

IASH 2011

12th International Conference on Stability, Handling and Use of Liquid Fuels Sarasota, Florida USA • 16-20 October 2011

The Sustainability of Liquid Fuels

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All Technical Session located in Ballroom South Technical Posters & Exhibits located in Ballroom North Registration in Convention Center Foyer from 07.30 – 17.00 Daily Speaker Ready Room located in the Boardroom

SUNDAY 16th OCTOBER 2011

MONDAY 17th OCTOBER 2011 BALLROOM SOUTH

07.00 - 09.00	Breakfast in the Boathouse
08.20 - 08.30	Welcome and Introduction by Anthony Kitson-Smith, Conference Chairman
08.30 - 09.15	Keynote Address: Energy Outlook and the Future for Liquid Fuels – Robert Gardner, Manager Corporate Strategic Planning, ExxonMobil Corporation

09.15	Session 1. RENEWABLE FUELS AND CARBON NEUTRALITY Pamela Serino, Session Chair
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09.20 - 09.40	The Need for Sustainable Liquid Eugl and the Premise of Advanced Biofuels (USA)
09.20 - 09.40	The Need for Sustainable Liquid Fuel and the Promise of Advanced Biofuels (USA) – Don Scott (Presented by <u>Richard Nelson</u>)
09.40 - 10.00	Renewable Fuels: DLA Energy Goals, Initiatives and Challenges (USA) – <u>Daniel</u>
09.40 - 10.00	Baniszewski
10.00 - 10.20	BREAK
10.00 - 10.20	BREAK
10.20 - 10.40	Overview of US Navy's Ship Renewable Fuels Evaluation (USA) – <u>Ryan Turgeon</u> , Sherry Williams Richard Kamin, Richard Leung and Dr. Geoffrey Eldridge
10.40 - 11.00	A Review of Synthetic Fuel Development for Use in Aviation (USA) – Clifford A. Moses
	and Stanford P. Seto
11.00 - 11.20	Alternative Aviation Fuels – Progress and Plans (USA) – Tim Edwards, Kristin Lewis and
	Nathan Brown
11.20 - 11.40	Synergies Between Renewable Kerosene and Fischer-Tropsch Synthetic Paraffinic
	Kerosene (FT-SPK) (SOUTH AFRICA) - Mariam Ajam and Carl L. Viljoen

11.40 - 12.00		uid Fuels From Non-Food Sources – Life Cycle Assessment with Other Alternative Fuels and Processes (USA) – Robert L. Freerks
12.00 - 12.10	General Questions Session 1	
12.10 - 13.30	LUNCH IN BOA - SPONSORED	THOUSE BY PRATT & WHITNEY
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13.30		CHALLENGES IN FUEL DISTRIBUTION, STORAGE AND USE WITH TODAY'S AND TOMORROW'S FUELS Pierre Poitras, Session Chair
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13.35 – 13.55	Progress Made - Roger G. Gauge	Toward the Use of Jet Fuel in Diesel-Powered Aircraft (USA)
13.55 - 14.15	Bulk Diesel Fuel Filtration – A Sensible Investment (USA) - Christian M. Bauer	
14.15 – 14.35	In-Line Measure	ment of FAME Concentrations in Jet Fuels (USA) – <u>Kam Mohajer</u>
14.35 - 14.55		ation During Supercritical High Heat Flux Heat Transfer (USA) st, Hua Jiang, Jamie S. Ervin and Dr. Steven Zabarnick
14.55 - 15.15	BREAK	
15.15 – 15.35		hurisation: An Investigation into the Impact of Hydro-Treatment on (UK) – Jeremy Tucker, Christopher Lewis and Alisdair Clark
15.35 – 15.55	Stress-Relaxati	Elastomer Compatibility with Alternative Fuels by Mass Change Study on Test and FTIR Spectroscopy (UK) – Yue Liu, Christopher W. Wilson, and Patrick Theato
15.55 – 16.15		ound on Diesel Fuel Storage Tank Filters (USA) – Joseph Block, Paul de, Philip Johnson, <u>Andrew J. Dallas</u> and Dr. Yehya Elsayed
16.15 – 16.25	General Question	ons Session 2
18.30 - 20.00		PTION IN EXHIBITION SALON BY US NAVAL RESEARCH LABORATORY

TUESDAY 18th OCTOBER 2011 BALLROOM SOUTH

07.00 – 09.00	Breakfast in Boathouse
08.20 - 08.30	Announcements
08.30 - 09.15	 Keynote Address: A Breakthrough Solar Platform for the Direct, Continuous Conversion of CO₂ to Liquid Fuels Troy J. Campione, PhD, Senior Vice President of Corporate Development, Joule Unlimited
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09.15 ******	Session 3. AVIATION FUELS TODAY AND TOMORROW Edwin Corporan, Session Chair
09.15 - 09.35	Overview of US Navy's Renewable Turbine Fuels Evaluation (USA) – <u>Andrew McDaniel</u> , Richard Kamin, Sherry Williams, John Buffin, Dr. Geoffrey Eldridge, Jennings Bryant and Glen Fetsch
09.35 - 09.55	An Evaluation of Synthetic Jet Fuel Containing Aromatics (USA/SO.AFRICA) – <u>Clifford A. Moses</u> , Petrus N.J. Roets, Mariam Ajam, Carl L. Viljoen and George R. Wilson, II
09.55 - 10.20	BREAK
10.20 - 10.40	New Route for Increasing the Aviation Alternative Fuels Production and Optimizing the Biomass Usage: Focus on HRJ (FRANCE/UK) – <u>Laurie Starck</u> , Ludivine Pidol, Nicolas Jeuland, Thierry Chapus, Paul Bogers and Joanna Bauldreay
10.40 - 11.00	Selected Engineering Properties of Aviation Turbine Fuels (USA) – <u>Scott A. Hutzler</u> and George R. Wilson III
11.00 - 11.20	Evaluation of the Alternative Fuel Thermal Stability Within the European SWAFEA Program (FRANCE/UK) – <u>Mickaël Sicard</u> , Laurie Starck, Simon Blakey, Jacques Ancelle, Nicolas Jeuland, Aurélie Piperel, Bruno Raepsael, Frédéric Ser, Thomas Spalton and Christopher W. Wilson
11.20 - 11.40	Analysis of Properties of Jet Fuel Produced by Coconut Oil (CHINA) – Zhiping Tao, Dongmei Gong and Hongliang Qu
11.40 - 12.00	Impact of Fuel Composition on Emissions and Performance of GTL Kerosine Blends in a Cessna Citation II (UK/NETHERLANDS/GERMANY) – Tim A. Snijders, Joris A. Melkert, Joanna M. Bauldreay, Paul F. Bogers, Claus R.M. Wahl and Manfred G. Kapernaum
12.00 – 12.10	General Questions Session 3
12.10 - 13.25	LUNCH IN BOATHOUSE

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13.25		FUEL FILTRATION AND CLEANLINESS Dennis Hoskin, Session Chair
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13.30 - 13.50		FAME Contamination in F34 on API/EI 1581 Filtration Systems (USA/UK) and Jeremy Tucker
13.50 - 14.10	Contamination	nt Obscuration Particle Counting to Study Dispersed Solid in Aviation Turbine Fuel at Kandahar Airbase, Afghanistan (UK/UAE) er and Supreme Fuels
14.10 – 14.30		tocol for Measuring the Water Separation Performance of Coalescers es (USA) – Paul P. Wells and Dennis H. Hoskin
14.30 – 14.50	Determination	of Water-Droplet Size in Diesel and Aviation Fuels (USA) – <u>Gary Bessee</u>
14.50 – 15.10	Water Separation and Andrew Sut	on Performance of +100 Additives (UK) – <u>Paul P. Wells</u> , Dennis H. Hoskin kowski
15.10 – 15.20	General Questi	ons Session 4
15.20 -15.40	BREAK	
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15.40		ANALYTICAL METHODS Matt Fielder, Session Chair
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15.45 –16.05		of Pipeline Drag Reducing Additive in Jet Fuel to PPB Levels (USA) llah, Dennis H. Hoskin, Barb A. Whittacker and Paul C. Naegely
16.05 – 16.25	Screening Test	in the Development of Flow Analysis by FTIR Spectroscopy in a Rapid Method for Measuring Traces of Fatty Acid Methyl Esters in Aviation UK) – Paul Spitteler and Ian Mylrea
16.25 – 16.45		Rapid Screening Method for Measuring FAME in Jet Fuels (USA) Ilah, Dennis H. Hoskin and Paul P. Wells
16.45 – 17.05		in the Measurement of Liquid Phase Hydrogen Sulphide (H ₂ S) in Marine le Oils (UK) – <u>Ian Mylrea</u> , Wanda Fabriek and Paul Spitteler
17.05 – 17.15	General Questi	ons Session 5a

FREE EVENING

WEDNESDAY 19th OCTOBER 2011 BALLROOM SOUTH

07.00 - 09.00	Breakfast in Boathouse		
08.20 - 08.30	Announcements		
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08.30	Session 6.	PROPERTIES, CHEMISTRY AND VIABILITY OF FUELS Tedd Biddle, Session Chair	
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08.35 – 08.55		ndamental Relationships Between Fuel Composition and Performance A. Cramer, Nathan J. Beque and Robert E. Morris	
08.55 – 09.15	Hydrocarbon Group-Type Analysis of Current and Future Aviation Fuels: Comparing ASTM D2425 to GCxGC (USA) – Richard C. Striebich, Linda M. Shafer, Zachary J. West, Ryan K. Adams and Steven Zabarnick		
09.15 – 09.35		of a Compositional Definition of Jet and Diesel Fuels Using a Novel mpound Classification Scheme (USA) – Robert E. Morris, Nathan J. Begue, Myers	
09.35 – 09.55		te Blends to Explore Combustion-Composition Links for Synthetic sines (UK) – <u>Joanna M. Bauldreay</u> , Paul F. Bogers and Ali Al-Sharshani	
09.55 – 10.15	BREAK		
10.15 – 10.35		ure Regime Oxidation of Hydrocarbon Fuel Models: Aromatic Oxidation, and Alcohol Formation (AUSTRALIA) – <u>David J. Evans, Paul M. Rawson</u> Jebster	
10.35 – 10.55		hthalene Analysis in Liquid Transportation Fuels (USA) fer and Tim Edwards	
10.55 – 11.15	The Impact of – Ken Mitchell	Cetane Improver Additive on the Lubricity of Diesel Fuel (CANADA)	
11.15 – 11.35		mposition of Hydroperoxides: Implications for Jet Fuel Stability (USA) est, Ryan K. Adams and Steven Zabarnick	
11.35 – 11.55	Janice I. Hether	Vater in Aviation Fuels at Low Temperatures (UK) – <u>Mark D. Carpenter</u> , ington, Liyun Lao, Colin Ramshaw, Hoi Yeung, Joseph KW Lam, and Sarah Barley	
11.55 – 12.05	General Quest	ions Session 6	
12.05 – 13.25	LUNCH IN BOA	ATHOUSE BY ENERGY INSTITUTE	

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13.25	Session 5b. ANALYTICAL METHODS Roger Gaughan, Session Chair
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13.30 – 13.50	Round Robin Test Results for Falex 400, A New Jet Fuel Thermal Oxidation Tester, and Heater Tubes for ASTM D 3241 (USA) – <u>Jim Hepp</u>
13.50 – 14.10	Resurrection of the Ellipsometer as an Absolute Way to Measure D 3241 Deposits (USA) – George R. Wilson, III for Ervin Schlepp
14.10 – 14.30	Precision and Reliability of Breakpoint Testing (USA) – <u>George R. Wilson, III</u>
14.30 – 14.50	Analysis of the Structure of Deposited Materials at Inner Surface of Jet Fuel Injector Feed Arm with Optical and Scanning Electron Microscopy (UK) — Ehsan Alborzi, Simon G. Blakey, Hasan Ghadbeigi, Christopher Pinna, Mohamed Pourkashanian, and Christopher W. Wilson for Ehsan Alborzi
14.50 – 15.10	Analysis of Large-Scale Thermal Stability Testing (UK) – <u>Simon G. Blakey</u> , Thomas Spalton and Christopher W. Wilson
15.10 – 15.20	General Questions Session 5b
15.20 – 15.40	BREAK

15.40	Session 7. MIDDLE DISTILLATE FUELS AND HEAVY OILS Paul Bessonette, Session Chair
15.45 – 16.05	Controlling the Sterol-Glucosides and Saturated Monoglycerides Impurities in Biodiesel (CANADA) - <u>Marc-Andre Poirier</u> and Charles Lund
16.05 – 16.25	H ₂ S In and Above Fuel Oils – Analysis and Control (NETHERLANDS) - <u>Ivo J. Dijs</u> , Willie Schermer, Remon te Velthuis, Arjen Nieuwhof, and Koen Steernberg
16.25 – 16.45	Abatement of Hydrogen Sulphide from Asphalt Storage Tanks (USA) – <u>Jennifer Draper</u> and Joseph Stark
16.45 – 16.55	General Questions Session 7
18.05 – 18.10	Meet in Hyatt Lobby for bus transportation to Ringling Museum & Estate
18.30 – 22.00	GALA DINNER AT CA' D'ZAN ON RINGLING ESTATE - SPONSORED BY FUEL QUALITY SERVICES, INC.

THURSDAY 20th OCTOBER 2011 BALLROOM SOUTH

07.00 - 09.00	Breakfast in Boathouse
08.20 - 08.25	Announcements
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08.25	Session 8. PERFORMANCE ENHANCEMENT – ADDITIVES AND PROCESSING
******	Gary Bessee, Session Chair
08.30 - 08.50	Studies of Low-Temperature Operability Additives for Biodiesel Blends of 20% and Lower (USA) - <u>Steven R. Westbrook</u>
08.50 - 09.10	Evaluation of Cold Flow Improvers in a Multi-Functional Additive System Designed for Use in North American Diesel Fuel (USA) – <u>J. Andrew Waynick</u>
09.10 - 09.30	The Use of MBO for the Prevention of Microbial Influenced Corrosion in Steel Pipelines and Tanks (GERMANY) - <u>Wolfgang Siegert</u>
09.30 - 09.50	Corrosion Mitigation in Contaminated Fuel: Activity of Pipeline Corrosion Inhibitors (USA) - <u>Matthew Barnes</u> , Ksenija Babic and Joseph Stark
09.50 - 10.00	General Questions Session 8
10.00 – 10.20	BREAK
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10.20	Session 9. LONG TERM STORAGE STABILITY OF LIQUID FUELS Steve Westbrook, Session Chair
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10.25 – 10.45	Assessment of the Effectiveness of Antioxidant Additives to Jet-A Fuel Downstream at Point of Use (USA) – <u>Janet M. Hughes</u> , Robert E. Morris, Nathan J. Begue and Kristina M. Myers
10.45 – 11.05	Reactive Sulfur Management in Petroleum Storage Facilities (USA) – <u>Joseph Stark,</u> Jennifer Draper and Nadjmeh Doostdar
11.05 – 11.25	Creating and Maintaining National Stocks and Strategic Reserve (POLAND) – <u>Arkadiusz Majoch</u>
11.25 – 11.45	Measurement of Trace Elements in Processed Fuel Oils Produced from Recycled Lubricating Oils (UK) – <u>Jim Crighton</u>
11.45 – 12.05	<u>Student Award Paper</u> : Thermal Oxidative Stability of Middle Distillate Fuels – Part 1: Chemistry of Deposit Formation (USA) – <u>Christopher G. Kabana</u> , Victor Fiorina, Colin Schmucker and Bruce Beaver

12.05 – 12.15	General Questions Session 9
12.15 – 13.30	LUNCH IN BOATHOUSE - SPONSORED BY US DEFENSE LOGISTICS AGENCY-ENERGY
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13.30	Session 10. FUEL MICROBIOLOGY
******	Howard Chesneau, Session Chair
13.35 – 13.55	Can Non-Chemical Antimicrobial Devices Replace or Augment Fuel Treatment Microbicides? (USA) - <u>Frederick J. Passman</u> , Gerald L. Munson and Robert E. Kauffman
13.55 – 14.15	A Comparison Study of the Effects of Bacteria Contamination on Alternative Fuels
	Versus Petroleum-Derived Fuels (USA) – <u>Susan Mueller</u> , Oscar Ruiz, Ellen Strobel, Loryn Bowen, Marlin Vangsness, Lisa Brown, Lori Balster, Steven Zabarnick, and Nicholas Brown
14.15 – 14.35	Advances in Microbial Mitigation of Aviation Fuels (USA) – Oscar N. Ruiz
14.35 – 14.55	Bioluminescence Response to Microbial Fuel Contamination in the Laboratory and in the Field (USA/GERMANY) – <u>Marlin Vangsness</u> , Charlotte LIndhardt, and <u>Edward W. English, II</u>
14.55 – 15.15	BREAK
15.15 – 15.35	Monitoring of Effectitvity of Biocides During Storage Simulation of Diesel (B0) Biodiesel (B100) and blends (B7 and B10) (BRAZIL)— Zimmer, A.R., Cazarolli, J., Bento, F.M., Teixeira, R.M., Viscardi, S.L.C., Cavalcanti, E.S.H.
15.35 – 15.55	Sustainable and Effective Preservation Strategies for Ultra-Low Sulfur Diesel, Biodiesel and Unleaded Gasoline (USA) – <u>Beth Ann Browne</u>
15.55 – 16.05	General Questions Session 10

16.10 - 16.30	PLENARY SESSION Robert E. Morris, IASH Chairman
17.15	Meet in Hyatt Lobby for bus transportation to Siesta Key Beach
18.00 – 20.00	BEACH BARBECUE AT SIESTA KEY BEACH - SPONSORED BY PARKER HANNIFIN

TECHNICAL POSTER SESSION & EXHIBITOR RECEPTION MONDAY EVENING, 17th OCTOBER 2011 BALLROOM NORTH

18.30 - 20.00

*** SPONSORED BY: US NAVAL RESEARCH LABORATORY ***

Anthony Kitson-Smith, Session Chair

1. Air BP (UK)

Magnetic Filtration - A Pipe-Line Trial (UK) - Presented by Alisdair Q. Clark

2. Defense Logistics Agency-Energy (USA)

Comparison of Neat and Worst-Case FAME-Contaminated Aviation Turbine Fuel – *Presented by Pamela M. Serino*

3. Defence Science & Technology Organisation (AUSTRALIA)

Novel Approaches to Enhanced Fuel Stability: Polymer Supported Antioxidant Systems

- Presented by David Evans

4. Defence Science & Technology Organisation (AUSTRALIA)

A Novel Qualitative Technique for the Identification of Metal Deactivator Additive

- Presented by Paul Rawson

5. MOD / Israel Institute of Biological Research / IDF / Israel Institute of Energy and Environment (ISRAEL)

Hydrogen Sulfide Diffusion in Jet Fuels and Its Fate During Fuel Transport and Storage

- Presented by Rephael Fass

6. PDVSA Intevep (VENEZUELA)

Math-Chemical Adjustment of the Indexes RON and MON of Gasoline Components Hydrocarbons

- Presented by César Pernalete

7. IFP Energies Nouvelles / Laboratoire de Chimie-Physique (FRANCE)

Flash Point Predictions for Fuel Compounds Using QSPR Methods – *Presented by Laurie Starck*

- Fresented by Laurie Starck

8. ONERA Fundamental and Applied Energetics Department (FRANCE)

Fuel Long-Term Storage Stability Evaluated by Mildly Accelerated Test Conditions

- Presented by Mickaël Sicard

9. Real-Time Analyzers, Inc. (USA)

A Raman-Based Portable Fuel Analyzer – Presented by Stuart Farquharson

TECHNICAL POSTERS - Continued

10. KiOR Inc. (USA)

Properties of Gasoline and Diesel Fuels Containing Renewable Drop-In Biofuel Blend Stocks Prepared by the Thermo-Catalytic Conversion of Lignocellulose – *Presented by Jeff Trewella*

11. Universidade Federal do Rio Grande do Sul, Ipiranga Produtos de Petroleo, Instituto Nacional de Tecnologia (BRAZIL)

Monitoring of Effectivity of Biocides During Storage Simulation of Diesel (B0), Biodiesel (B100) and Blends (B7 and B10) – <u>Presented by Roberta Miranda Teixeira</u>

12. PETROBRAS (BRAZIL)

Simplified Methodology for Determining Stability in Mixtures of Crude Oils

– Presented by Marcelo Vieira Alves for Luciano Messina Stor

13. Air Force Research Laboratory / University of Dayton Research Institute (USA)

Alternative Jet Fuels - Turbine Engine Emissions Characteristics - Presented by Edwin Corporan

14. University of Dayton Research Institute / Encore Logistics Systems / Air Force Research Laboratory (USA)

Overview of Efforts to Determine Minimum Required FSII Use and Procurement Limits for USAF Aircraft – *Presented by Matthew DeWitt*

15. University of Dayton Research Institute / Battelle Memorial Institute / Air Force Research Laboratory (USA)

The US Air Force's Assured Aerospace Fuels Research Facility Fischer-Tropsch Liquids Upgrading Reactor – *Presented by Heinz J. Robota*

16. University of Dayton Research Institute / Air Force Research Laboratory (USA)

The Effect of Aromatic Type on the Volume Swell of Nitrile Rubber in Selected Synthetic Paraffinic Kerosenes – <u>Presented by John Graham</u>

17. PAC L.P. (USA/NETHERLANDS)

Determination of FAME Contamination in Aviation Turbine Fuel Using Gaschromatography

— Presented by Larry Spino

18. D-2 Incorporated / Stanhope-Seta (USA/UK)

A Novel New MSEP Determination Instrument – <u>Presented by Alan Fougere</u>

19. Integrated Sensing Systems, Inc. (USA)

An Innovative Density Measurement Technology for Monitoring the Quality of Liquid and Gaseous Fuels – <u>Presented by Wesley Sund</u>

EXHIBITORS

*** CYBER CAFÉ SPONSORED BY AIR BP ***

Air BP – Presented by <u>Steve Anderson & Alisdair Clark</u>

Bruker Optics – Presented by Dick Merk

D-2 Incorporated – Presented by Alan Fougere & Dean Fougere

ECHA Microbiology Ltd. - Presented by Graham Hill & Gareth Williams

Emcee Electronics, Inc. – Presented by Chris Papastrat & Dan LeClair

Energy Institute – Presented by Victoria Dodd & Martin Hunnybun

ExxonMobil Aviation – Presented by <u>Dennis Hoskin & Anthony Kitson-Smith</u>

Falex Corporation – Presented by <u>Jim Hepp & Mike Croudace</u>

Fuel Quality Services, Inc. – Presented by <u>Howard & Debra Chesneau</u>, <u>Angie Coley-McClure</u>, <u>Ed English & Rhonda Rande</u>

Intertek Commodities – Presented by <u>Brent Mackin & Deanna McGraw</u>

KAM CONTROLS, INC. – Presented by Kam Mohajer & Vicky Garza

PAC - Presented by Larry Spino & Kevin Kyle

PAMAS GmbH – Presented by <u>Ed Bielo</u>

Parker Hannifin - Presented by Matt Fielder & Shuan Skilton

Seta Analytics – Presented by Martin Verity & Ian Mylrea

University of Dayton Research Institute – Presented by Matt DeWitt & Steve Zabarnick

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