



**Programme** **Tuesday 18 June 2019**

09.00	<b>Registration and coffee &amp; tea</b>	
09.15	<b>Meeting chairs/speakers day 1</b>	
09.45	<b>Opening speech:</b> Get inSPIREd - Roadmap 2030 for Sustainable Process Industry through Resource and Energy efficiency (SPIRE)	Àngels Orduña Cao, Executive Director, A.SPIRE
10.10	<b>Opening lecture:</b> Latest developments in gas analysis standardisation and their contribution to sustainable development goals	Adriaan van der Veen, ISO/TC 158 chairman
10.35		
	<b>Motorruimte</b>	<b>Hangar 2</b>
	<b>Parallel session "Transition fuels: natural gas and biogas"</b>	<b>Parallel session "Enhancing health, safety and the environment"</b>
	<b>Session chair: Paul Holland, EffecTech (GB)</b>	<b>Session chair: Annarita Baldan, VSL (NL)</b>
10.45	A.01 <b>Keynote:</b> Assessing and validating a new method of knocking characteristic determination for LNG as fuel <i>Martijn van Essen, DNV GL (NL)</i>	B.01 <b>Keynote:</b> A perspective on current standardisation activities in air quality and emissions measurement and implications for gas analysis <i>Rod Robinson, NPL and Chair CEN/TC 264 (GB)</i>
11.20	A.02 LNG test installation for LNG probe vaporizers <i>Hans-Peter Visser, ASaP (NL)</i>	B.02 SI traceability and scales for greenhouse gas measurements and standards <i>Robert Wielgosz, BIPM (FR)</i>
11.45	A.03 Characterization of solids in liquefied natural gas <i>Matthew Hammond, EffecTech (GB)</i>	B.03 Comparable measurements for mercury concentrations in gas emission sources and the atmosphere <i>Iris de Krom, VSL (NL)</i>
12.10	A.04 Implementation of ion mobility spectrometry into micro GC for sulfur analysis in natural gas <i>Henk Top, DNV GL Oil &amp; Gas (NL)</i>	B.04 Advances in underpinning measurements of nitrogen dioxide to understand population level <i>Sivan van Aswegen, NPL (GB)</i>
12.35	<b>Networking lunch and exhibition visit</b> <span style="float: right;"><b>Exhibition floor</b></span>	
13.45	A.05 Quo vadis, biomethane conformity assessment? <i>Jianrong Li, VSL (NL)</i>	B.05 Impurities in gases and gas mixtures: metals and bacteria <i>Giorgio Biscolotti, SIAD (IT)</i>
14.10	A.06 Trace sulphur and organic compounds in biogas from different biomass sources <i>Serge Biollaz, PSI (CH)</i>	B.06 TDLAS NH3 and HF measurement to improve life quality <i>David Janssens, Siemens (DE)</i>
14.35	A.07 Metrology for biomethane project: Development of standardized methods for the analysis of terpenes and ammonia in biomethane <i>Beatrice Sanz, RICE GRT gaz (FR)</i>	B.07 Development of a long-range, open-path ammonia analyzer based on novel, mid-infrared laser spectroscopy <i>Mohammed Belal, MIRICO (GB)</i>
15.00	A.08 Realization of a traceable laser-based quantification method for HCl in biomethane <i>Javis Nwaboh, PTB (DE)</i>	B.08 Photonic system for real time remote monitoring of air quality <i>Rao Tatavarti, CATS Ecosystems (IN)</i>
15.25	<b>Networking coffee &amp; tea break and exhibition visit</b> <span style="float: right;"><b>Exhibition floor</b></span>	
	<b>Parallel session "Gas cylinder handling and treatment"</b>	
	<b>Session chair: Paul Holland, EffecTech (GB)</b>	
15.55	C.01 The use of a new cylinder design for LPG / NGL calibration mixtures <i>Paul Holland, EffecTech (GB)</i>	B.09 Improved PTR-TOF sensitivities open new scenarios in breath analysis <i>Luca Cappellin, University of Padua and ToFwerk (IT)</i>
16.20	C.02 Cylinder valves with integrated pressure regulators (VIPR) for specialty gases <i>Peter Adam, Linde (DE)</i>	B.10 Developing metrology capabilities to underpin breath analysis in the medical sector <i>Sergi Moreno, NPL (GB)</i>
16.45	C.03 Advanced build-in regulator for calibration gas mixture delivery <i>Jean-Luc Blanc, Air Liquide (FR)</i>	B.11 Fastest refinery gas analysis and new innovative sulfur chemiluminescence detector first in industry horizontal redox cell <i>Raj Makhmale, Shimadzu (AE)</i>
17.10	<b>End of symposium programme day 1</b>	
17.15	<b>Celebration ceremony:</b> A retrospective of 10 editions GAS Analysis events	Paul Krüsemann (member organisation committee, Eurofins Materials Science Netherlands)
17.30	<b>Celebration ceremony:</b> Opening of opening drinks	Rik van Terwisga (managing director NEN)
	<b>Opening drinks</b> <span style="float: right;"><b>Exhibition floor</b></span>	
19.00	<b>Closure of exhibition</b> <span style="float: right;"><b>Exhibition floor</b></span>	

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**Programme** **Wednesday 19 June 2019**

08.30		Meeting chairs/speakers day 2				
		<i>Motorruimte</i>		<i>Hangar 2</i>		
		<b>Parallel session "Accelerating the hydrogen economy"</b>		<b>Short course "Accreditation in gas analysis"</b>		
		<i>Session chair: Tracey Jacksier, Air Liquide (US)</i>		<i>Course leader: Rob Wessel, Rob Wessel Consultancy (NL)</i>		
09.00	D.01	<b>Keynote:</b> Towards sustainable hydrogen society - The future outlook of fuel cell vehicles in Toyota and global hydrogen quality requirements	<i>Ward Storms, Toyota Motors Europe (BE)</i>	Revised editions of ISO 17034, General requirements for the competence of reference material producers and ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories have been published in 2016 and 2017, respectively. This short course will explain all key changes in these two important international standards. Also the differences in application related to the gas analysis domain will be discussed. In addition, the short course will explain in detail how correct implementation of the international standards developed and published by ISO/TC 158 "Analysis of gases" can help you to successfully prepare for accreditation against ISO 17034 and/or ISO/IEC 17025.		
09.35	D.02	How to ensure the quality of hydrogen for fuel cell vehicles?	<i>Martine Carré, Air Liquide (FR)</i>			
10.00	D.03	Quality assurance of fuel cell hydrogen: from car and hydrogen refuelling station to the analytical laboratory	<i>Thomas Bacquart, NPL (GB)</i>			
10.25	D.04	Performances of available analytical methods to control the purity of hydrogen according to ISO 14687-2	<i>Frederique Haloua, LNE (FR)</i>			
10.50	<b>Networking coffee &amp; tea break and exhibition visit</b>					
11.20	D.05	Trace level analysis of reactive ISO 14687-2 impurities in hydrogen gas	<i>Heleen Meuzelaar, VSL (NL)</i>			
11.45	D.06	Sampling for trace analytes	<i>Thomas Huddle, EnDet (GB)</i>			
12.10	D.07	Towards a novel primary method for the production and certification of trace water vapour in hydrogen reference gas mixtures	<i>Paul Carroll, NPL (GB)</i>			
12.35	<b>Networking lunch and exhibition visit</b>		<i>Exhibition floor</i>			
		<b>Parallel session "Measuring isotopes"</b>		<b>Parallel session "Metrology, standardisation &amp; certification"</b>		
		<i>Session chair: Tracey Jacksier, Air Liquide (US)</i>		<i>Session chair: Robert Wielgosz, BIPM (FR)</i>		
13.45	E.01	Enhanced mixture stability of stable isotopic gases in non-refillable cylinders	<i>Tracey Jacksier, Air Liquide (US)</i>	F.01	Challenges in development of NO <sub>2</sub> primary reference materials in the range of 1 µmol/mol - 10 µmol/mol	<i>Ewelina Zalewska, VSL (NL)</i>
14.10	E.02	Gas mixtures with stable <sup>13</sup> C isotopes at different concentration	<i>Fabrizio Turra, SIAD (IT)</i>	F.02	Highly accurate nitric acid (HNO <sub>3</sub> ) in nitrogen standards based on permeation	<i>Edgar Flores, BIPM (FR)</i>
14.35	E.03	CO <sub>2</sub> isotope ratio metrology: Measurement compatibility across IRMS inlet techniques	<i>Abneesh Srivastava, NIST (US)</i>	F.03	Choosing between different dynamic gas standards generation methods of the ISO 6145 series	<i>Daniël Calabrese, LNI Swissgas (CH)</i>
15.00	E.04	Preparation of pure CO <sub>2</sub> samples for a CCQM comparison of isotope ratio measurement capabilities	<i>Joële Viallon, BIPM (FR)</i>	F.04	Development of primary measurement standards of trace moisture in argon, helium and oxygen using multi-gas trace-moisture generator	<i>Minami Amano, NMIJ (JP)</i>
15.25	<b>Networking coffee &amp; tea break and exhibition visit</b>		<i>Exhibition floor</i>			
		<b>Parallel session "Laboratory and process optimisation"</b>				
		<i>Session chair: Paul Krüseemann, Eurofins Materials Science (NL)</i>				
15.55	G.01	Improve your processes, treat your surfaces	<i>Jeroen de Jong, Interscience (NL)</i>	F.05	A new preparation valve for high precision gravimetric mixtures	<i>Gergely Vargha, EfecTech (GB)</i>
16.20	G.02	Predicting separations using ProEZGC GC modelling: a new free web-tool offering the most cost-effective way to optimize and speed up analysis, without using an instrument	<i>Jaap de Zeeuw, Restek (NL)</i>	F.06	Industrial Emission Directive (IED) implementation updated with focus on calibration and instrumentation gases necessary to comply with the new regulatory requirements	<i>Roberto Parola, Linde AG (DE)</i>
16.55	<b>End of symposium programme day 2</b>					
17.15	<b>Closure of exhibition</b>			<i>Exhibition floor</i>		
17.45	<b>Start social event</b>			<i>Meeting point</i>		

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**Programme****Thursday 20 June 2019**

09.00		Meeting chairs/speakers day 3		Mees Auditorium	
		<i>Motorruimte</i>		<i>Hangar 2</i>	
		Parallel session "Laboratory and process optimisation" (continued)		Short course "Practical maintenance and troubleshooting in gas chromatography"	
		Session chair: Paul Krüsemann, Eurofins Materials Science (NL)		Course leader: Jaap de Zeeuw, Restek (NL)	
09.30	G.03	Recent innovations of nanoplasma devices and corresponding spectroscopic application	Lars Hildebrandt, nanoplasma (DE)	<p>In gas chromatography (GC), 90% of the trouble experienced is happening in the injection system. In this short course we will discuss the purpose and impact of critical parts (consumables) present in split and splitless injection systems, and how they can impact your results.</p> <p>We will discuss the practical maintenance challenges for split and splitless injection techniques. We will zoom in carrier gas choice and purity, tubing, connections, septa, ferrules, seals, liners, column-coupling, installation and column maintenance. Practical tips and tricks will be shared, which allow you to recognise and solve majority of GC challenges. Examples will be discussed by real, practical examples. Some basic knowledge of GC separations is recommended.</p> <p>During the discussions, we also will share details on predicting and optimise separations using computer modelling as well as the latest developments on surface deactivation techniques to passivate analytical systems.</p>	
09.55	G.04	Performance evaluations of inferential devices	Adam Lomax, EfecTech (GB)		
10.20	G.05	Opportunities of advanced process control (APC) applications	Martin van der Veer, Shell (NL)		
10.45	Networking coffee & tea break and exhibition visit				
11.15	G.06	Development of a compact trace-moisture sensor based on cavity ring-down spectroscopy	Hisashi Abe, AIST (JP)		
11.40	G.07	Improving sensitivity and speed of response of parts-per-trillion level moisture detection in UHP gases	Florian Adler, Tiger Optics (US)		
12.05	G.08	Extremely quick response of a ball SAW trace moisture sensor	Yusuke Tsukuhara, Ball Wave (JP)		
12.30	G.09	Automated real-time monitoring of trace compounds with PTR-MS	Bea Rosenkranz, IONICON Analytik (AT)		
12.55	Networking lunch and exhibition visit				
				Parallel session "Energy gases"	
				Session chair: Martin van der Veer, Shell (NL)	
14.10	G.10	Sub-ppbv sensitivity in on-line analysis of VOCs by a novel PTR-ToF reaction cell superposing DC and RF fields	Felipe Lopez, ToFwerk (CH)	H.01	An ASTM international standard for the analysis of volatile silicon-containing compounds in gaseous fuels by gas chromatography with spectroscopic detection
14.35	G.11	Systematic evaluation of condensation particle counters	Krzysztof Ciupek, NPL (GB)	H.02	Analytical performance evaluation of a dynamic energy gas analyzer
				Russell Bora, GTI (US)	
				Fred Kaaby, Institute for Energy Technology (NO)	
15.00	Networking coffee & tea break and exhibition visit			Exhibition floor	
15.30	Concluding session with best lecture award and best poster award			t.b.c.	
16.00	Closure of exhibition				