientific Operations Manager of the Chemical Materials Business Operations team working for Waters Corporation, Wilmslow, United Kingdom. His team is actively involved in developing analytical methods in application areas such as petroleum and alternative feedstocks, fine and specialty chemicals, agrochemicals, polymers, cosmetics and other consumer products.

Targeted Analysis of Petroleum Biomarkers

APGC is a soft ionization technique which produces lower levels of fragmentation compared to traditional EI. Working in drug conditions, APGC typically produces spectra with strong radical cation molecular ions that facilitates the direct comparison of historic, archival EI data from many different sources. The abundant nature of these ions makes it possible to generate specific and sensitive MRM transitions for petroleum biomarkers which provide information on the biological source of the oil, the environment in which the parent organic matter was deposited, and the thermal history of the buried organic matter. Knowledge of these properties is especially useful in upstream applications and is ultimately linked to the economic productivity from a particular geological location. The universal ionization source offered on all Waters instrumentation facilitates the quick and simple coupling of APGC, UPLC or UPC2® on a single MS platform. Coupled with Xevo TQ-S, APGC enables low-level quantification of petroleum biomarkers that have proved challenging to analyze using GC-MS systems, allowing unambiguous confirmation of the deposition environment from which the oil originates.

Eleanor Riches  Principal Scientist, Waters Corporation

Started life as a secondary school (high school, age 11-19) teacher of science - mainly chemistry with some physics. Moved on to support deaf students in Universities and Colleges in and around Manchester - including a range of deaf communication qualifications (manual notetaker, deaf awareness, British Sign Language, etc.). Completed my PhD in APPI-MS - sponsored by GSK, so did a work placement at GSK in Stevenage, United Kingdom, as part of my research, working in the “Structural Elucidation” group directed by Soraya Monte. The instrument I used was an ABSciex API 365 triple quad - so ended up working at AB in Warrington, United Kingdom, immediately after PhD, covering a long-term sick leave. After AB joined Waters in May 2008 in the “Chemical Analysis” team (as we were then), which underwent bifurcation to form the Chemical Materials and Food and Environmental vertical market teams. I became a member of the Chemical Materials Business Operations team. I have a particular interest in all types of alternative ionisation - especially APPI (of course) and primarily work with ToF instruments (mainly SYNAPT), although my early years at Waters were taken up with quad work - so I have experience of both. My main market area of focus is that of the Oil and Petroleum industries (NRG) - with a whole series of successful collaborations that have really helped to broaden our understanding of the challenges faced by those analysing/characterising oil and oil-related samples.

Patrick Boyce  Marketing Team Manager, Waters Corporation

Patrick Boyce, Marketing Team Manager with Waters European Headquarters, graduated in Chemistry from Manchester University (UMIST) in 1990. He then held positions in the medicinal chemistry department at ICI Pharmaceuticals (now AstraZeneca), Alderley Park in the United Kingdom from 1990-1994 firstly as a synthetic organic chemist and later as a synthetic peptide chemist. Since then he has worked in sales and marketing for analytical instrumentation and chromatography column manufacturers. In 2007 he joined Waters, where he has worked on marketing Waters LC and MS products across Europe and India.

Review of Recent Publications on the Analysis of Petroleum Constituents using MS

This presentation will be a review of MS publications in past 12 months covering both petroleum characterization and targeted analysis of petroleum constituents.
Adam Ladak  Senior Strategic Scientific Marketing Manager, Food and Environment Business Operations, Waters Corporation

Adam joined Waters in 2008 as part of the mass spectrometry application lab. As Senior Strategic Scientific Marketing Manager he works closely with the scientific team to generate application data in the food and environment arena. Adam also assesses scientific projects for the viability and business impact. His role involves working with Waters labs worldwide and visiting Waters customers to conduct mass spectrometry focused seminars. Adam also attends conferences internationally to present data from the food and environment scientific team.

Adam has worked in mass spectrometry for over 12 years. Before joining Waters he worked at the Horse Racing Forensic Lab (HFL). He held the position of the client manager for the supplement and feed team in the drug surveillance group. The team was responsible for the testing of sports supplements and equine feeds for prohibited substances. The role including developing extraction and analytical methods for GCMS and LCMS.

Adam joined Waters as part of the MS application team focusing on GCMS analysis. This included performing customer demonstrations on GC magnetic sectors, tandem quadrupoles and time of flight instruments. Adam transferred to the US application lab in 2011 where he focused on TOF technology, ion mobility and atmospheric pressure GC for food, environmental, chemical materials, metabolomics and metabolite identification application. He joined the food and environment business operations team in 2015. Adam has a degree in forensic science from the University of Glamorgan (South Wales).

New Applications in APGC

This presentation will focus on how ion mobility separations can be coupled with APGC to provide an extra dimension of separation and confirmation. Examples will be given on how MS$^3$ enabled ion mobility systems including the Vion™ IMS QTof and SYNAPT™ G2-Si can be utilized to perform spectral clean up in complex matrices. Real life examples of mixed halogenated Dioxins and Furans will be used to show the utility of HDMS$^5$. The use Collision Cross Section (CCS) measurements which can be performed with ion mobility separation will be shown. CCS provides a consistent measurement and extra point of confirmation. Data will be shown on how CCS is preserved despite ionization technique and matrices.