



IASH 2015
14th International Symposium on
Stability, Handling and Use of Liquid Fuels
Charleston, South Carolina USA • 4-8 October 2015



Program

**Is the Quality of Our Fuel Getting Better or Worse?
What is the Future?**

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SWEETGRASS PAVILION

Technical Sessions located in Tides Ballroom
Technical Posters & Exhibits located in Palms Ballroom
Speaker Ready Room located in Sea Oats Room
Registration from 07.30 – 17.00 Daily

SUNDAY 4th OCTOBER 2015

10.00 - 12.00 Board of Directors Meeting in Palmetto Hall (Members & Invited Guests)
14.00 - 17.00 Registration in Lobby of Boardwalk Inn - Continues throughout the week in Tides Foyer
12.00 - 17.00 Set up Posters and Exhibits in Palms Ballroom

19:00–21:30 **OPENING RECEPTION AT WILD DUNES GRAND PAVILION & GAZEBO**
Sponsored by Air BP and Donaldson Company-Clean Fuel Solutions

MONDAY 5th OCTOBER 2015

07.00 – 08.30 Breakfast in Palmetto Hall

08.30 – 08.45 Welcome and Introduction by Matt Fielder, Symposium Chairman

08:45 – 09:15	KEYNOTE ADDRESS: “Global Marine Fuel Trends 2030” – Mark Darley, Lloyds Register-Americas
09:15 – 09:45	John D. Bacha Award of Excellence Paper: Mega-Supramolecules for Safer, Cleaner Fuel by End- Association of Long Telechelic Polymers – Ming-Hsin (Jeremy) Wei

09.45	SESSION 1: FUEL CONTAMINATION – SOLIDS, SOURCES, DETECTION & EFFECTS Matt DeWitt, Session Chair
09:50- 10:15	Fuel Cleanliness – The Source and Fate of Contaminants from Refinery to Aircraft – Alisdair Clark
10:15 – 10:40	Summary of HPCR Diesel Injector Wear Research and the Implications of Adequately Filtering Fuel – James Doyle, Matthew Goertz and Scott Grossbauer
10:40 – 11:00	BREAK
11:00 – 11:25	Glycerin Related Premature Plugging of Fuel Filters – Matthew Goertz, James Doyle, Andrew Dallas and Scott Grossbauer
11:25 – 11:50	Particle Count Limits Recommendation for Aviation Fuel – Joel Schmitigal
11:50 – 12:15	Origin and Structure of Fuel Degradation Products Found in ULSD and Biodiesel – S. Kyle Sontag, Matthew Goertz, Brad Hauser, Davis Moravec, Joe Block and Andrew Dallas
12:15 – 13.40	LUNCH IN PALMETTO HALL - Sponsored by Shell Aviation

13:40	SESSION 2: FUEL PROPERTIES & EFFECTS Rob Midgley, Session Chair
13:45 – 14:10	Smoke Point Predictive Model Analysis – <u>David J. Abdallah</u> , Caitlin D. Gottier, Lauren E. Kreno, Gary Christensen, Brandon Engebretson and Scott K. Berkhou
14:10 – 14:35	Water Wash Out of Jet Fuel Additives – <u>Paul M. Rawson</u> and Dietmar Posselt
14:35 – 15:00	Lubricity of Renewable Diesel Fuel Blends – <u>W. Stuart Neill</u> , Jennifer V. Littlejohns, Annie-France Carrier, Simon Lafrance and Ken Mitchell
15:00 – 15:20	BREAK
15:20 – 15:45	Impacts of the Jet Fuel Chemical Compositions on O-Ring Polymers – <u>Mickaël Sicard</u> , Jacques Ancelle, Sandrine Guérin, Bruno Raepsaet and Frédéric Ser
15:45 – 16:10	Cold Flow Properties of Diesel Fuels in North America, 2006-2015: Getting Better or Worse? – <u>J. Andrew Waynick</u> and Kyle McKee
16:10 – 16:35	Aviation Turbine Fuel Properties Based on Hydrocarbon Type and Size Distribution – <u>Zachary J. West</u> , Matthew D. Evanhoe and Milissa M. Griesenbrock
18:00 – 19:30	POSTER SESSION & EXHIBITOR RECEPTION IN PALMS BALLROOM Sponsored By FALEX

TUESDAY 6th OCTOBER 2015

07.00 – 08.30 Breakfast in Palmetto Hall

08.00 – 08.15 Announcements

08:15	SESSION 3: FUEL TESTING & TEST METHODS David Abdallah, Session Chair
08:20 – 08:45	Multi-Product Pipelines - Water Mapping Testing – <u>Keri Petersen</u> , Gary B. Bessee, Anthony Kitson-Smith and Martin Hunnybun
08:45 – 09:10	Ellipsometer - A Superior Method for Analyzing D3241 Heater Tube Deposits – <u>Michael C. Croudace</u> , James Hepp and Olaf Mollenhauer
09:10 – 09:35	Old World Versus New World Stability – A Comparison of Various Methodologies – <u>David J. Evans</u>
09:35 – 10:00	A Novel Multiplexed Two Dimensional Gas Chromatographic Approach for Improved Fuel Analysis – <u>Thomas N. Loegel</u> , Kevin J. Johnson and Robert E. Morris
10:00 – 10:20	BREAK
10:20 – 10:45	The Fuel Composition and Screening Tool (FCAST): A GC-MS Modeling Application for Fuel Characterization – <u>Robert E. Morris</u> , Mark H. Hammond, Jeffrey A. Cramer, Kristina M. Myers, Thomas N. Loegel, Kevin J. Johnson and Iwona A. Leska
10:45 – 11:10	Ignition Characteristics of Fuels in a New Constant Volume Combustion Chamber – <u>Philipp Seidenspinner</u> and Thomas Wilharm
11:10 – 11:35	Identification and Quantitation of Polar Species in Liquid Transportation Fuels by GCxGC – <u>Linda M. Shafer</u> , Richard C. Striebich, Steven Zabarnick and Zachary J. West
11:35 – 12:00	A Review of Diesel Fuel Stability Testing – <u>Steven R. Westbrook</u>

12:00 – 12:25	A Novel New Water Separometer Method - <u>Alan Fougere</u> , Ian Mylrea and Paul Spitteler
12:25 – 13:45	LUNCH IN PALMETTO HALL – Sponsored By Energy Institute
13.45	SESSION 4: FUEL PRODUCTION, QUALITY & CONTROL Pamela Serino, Session Chair
13:50 – 14:15	Jet Fuel Product Quality – Drivers for Change – <u>Joanna M. Bauldreay</u>
14:15 – 14:40	Advanced Fuel Quality Assurance Standards Based on Thermal Testing and Chemometric Modeling – <u>Matthew Billingsley</u> , David Pamplin, Nicholas Keim, Robert Synovec, Benjamin Hill-Lam and Claire Wilhelm
14:40 – 15:05	The Stability, Handling and Other Characteristics of Gasoline and Diesel Fuel Produced From End of Life Plastics – <u>Jay Schabel</u> and <u>Jeff Trewella</u>
15:05 – 15:30	Assuring Aviation Fuels are Fit For Purpose – <u>Mike Farmery</u>
15:30 – 15:50	BREAK
15:50 – 16:15	Global Hydrocarbon Sampling, Analysis and Reports in the Format of Worldwide Fuel Surv – Stefan Sulzmaier and <u>Anke Konzack</u>
16:15 – 16:40	Best Practices for Contamination Testing – <u>Marlin Vangsness</u>
16:40 – 17:05	Using Precision Thermal Stability Testing to Enhance Jet Fuel Quality Control and Production – <u>George R. Wilson, III</u>
17:05 – 17:30	Techno-economic Assessment of the Production of Synthetic Jet Fuel by Electrolysis and Fischer-Tropsch Synthesis – <u>Daniel H. Koenig</u> , Ralph-Uwe Dietrich and Antje Woerner

WEDNESDAY 7th OCTOBER 2015

07.00 – 08.30 Breakfast in Palmetto Hall

08.00 – 08.15 Announcements

08.15	Session 5: DIESEL & BIO-DIESEL Thomas Smagala, Session Chair
08:20 – 08:45	Use of Mono-Oleate as a Biodiesel Simulant for Fuel Water Separation Testing – <u>Gary B. Bessee</u>
08:45 – 09:10	An Assessment of the Thermal and Oxidative Stability Exigency for Diesel Fuels in Present Engines and the Solutions Most Efficient for Each Specific Case – <u>Delgado, J.</u> , <u>Nieto, A.</u> and <u>Castillo, E.</u>
09:10 – 09:35	Investigation of Relationship Between Water Content in Biodiesel and Microbial Growth and Contamination – <u>Gareth Williams</u> , Leon O'Malley and Graham C. Hill
09:35 – 10:00	FAME in Diesel Cross-Contamination of FAME-Free Diesel Flowing Through a 10-Inch Pipeline – <u>Paul Spitteler</u> , Rod Woodford and Ian Mylrea
10:00 – 10:20	BREAK

10:20	SESSION 6: MARINE FUELS Richard Kamin, Session Chair
10:25 – 10:50	A Global Survey of the Incidence of FAME and Microbial Contamination in Marine Distillate Fuels – Graham C. Hill, Leon O'Malley, Paul Livingston and Timothy Wilson – Presented by <i>Gareth Williams</i>
10:50 – 11:15	NRL-DLA Fuel Forensics & F-76 Investigation – <i>Daniel Baniszewski, Robert Morris, Joan Melendez, Pamela Serino</i> and Richard Kamin
11:15 – 11:40	Shipboard JP-5 Contamination – <i>Joan Melendez, Richard Kamin, Diane Mattingly, John Buffin</i> and Alison Metz
11:40 – 12:05	Overview of U.S. Navy's Ship Propulsion Fuel (F-76) Test & Qualification Program – <i>Richard Kamin, Andy McDaniel, Ryan Turgeon, Diane Mattingly, Joan Melendez</i> and Kristin Weisser
12:05 – 13:20	LUNCH IN PALMETTO HALL – Sponsored By AD Systems partnered with DC Scientific
13:20	SESSION 7: FUEL ADDITIVES Pascale Demoment, Session Chair
13:25 – 13:50	Evaluation of Glycerol Ethers as Alternative Fuel Additives for Gasoline & Diesel – Nur Baglar, <i>F. Meliz Tunc, Ismail Doğan Günbaş, Serdar Çelebi, Özge Deniz Bozkurt</i> and Alper Uzun
13:50 – 14:15	Testing of Popular Corrosion Inhibitors at Common Treat Rates – <i>Richard L. Chapman</i> and Simon Mulqueen
14:15 – 14:40	Potential Problems of High Efficiency Fuel Filtration and Cold Flow Improver Additives – <i>Matthew Goertz, Davis Moravec</i> and Andrew Dallas
14:40 – 15:05	MBO – A New Microbicide for the USA Fuel Market in Comparison to CMI/MI – A Well Established Microbicide – <i>Andreia Jorge</i>
15:05 – 15:30	Impact of Distribution System on Metal Deactivator Added to Jet Fuel – <i>Paul P. Wells</i> and Lauren E. Kreno
17:00 & 17:20	BUSES DEPART FROM THE BOARDWALK INN
17:30 - 22:00	IASH AWARDS DINNER AT BOONE HALL PLANTATION Sponsored by Fuel Quality Services, Parker Hannifin & Pratt & Whitney

THURSDAY, 8th OCTOBER 2015

07.00 – 08.30 Breakfast in Palmetto Hall

08.00 – 08.15 Announcements

08.15	SESSION 8: ALTERNATIVE AVIATION FUELS Dietmar Posselt, Session Chair
08:20 – 08:45	Fuel Matrix Analysis Used for the French Project "CAER" Dedicated to the Alternative Fuels for Aviation Industry – <i>Pascale Demoment, Anne Gandubert, Arij Ben Amara</i> and Laurie Starck
08:45 – 09:10	DLA Energy Alternative Fuels Update – <i>Pamela Serino</i> and Daniel Baniszewski
09:10 – 09:35	Advances in Alternative Fuel Content Modeling Using Near-Infrared Spectroscopy – <i>Jeffrey A. Cramer, Mark H. Hammond, Kristina M. Myers, Iwona Leska</i> and Robert E. Morris

09:35 – 10:00	Production of Aromatic Drop-In Jet and Diesel Fuels From Vegetable Oils – <u>Moshe Rabaev</u> , Roxana Vidruk-Nehemya, Miron V. Landau and Moti Herskowitz
10:00 – 10:20	BREAK
10:20	SESSION 9: MICROBIOLOGICAL Melanie Thom, Session Chair
10:25 – 10:50	A Risk Based Approach for Developing Microbial Monitoring Strategies for Fuels – Graham C. Hill, and <u>Anthony Kitson-Smith</u>
10:50 – 11:15	Aviation Fuel Biodegradation in a Stirred-Tank Bioreactor – <u>Richard C. Striebich</u> , Susan S. Mueller, Linda M. Shafer, Loryn Bowen, Tusitha Gunasekera and Oscar Ruiz
11:15 – 11:40	A Novel Approach in the Use of Food Grade Yeast as a Native Standard for the Development of Precision and Bias for a Rapid APT Bioluminescence Assay Method – <u>Edward W. English II</u>
11:45 – 13:00	LUNCH IN PALMETTO HALL
13:00	SESSION 10: FUEL STORAGE & HANDLING Edwin Corporan, Session Chair
13:05 – 13:30	Corrosion Reduction in Asphalt Storage Tanks – <u>Matthew T. Barnes</u> , and Ksenija Babic
13:30 – 13:55	Effect of Different Drainage Regimes on Fuel Microbiological Contamination Levels in Combat Aircraft Fuel Systems – Ella Lam, Nofar Kaslasi, , Joseph Geva, Tomer Mevorach, Yehuda Sapir, Michal Yardeni and <u>Moshe Rabaev</u>
13:55 – 14:20	Wax Dispersant for Tight Oils – <u>Nestor Soriano</u> , <u>Jennifer Sorrells</u> , Jennifer Draper and Joseph Stark
14:20 - 14:45	BREAK
14:45	SESSION 11: FUEL CHEMISTRY, RESEARCH & DEVELOPMENT Roger Gaughan, Session Chair
14:50 – 15:15	Construction of a Reduced Chemical Kinetic Mechanism for Petroleum Diesel Autoxidation – <u>Ehsan Alborzi</u> , Simon G. Blakey, Theo Keane and Anthony J.H.M. Meijer
15:15 – 15:40	Reactivity and Deposition Propensity of Hydrocarbons Under Supercritical Pyrolytic Reaction Conditions - <u>Matthew J. DeWitt</u> , Theodore Williams, Tyler Hendershott, Richard Striebich, Linda Shafer, Steven Zabarnick, Zachary West, Tim Edwards and Donald K. Phelps
15:40 – 16:05	Impact of Added Cyclic Compounds on the Oxidative and Thermal Stability of HEFA - Arij Ben Amara, Skander Kaoubi and <u>Laurie Starck</u>
16:15 – 16:45	PLENARY SESSION: Howard L. Chesneau, IASH Chairman
19:00–21:00	CLOSING RECEPTION AT THE GRAND PAVILION & GAZEBO Sponsored by Southwest Research Institute

TECHNICAL POSTER SESSION & EXHIBITOR RECEPTION
MONDAY EVENING, 5TH OCTOBER 2015
PALMS BALLROOM
18.30 – 20.00

SPONSORED BY FALEX

Steven Zabarnick, Session Chair

1. **Air Force Research Laboratory (USA)** – *Oscar N. Ruiz*
Targeting Bacterial Adaptive Mechanisms for Prevention of Fuel Biodeterioration
2. **Air Force Research Laboratory (USA)** – *Edwin Corporan*
Initial Studies of Fuel Impacts on Combustor Operability and Emissions at the Air Force Research Laboratory
3. **Ben-Gurion University of the Negev (ISRAEL)** – *Moshe Rabaev (John Bacha Scholarship Recipient)*
Production of Aromatic Drop-In Jet Fuel From Vegetable Oils
4. **Boeing (USA)** – *Elizabeth M. Bowman*
Characterization of Water Soluble Deposits in Aircraft Fuel Systems
5. **Conidia Bioscience (UK)** - *Joan Kelley*
A New Species of Yeast from Aviation Kerosene
6. **D-2 Inc.** – *Alan Fougere*
A Novel Small-Scale Water Separation Instrument, WSI
7. **Defence Science & Technology Organisation (AUSTRALIA)** – *David Evans*
Synthetic Phenolic Antioxidants in Middle Distillate Fuels Analysed by Gas Chromatography with Triple Quadrupole Mass Spectrometry
8. **Hawaii Natural Energy Institute (USA)** – *Jinxia Fu (John Bacha Scholarship Recipient)*
Effects of Biodiesel Contamination on Oxidative and Storage Stability of Neat and Blended Hydroprocessed Renewable Diesel
9. **HORIBA Scientific (USA)** – *Presented by Allen Bickel*
EDXRF Method for Ultralow Level Sulfur in Gasoline Analysis to Comply with U.S. EPA Tier 3 Ruling
10. **Real-Time Analyzers (USA)** – *Stuart Farquharson*
Field Analysis of Fuel Using a Portable Near-Infrared Spectrometer
11. **Shell Global Solutions (USA)** – *Cynthia Ginestra*
Reduced Emissions via Synthetic Aromatic Kerosene
12. **U.S. Naval Research Laboratory (USA)** – *Kristina Myers*
Detection and Analysis of High Molecular Weight Contaminants in Fuels by Ultra High Performance Liquid Chromatography
13. **University of Sheffield (UK)** – *Ehsan Alborzi*
A Transient Model for Surface Deposit Growth in GT Burner Feed Arm with Contraction/Expansion Geometry Features
14. **University of Sheffield (UK)** – *Alexander McFarlane (John Bacha Scholarship Recipient)*
How Will Novel Fuels and Material Impact Microbial Contamination in Aircraft Fuels Systems?

**EXHIBITORS
PALMS BALLROOM**

AD Systems partnered with DC Scientific

- Presented by Didier Pigeon, Frank Russo & Jeff Weller

Air BP

- Presented by Alisdair Clark

CANTY

- Presented by Tod Canty

Donaldson Company

- Presented by Scott Grossbauer & Paul Klick

ECHA Microbiology Ltd.

- Presented by Mike Haywood & Gareth Williams

Energy Institute

- Presented by Victoria Dodd & Rattanjit Gill

Falex Corporation

- Presented by Andrew Faville, James Hepp & Michael Croudace

Fuel Quality Services

- Presented by Howard & Debra Chesneau, Ed English, David Forester & Rhonda Rande

GE Aviation

- No Exhibit

Intertek

- Presented by Craig Stone & Eddie Hall

PAC

- Presented by Kevin Kyle & Lupe Balboa

Parker Hannifin

- Presented by Stuart Lunt, Mark Riley, Shaun Skilton & David Tice

Schülke Inc.

- Presented by Matthew Daulby, Claudinei Fava, Sean Vliet & Quyen Ziegann

Seta Analytics

- Presented by Martin Verity

Southwest Research Institute

- Presented by Gary Bessee, Keri Petersen, Steve Westbrook & George Wilson

University of Dayton Research Institute

- Presented by Steven Zabarnick & Matt DeWitt

U.S. Naval Research Laboratory

- Presented by Gayle Fullerton