



SMS Scientific Bulletin

January 2010

SMS instruments are used over a wide range of disciplines. To keep abreast with cutting edge research using dynamic vapor sorption and inverse gas chromatography, SMS regularly reviews the literature. The below papers present recent peer-reviewed articles utilizing SMS technology.

DVS Articles:

DD Davis, R Horton, JL Heitman, and TS Ren, "**Wettability and Hysteresis Effects on Water Sorption in Relatively Dry Soil**" *Soil Science of America Journal*, 73(6): 1947-1951 (2009).

J Zhao, JA Platt, and D Xie, "**Characterization of a novel light-cured star-shape poly(acrylic acid)-composed glass-ionmer cement: fluoride release, water sorption, shrinkage, and hygroscopic expansion**" *European Journal of Oral Sciences*, 117(6): 755-765 (2009).

BW Brooks, DB Huggett, and ABA Boxall, "**Pharmaceuticals and personal care: research needs for the next decade**" *Environmental Toxicology and Chemistry*, 28(12): 2469-2742 (2009).

S Merakeb, F Dubois, and C Petit, "**Modelling of the sorption hysteresis for wood**" *Wood Science and Technology*, 43(7): 575-589 (2009).

RDS Yadava, R kshetrimayum, and M Khaneja, "**Multifrequency characterization of viscoelastic polymers and vapor sensing based on SAW oscillators**" *Ultrasonics*, 49(8): 638-645 (2009).

JG Park, Q Ye, EM Topp, A Misra, and P Spencer, "**Water sorption and dynamic mechanical properties of dentin adhesives with a urethane-based multifunctional methacrylate monomer**" *Dental Materials*, 25(12): 1569-1575 (2009).

N Joshi and A Muliana, "**Deformation in viscoelastic sandwich composites subject to moisture diffusion**" *Composite Structures*, 92(2): 254-264 (2009).

S Poyet, "**Experimental investigation of the effect of temperature on the first desorption isotherm of concrete**" *Cement and Concrete Research*, 39(11): 1052-1059 (2009).

S Poyet and S Charles, "**Temperature dependence of the sorption isotherms of cementbased materials: Heat of sorption and Clausius-Clapeyron formula**" *Cement and Concrete Research*, 39(11): 1060-1067 (2009).

E Ma, T Nakao, and GJ Zhao, "**Adsorption rate of wood during moisture sorption processes**" *Wood Research*, 54(3): 13-22 (2009).

J Kowalski, O Kalb, YM Joshi, and ATM Serajuddin, "**Application of melt granulation technology to enhance stability of a moisture sensitive immediate-release drug product**" *International Journal of Pharmaceutics*, 381(1): 56-61 (2009).

Y Sato, Y Wada, and A Higo, "**Relationship between monolayer water contents, and involvement in gelatinization of baked starch products**" *Journal of Food Engineering*, 96(2): 172-178 (2009).

J Bauer, R Herrmann, W Mittelbach, and W Schwieger, "Zeolite/aluminum composite adsorbents for application in adsorption refrigeration" *International Journal of Energy Research*, 33(13): 1233-1249 (2009).

ACF Rumondor, PJ Marsac, LA Stanford, and LS Taylor, "Phase behavior of Poly(vinylpyrrolidone) containing amorphous solid dispersions in the presence of moisture" *Molecular Pharmaceutics*, 6(5): 1492-1505 (2009).

IGC Articles:

S Das, I Larson, P Young, and P Stewart, "Surface energy changes and their relationship with the dispersibility of salmeterol xinafoate powders for inhalation after storage at high RH" *European Journal of Pharmaceutical Sciences*, 38(4): 347-354 (2009).

U Domanska and Z Zolek-Tryznowska, "Thermodynamics properties of hyperbranched polymer Boltorn U3000 Using polymer, U3000, IGC" *Journal of Physical Chemistry B*, 113(46): 15312-15321(2009).

MR Cuervo, E Diaz, B de Rivas, R Lopez-Fonseca, S Ordonez, and JI Gutierrez-Ortiz, "IGC as a technique for the characterization of the performance of Mn/Zr mixed oxides as combustion catalysts" *Journal of Chromatography A*, 1216(45): 7873-7881 (2009).

HPH Arp and KU Goss, "Gas/Particle partitioning behavior of perfluorocarboxylic acids with terrestrial aerosols" *Environmental Science & Technology*, 43(22): 8542-8547 (2009).

A Voelkel, B Strzemiescka, and T Jesionowski, "The examination of the degree of coverage of the fused alumina abrasive by resol wetting agent by IGC" *Chromatographia*, 70(9-10): 1393-1397 (2009).

ZB Tong, RY Yang, AB Yu, S Adi, and HK Chan, "Numerical modelling of the breakage of loose agglomerates of fine particles" *Powder Technology*, 196(2): 213-221 (2009).

R Ho, DA Wilson, and JYY Heng, "Crystal habits and the variation in surface energy heterogeneity" *Crystal Growth & Design*, 9(11): 4907-4911 (2009).

M Barrande, I Beurroies, R Denoyel, I Tatarova, M Grambicka, M Polakovic, M Joehneck, and M Schulte, "Characterization of porous materials for bioseparation" *Journal of Chromatography A*, 1216(41): 6906-6919 (2009).

K Srinivas, TM Potts, and JW King, "Characterization of solvent properties of methyl soyate by IGC and solubility parameters" *Green Chemistry*, 11(10): 1581-1588 (2009).

K Sieg, E Starokozhev, MU Schmidt, and W Puttmann, "Inverse temperature dependence of Henry's law coefficients for volatile compounds in supercooled water" *Chemosphere*, 77(1): 8-14 (2009).

SP Chamarchy, R Pinal, and MT Carvajal, "Elucidating raw material variability-importance properties and functionality in pharmaceutical powders" *AAPS PharmSciTech*, 10(3): 780-788 (2009).

XL Han, XJ Ma, JD Liu, and HP Li, "Adsorption characterisation of water and ethanol on wheat starch and wheat gluten using IGC" *Carbohydrate Polymers*, 78(3): 533-537 (2009).

Recent SMS Application Notes and Case Studies:

AAPS Annual Meeting: Comparison of Different Techniques to Measure the Surface Roughness of Pharmaceutical Powders

Upcoming SMS Conferences:

PhanTA-11; Innsbruck, Austria; 7-10 February 2010

Upcoming SMS Training Courses:

SMS UK Office: 11-12 May 2010 and 7-8 September 2010; SMS US Office: 18-19 May 2010 and 14-15 September 2010; Belgium: February 2010; Germany April 2010; Contact local office for details.

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