

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 represent recent peer-reviewed articles utilizing gravimetric vapor sorption or inverse gas chromatography.

DVS Articles:

C Karunanithy, K Muthukamarappan, and A Donepudi, "**Moisture sorption characteristics of switchgrass and prairie cord grass**" *Fuel*, 103(S1): 171-178 (2013).

MR Shah and GD Yadav, "**Prediction of sorption in polymers using quantum chemical calculations: Application to polymer membranes**" *Journal of Membrane Science*, 427: 108-117 (2013).

S Kanehashi, S Konishi, K Takeo, K Owa, H Kawakita, S Sato, T Miyakoshi, and K Nagai, "**Effect of OH group on the water vapor sorption property of adamantane-containing polymer membranes**" *Journal of Membrane Science*, 427: 176-185 (2013).

N Follain, S Belbekhouche, J Bras, G Siqueira, S Marais, and A Dufresne, "**Water transport properties of bio-nanocomposites reinforced by *Luffa cylindrica* cellulose nanocrystals**" *Journal of Membrane Science*, 427: 218-226 (2013).

JC Spada, CPZ Norena, LDF Marczak, and IC Tessaro, "**Water adsorption isotherms of microcapsules with hydrolyzed pinhao (*Araucaria angustifolia* seeds) starch as wall material**" *Journal of Food Engineering*, 114(1): 64-69 (2013).

P Suppakuk, B Chalernsook, B Ratisuthawat, S Prapasitthi, and N Munchukangwan, "**Empirical modeling of moisture sorption characteristics and mechanical and barrier properties of cassava flour film and their relation to plasticizing-antiplasticizing effects**" *Food Science and Technology*, 50(1): 290-297 (2013).

A Rezk, R Al-Dadah, S Mahmoud, and A Elsayed, "**Characterisation of metal organic frameworks for adsorption cooling**" *Journal of Heat and Mass Transfer*, 55(25-26): 7366-7374 (2012).

H Abe and M Otsuka, "**Comparison of physic-chemical characteristics among three pharmaceutical spherical carbon adsorbents**" *Colloids and Surfaces B*, 100: 90-94 (2012).

DS Hussey, D Spornjak, AZ Weber, R Mukundan, J Fairweather, EL Brosha, J Davey, JS Spendelow, DL Jacobson, and RL Borup, "**Accurate measurement of the through-plane water content of proton-exchange membranes using neutron radiography**" *Journal of Applied Physics*, 112(10) 104906 - 104906-13 (2012).

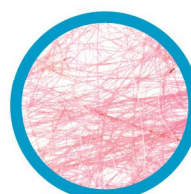
N Bhourri, S Bennisrallah, and P Perre, "**Influence of geometrical structure on sorption isotherms of Jersey and yarns made of cotton at two temperatures**" *Microporous and Mesoporous Materials*, 163: 76-84 (2012).

A Kumar, A Jha, P Jain, JK Sahu, and S Arora, "**Moisture sorption characteristics of lal peda at different storage temperatures**" *Food Research International*, 49(1): 373-378 (2012).

D Karamanis, E Vardoulakis, E Kyritsi, and N Okte, "**Surface solar cooling through water vapor desorption from photo-responsive sepiolite nanocomposites**" *Energy Conversion and Management*, 63(S1): 118-122 (2012).

M Caurie, "**A method to correct the wide discrepancy between Brunauer, Emmett and Teller water and N₂ surface areas of adsorbents**" *International Journal of Food Science and Technology*, 47(11): 2366-2371 (2012).

J Lee and DY Lee, "**Sorption characteristics of a novel polymeric desiccant**" *International Journal of Refrigeration*, 35(7): 1940-1949 (2012).



The Total Sorption Solution

KJ Paluch, L Tajber, MI Amaro, OI Corrigan, and AM Healy, "Impact of process variables on the micromeritic and physicochemical properties of spray-dried microparticles – Part II" *Journal of Pharmacy and Pharmacology*, 64(11): 1583-1597 (2012).

B Madsen, P Hoffmeyer, and H Lilholt, "Hemp yarn reinforced composites – III. Moisture content and dimensional changes" *Composites Part A*, 43(11): 2151-2160 (2012).

PL Cui, QX Yin, YH Guo, and JB Gong, "Polymorphic crystallization and transformation of Candesartan Cilexetil" *Industrial & Engineering Chemistry Research*, 51(39): 12910-12916 (2012).

A Ben Fraj, S Bonnet, and K Khelidj, "New approach for coupled chloride/moisture transport in non-saturated concrete with and without slag" *Construction and Building Materials*, 35: 761-771 (2012).

Y Wang, XY Wang, M Scholz, and DK Ross, "A physico-chemical model for the water sorption isotherms of hardened cementitious materials" *Construction and Building Materials*, 35: 941-946(2012).

TH Yang and SJ Lue, "UNIQUAC and UNIQUAC-HB models for the sorption behavior of ethanol/water mixtures in cross-linked polydimethylsiloxane membrane" *Journal of Membrane Science*, 415: 534-545 (2012).

GM Shi, TX Yang, and TS Chung, "Polybenzimidazole (PBI)/zeolitic imidazolate frameworks (ZIF-8) mixed matrix membranes for pervaporation dehydration of alcohols" *Journal of Membrane Science*, 415: 577-586 (2012).

MJ Roth, J Kim, EM Maresh, DA Plymire, JR Corbett, JM Zhang, and SM Patrie, "Thin-layer matrix sublimation with vapor-sorption induced co-crystallization for sensitive and reproducible SAMDI-TOF MS analysis of protein biosensors" *Journal of the American Society for Mass Spectrometry*, 23(10): 1661-1669 (2012).

S Jena and H Das, "Moisture sorption studies on vacuum dried coconut presscake" *Journal of Food Science and Technology*, 49(5): 638-642 (2012).

EM Davis, M Minelli, MG Baschetti, GC Sarti, and YA Elabd, "Nonequilibrium sorption of water in Polylactide" *Macromolecules*, 45(18): 7486-7494 (2012).

Y Liu, JL Horan, GJ Schlichting, BR Caire, MW Liberatore, SJ Hamrock, GM Haugen, MA Yandrasits, S Seifert, and AM Herring, "A small-angle x-ray scattering study of the

development of morphology in films formed from the 3M perfluorinated sulfonic acid ionomer" *Macromolecules*, 45(18): 7495-7503 (2012).

IGC Articles:

YH Peng, SM Chou, and YH Shih, "Sorption interactions of volatile organic compounds with organoclays under different humidities by using linear solvation energy relationships" *Adsorption-Journal of the International Adsorption Society*, 18(5-6): 329-336 (2012).

M Bowen, N Armstrong, and YF Maa, "Investigating high-concentration monoclonal antibody powder suspension in nonaqueous suspension vehicles for subcutaneous injection" *Journal of Pharmaceutical Sciences*, 101(12): 4433-4443 (2012).

IM Balashova, RG Buduen, and RP Danner, "Solubility of organic solvents in 1,4-cis-polybutadiene" *Fluid Phase Equilibria*, 334 10-14 (2012).

YL Chen, Q Want, ZF Zhang, and J Tang, "Determination of the solubility parameter of ionic liquid 1-hexyl-3-methylimidazolium hexafluorophosphate by IGC" *Industrial & Engineering Chemistry Research*, 51(46): 15293-15298 (2012).

J Zhao, KKC Ho, SR Shamsuddin, A Bismarck, and V Dutschk, "A comparative study of fibre/matrix interface in glass fibre reinforces polyvinylidene fluoride composites" *Colloids and Surfaces A*, 413(SI): 58-64 (2012).

PE Luner, Y Zhang, YA Abramov, and MT Carvajal, "Evaluation of milling method on the surface energetics of molecular crystals using IGC" *Crystal Growth & Design*, 12(11): 5271-5282 (2012).

NA Belov, AP Safronov, and YP Yampolskii, "IGC and the thermodynamics of sorption in polymers" *Polymer Science Series A*, 54(11): 859-873 (2012).

M Castellano, E Marsano, A Turturro, L Conzatti, and G Busca, "Dependence of surface properties of silylated silica on the length of silane arms" *Adsorption-Journal of the International Adsorption Society*, 18(3-4): 307-320 (2012).

A Marciniak and M Wlazlo, "Activity coefficients at infinite dilution and physicochemical properties for organic solutes and water in the ionic liquid 1-(2-methoxyethyl)-1-methylpyrrolidinium bis(trifluoromethylsulfonyl)-amide" *Journal of Chemical Thermodynamics*, 54: 90-96 (2012).

M Wlazlo and A Marciniak, "Activity coefficients at infinite dilution and physicochemical properties for organic solutes and water in the ionic liquid 4-(2-methoxyethyl)-4-methylmorpholinium trifluorotris(perfluoroethyl) phosphate" *Journal of Chemical Thermodynamics*, 54: 366-372 (2012).

N Batalha, A Soualah, L Pinard, Y Pouilloux, F Lemos, and T Belin, "Impact of the BEA zeolite morphology on isobutene adsorption followed by reversed-flow IGC" *Journal of Chromatography A*, 1260: 206-214 (2012).

B Strzemiescka, M Kasperkowiak, M Lozynski, D Pauksza, and A Voelkel, "Examination of zeolites as fragrance carriers" *Microporous and Mesoporous Materials*, 161: 106-114 (2012).

XM Zhang and F Wania, "Modeling the uptake of semivolatile organic compounds by passive air samples: Importance of mass transfer processes within the porous sampling media" *Environmental Science & Technology*, 46(17): 9563-9570 (2012).

CG Da Silva, F Oliveira, EC Ramiers, A Castellan, and E Frollini, "Composites from a forest biorefinery byproduct and agrofibers: Lignosulfonate-phenolic type matrices reinforced with sisal fibers" *Tappi Journal*, 11(9): 41-49 (2012).

I Murrieta-Pazos, C Gaiani, L Galet, R Calvet, B Cuq, and J Scher, "Food powders: Surface and form characterization revisited" *Journal of Food Engineering*, 112(1-2): 1-21 (2012).

New SMS Publications:

Journal Articles

"Effect of Processing Route on the Surface Properties of Amorphous Indomethacin Measured by Inverse Gas Chromatography" *in Press: AAPS PharmSciTech*.

Application Notes

"Use of DVS-Near IR Technique for Material Characterization" *DVS Application Note 58*.

Upcoming Conferences:

Adhesion Society Annual Meeting: Daytona, FL, USA; 3-5 March 2013; Exhibitor and Presenter.

German Zeolite Meeting: Tagung, Germany; 06-08 March 2013; Exhibitor.

4th International Conference on Organic Solvent Nanofiltration: Aachen, Germany; 12-14 March 2013; Presenter.

Polymer Nanocomposites: Lehigh University, USA; 11-13 March 2013; Exhibitor.

Annual Meeting of Pharmaceutical Society of Japan: Yokohama, Japan, 27-30 March 2013; Exhibitor.

UK and Ireland Controlled Release Society: University of Reading, UK; 15-16 April 2013; Exhibitor and Presenter.

Powtech: Numberg, Germany; 23-25 April 2013; Exhibitor.

DACH SMS User Group Meeting: 16-17 April 2013; Details TBA.

SMS Training:

SMSNA Office: 07 May 2013 (DVS) and 08 May 2013 (IGC/SEA); Email Science@smsna.com for details.

SMSUK Office: 01 May 2013 (DVS); 02 May 2013 (IGC/SEA); Email Science@smsuk.co.uk for details.

Head Office:

Surface Measurement Systems, Ltd
5 Wharfside, Rosemont Road
London HA0 4PE, UK
Tel: +44 (0)20 8795 9400
Fax: +44 (0)20 8795 9401
Email: science@smsuk.co.uk

United States Office:

Surface Measurement Systems, Ltd, NA
2125 28th Street SW, Suite I
Allentown, PA 18103, USA
Tel: +1 610 798 8299
Fax: +1 610 798 0334
Email: science@smsna.com

