Announcements

2016

Dec. 8 - 11
(Chiang Mai, Thailand)
ASIANALYSIS XIII.
Contact: Secretariat ASIANALYSIS XIII, clo Center of Excellence for Innovation in Analytical Science, and Technology (I-ANALY-S-T) Office, Science Complex Building II (SCB 2), Room 2323, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand (e-mail: asianalysis.thailand@gmail.com; Website: http://asianalysis13.cmu.ac.th/).

May 27 - 28
(Kyoto, Japan)
The 77th Symposium of the Japan Society for Analytical Chemistry.*

Sep. 9 – 12
(Tokyo, Japan)
The 66th Annual Meeting of the Japan Society for Analytical Chemistry.*

2017

March 5 – 9
(Chicago, USA)
The Pittsburgh Conference 2017 (Pittcon 2017).
Contact: The Pittsburgh Conference Office, 300 Penn Center Boulevard, Suite 332, Pittsburgh, PA 15235-5503, USA (e-mail: info@pittcon.org; Website: http://pittcon.org/pittcon-2017/).

Nov. 12 – 17
(Shimane, Japan)
Contact: Discussion Group for Plasma Spectrochemistry (e-mail: office@plasma.dg.jp).


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We are pleased to announce that Analytical Sciences administers the abstracts of selected papers published in Bunseki Kagaku. Bunseki Kagaku is an article magazine (monthly publication in Japanese) of The Japan Society for Analytical Chemistry. Bunseki Kagaku publishes peer-reviewed original, technical and review articles, analytical data and techno reports that pertain to various aspects of analytical chemistry. The insertion of the abstracts in Analytical Sciences will help readers all over the world to be aware of recent advances in all fields of analytical chemistry.

(The editorial committee of Bunseki Kagaku)
Development of Analytical Methods for the Air Pollutants in Flue Gas by Ion Chromatography

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Air pollutants, such as sulfur oxides (SOx), nitrogen oxides (NOx) and hydrogen chloride (HCl), which are exhausted from factories and incineration plants, are strictly regulated in the air pollution control acts. Therefore, titrimetry, spectrophotometry or an ion-selective electrode method have been adopted in JIS K 0103, JIS K 0104 and JIS K 0107 for the determination of these pollutants. Since then, gradually the concentration of these air pollutants had become lower due to the regulation laws, the conversion of oil to low-sulfur ones, improvement of the combustion process and the treatment of exhaust gases. As the results, the conventional methods described in JIS have been insufficient for the determination of such low concentrations. Ion chromatography (IC) is a suitable analytical method for the determination of anions and cations. It has therefore been adopted in the JIS as the determination methods of SOx, NOx, HCl and NH3 in flue gas. Recently, a new IC method for the determinations of fluoride compounds (HF), bromine compounds (HBr), chlorine compounds (HCl), hydrogen cyanide (HCN) and formaldehyde (HCHO) in flue gas has been developed and adopted to the JIS method. This paper reviews the IC methods employed in 9 Japanese Industrial Standards (JISs) for the determination of air pollutants in flue gas. In addition, the determination of sulfur and ammonia in fuel gas (JIS K 2901) and sulfur in fuel oil (JIS K 2541-3) by IC is described.

Keywords: ion chromatography; flue gas analysis; sulfur oxides; nitrogen oxides; halogen compounds; hydrogen cyanide; formaldehyde ammonia.

Fabrication and Evaluation of Calcium Ion Releasing Electrochemical Device Using a Ternary Complex

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The Ca2+ release device was a carbon paste electrode including a ternary complex consisting of poly(vinyl sulfate) ion (PVS–), 11-ferrocenylammonium ion trimethylundecyl (FeTMUA+), and Ca2+. The ternary complex was characterized by potentiometric titrations. The potentiometric colloidal titration of PVS– with FeTMUA+ using a surfactant electrode indicated that the potentials in the titration curve sharply increased at the equivalent point, and then the complexation was strong. The potentiometric titration of PVS– with Ca2+ using a Ca2+-selective electrode had no significant endpoint because of weak complexation. The binding behavior of Ca2+ with PVS– was independent of the coexistence of FeTMUA+. The carbon paste electrode (CPE) including the ternary complex was characterized by cyclic voltammetry. The peak of the oxidation wave of FeTMUA+ was observed at 800 mV (vs. saturated Ag/AgCl), which was larger than the oxidation potential of FeTMUA+ adsorbed on CPE from an aqueous solution. The release amount of Ca2+ was evaluated by atomic adsorption spectroscopy. After electrolysis, the release amount of Ca2+ increased with the content amount; the high content CPE released Ca2+ even without electrolysis, but the low content CPE did not release a significant amount without electrolysis. At last, a Ca2+ release electrochemical device was fabricated; a thin end (φ 0.5 mm) of a polypropylene tip was stopped with the CPE, and a Pt wire inserted into the CPE. The slight amount of Ca2+ released from the limited area of the tip was monitored by a CCD Ca2+ image sensor. The released amount of Ca2+ increased with the electrolysis time only just under the tip, while the other area had no significant change of Ca2+. The small device can locally release Ca2+ to only a limited area. In addition, the analysis of the image sensor displayed that the Ca2+ release of the device was a two-stage discharge: in first stage Ca2+ released from the surface, and in second stage a large amount of Ca2+ was released independent of electrolysis. The CCD Ca2+ image sensor was very useful to characterize the Ca2+ release device.

Keywords: Ca2+-release electrochemical device; anionic polyelectrolyte; electroactive cationic surfactant; CP; CCD Ca2+ image sensor.
**X-ray Structure Analysis Online**  
Vol. 32, Part 10 (pp. 45 – 48)

The Japan Society for Analytical Chemistry’s electronic-only journal for the concise crystal structure reports on all classes of compounds. Our webpage, http://www.jsac.or.jp/cgi-bin/xraystruct/toc/.

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*Crystal Structure of 7-Amino-4-iodo-3-propyl-1H-isochromen-1-one*

Jean Guillon, Luisa Ronga, Mathieu Marchivie, and Vincent Lisowski

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*Synthesis, Spectroscopic Study and Crystal Structure of a New Amidophosphonate, (C₆H₅O)₂P(O)(NHCH(CH₃)-(C₂H₅))- (C₃H₅)*

Farahnaz Hamzehee, Mehrdad Pourayoubi, and Duane Choquesillo-Lazarte