REFERENCES

- Acosta E., Uchiyama H., Sabatini D.A., and Harwell J.H. (2002a) The role of hydrophilic linkers. <u>Journal of Surfactants and Detergents</u>. 5(2), 151-157.
- Acosta E., Uchiyama H., Tran S., Sabatini D.A., and Harwell J.H. (2002b) Formulating chlorinated hydrocarbon microemulsions using linker molecules. Environmental Science and Technology. 36(21), 4618-4624.
- Acosta, E., Uchiyama, H., Le, M.A., Harwell, J.H., and Sabatini, D.A. (2003)

 Coalescence and solubilization kinetics and in linker-modified microemulsions and related system. <u>Langmuir</u>, 19, 566-573.
- American Society for Test and Materials ASTM D 4265-98 (2000) Standard guide for evaluating stain removal performance in home laundering. <u>Annual Book of ASTM Standards vol.15.04</u>, West Conshohocken, PA.
- Azemar, N., Carrera, I., and Solans, C. (1993) Studies on textile detergency at low temperature. <u>Journal of Dispersion Science and Technology</u>, 4(6), 645-660.
- Azemar, N. (1996) The role of microemulsions in detergency process. In Solans, C., and Kunieda, H. (Eds.). <u>Industrial Applications of Microemulsions</u>. New York: Marcel Dekker.
- Bityut, K.P., and Satya, P.M. (2001) Uses and applications of microemulsions.

 <u>Current Science</u>, 80(8), 990-1001.
- Bourrel, M., and Schechter, R.S. (1988) Formulation, solvency and physical properties. <u>Microemulsions and Related System</u>. New York: Marcel Dekker.
- Broze, G. (1994) Detergents and cleaners. In Lange, K.R. (Ed). A Handbook for Formulators, Munich, Germany: Hanser.
- Carroll, B. (1996) The Direct study of oily soil removal from solid substrates in detergency. Colloids and Surfaces, 114, 161-164.

- Chi, Y.S., and Obendorf, S.K. (1998) Aging of oily soils on textiles: Chemical changes upon oxidation and interaction with textile fibers. <u>Journal of Surfactants and Detergents</u>, 1(3), 371-380.
- Chi, Y.S., and Obendorf, S.K. (2001) Effect of fiber substrates on appearance and removal of aged oily soils. <u>Journal of Surfactants and Detergents</u>, 4(1), 35-41.
- Christ, T., Morgenthaler, W.W., and Pacholec, F. (1994) Laundry products. In Lange, K.R. (Eds.), <u>Detergents and cleaners: A Handbook for formulators</u>. New York: Hanser.
- Dillan, K.W., Goddard, E.D., and McKenzie, D.A. (1980) Examination of the parameters governing oily soil removal from synthetic substrates.

 Journal of American Oil Chemist's Society, 57(7), 230-237.
- Dörfler, H.D., Grosse, A., and Krüssmann, H. (1996) The use of microemulsions as cleaning media. <u>Tenside Surfactants and Detergents</u>, 33(6), 432-440.
- Garti, N., Yaghmur, A., Leser, M.E., Clement, V., and Watzke, H.J. (2001) Improved oil solubilization in oil/water food grade microemulsions in the presence of polyols and ethanol. <u>Journal Agricultural Food Chemistry</u>, 49, 2552-2556.
- Germain, T. (2002) Understaning Terg-O-Tomerter testing variables, The paper presented on AOCS Annual Meeting, Montreal, Canada.
- Gordon, B.E. (1968) Radiotracers in fabric-washing studies. <u>Journal of American Oil Chemist's Society</u>, 67(11), 722-729.
- Goel, S.K. (1998a) Selecting the optimal linear alcohol ethoxylate for enhanced oily soil removal. <u>Journal of Surfactants and Detergents</u>, 1(2), 213-219.
- Goel, S.K. (1998b) Measuring detergency of oily soil in the vicinity of phase inversion temperatures of commercial nonionic surfactants using an oily-soluble dye. <u>Journal of Surfactants and Detergents</u>, 1(2), 221-226.
- Goel, S.K. (2000) Phase behavior and detergency study of lauryl alcohol ethoxylates with high ethylene oxide content. <u>Journal of Surfactants and Detergents</u>, 3, 221.

- Graciaa A., Lachaise J., Cucuphat C., Bourrel M., and Salager J.L. (1993a)

 Improving solubilization in microemulsions with additives 1. The lipophilic linker role. Langmuir. 9, 669-672.
- Graciaa A., Lachaise J., Cucuphat C., Bourrel M., and Salager J.L. (1993b)

 Improving solubilization in microemulsions with additives 2. Longchain alcohol as lipophilic linkers. <u>Langmuir</u>. 9, 3371-3374.
- Kissa, E. (1987) Evaluation of detergency. In Culter, W.G., and Kissa, E. (Eds.). <u>Detergency theory and technology</u>. New York: Marcel Dekker.
- Komaki, M., Kim, S.K., and Hashimoto, T. (2002) Fatty acid soil detergency performance of poly(sodium α-hydroxyacrylate). <u>Journal of Surfactants and Detergents.</u>, 5(1), 25-31.
- Linfield, W.M., Jungermann, E., and Sherrill, J.C. (1962) Establishment of a standardized detergency evaluation method. <u>Journal of American Oil Chemist's Society</u>, 34, 47-55.
- Miller, C.A., and Raney, K.H. (1993) Solubilization, emulsificationmechanisms of detergency. <u>Colloids and Surfaces</u>, 74, 169.
- Morris, M.A., and Prato, H.H. (1982) The effect of wash temperature on removal of particulate and oily soil from fabrics of varying fiber content. <u>Textile Research Journal</u>, 52, 280-286.
- Obendorf, S.K., and Klemash, N.A. (1982) Electron microscopical analysis of oily soil penetration into cotton and polyester/cotton fabrics. <u>Textile</u>

 <u>Research Journal</u>, 434-442.
- Obendorf, S.K., and Borsa, J. (2001) Lipid soil removal from cotton fabric after mercerization and carboxymethylation finishing. <u>Journal of Surfactants</u> and Detergents, 4(3), 247-256.
- Powe, W.C. (1972) Luandry soils. In Cutler, W.G., and Davis, R.C. (Eds.)

 Detergency: theory and test method part I. New York: Marcel Dekker.
- Raney, K.H., and Benson, H.L. (1990) The effect of polar soil components on the phase inversion temperature and optimum detergency conditions.

 <u>Journal of American Oil Chemist's Society</u>, 67(11), 722-729.
- Raney, K.H., Benton, W.J., and Miller, C.A. (1987) Optimum detergency conditions with nonionic surfactants: I Ternary water surfactant-

- hydrocarbon systems. <u>Journal of Colloid and Interface Science</u>, 117(1), 282-290.
- Robbins M.L. (1977) Winsor type microemulsions. In Mittal K.L. (Ed).

 Micellization, Solubilization and Microemulsions. New York: Plenum.
- Rosen, M.J. (2004) <u>Surfactants and interfacial phenomena</u>. 3rd ed. New York: John Wiley.
- Rybinski, W.V. (2002) Surface chemistry in detergency. In Holmberg K., Shah D.O., and Schwuger M.J. (Eds.). <u>Handbook of Applied Surface and Colloid Chemistry</u>. West Sussex, UK: John Wiley & Sons.
- Scamehorn, J.F., and Harwell, J.H. (1993). Precipitation of surfactant mixtures. In Ogino, K., and Abe, M. (Eds.). <u>Mixed surfactant systems</u>. New York: Marcel Dekker.
- Scott, B.A. (1963) Mechanism of fatty soil removal. <u>Journal of Applied</u>
 <u>Chemistry</u>, 13, 133.
- Schulman, J.H., and Cockbain E.G. (1940) Molecular interactions at oil/water interfaces part II. phase inversion and stability of water in oil emulsions. <u>Transactions of the Faraday Society</u>. 36, 661.
- Solans, C., Domínguez, J.G., and Friberg, S.E. (1985) Evaluation of textile detergent efficiency of microemulsions in systems of water nonionic surfactant and hydrocarbon at low temperature. <u>Journal of Dispersion</u> Science and Technology, 6(5), 523-537.
- Solans, C., Azemar, N., and Parra, J.L. (1988) Proceeding of CESIO 2nd world surfactants congress. <u>Journal of Calbet</u>, 2(6), 421-429.
- Solans, C., and Azemar, N. (1992) Detergency and the HLB temperature. In Friberg, S.E., and Linman, B. (Eds.). <u>Organized Solutions</u>. New York: Marcel Dekker.
- Thompson, L. (1994) The role of oil detachment mechanisms in determining optimum detergency conditions. <u>Journal of Colloid Interface Science</u>, 163, 61-73.
- Tongcumpou, C., Acosta, E.J., Quencer, L.B., Joseph, A.F., Scamehorn, J.F., Sabatini, D.A., Chavadej, S., and Yanumet, N. (2003a) Microemulsion

- formation and detergency of oily soils: I Phase Behavior and Interfacial Tension. <u>Journal of Surfactants and Detergents</u>, 6(3), 191-203.
- Tongcumpou, C., Acosta, E.J., Quencer, L.B., Joseph, A.F., Scamehorn, J.F., Sabatini, D.A., Chavadej, S., and Yanumet, N. (2003b) Microemulsion formation and detergency of oily soils: II Detergency Formation and Performance. <u>Journal of Surfactants and Detergents</u>. 6(3), 205-213.
- Tongcumpou C., Acosta E.J., Quencer L.B., Joseph A.F., Scamehorn J.F., Sabatini D.A., Chavadej S., and Yanumet N. (2005) Microemulsion formation and detergency of oily soils: III Performance and mechanisms. <u>Journal of Surfactants and Detergents</u>. 8(2), 147-156.
- Tungsubutra, T., and Miller, C.A. (1992) Equilibrium and dynamic behavior of a system containing C12E6, water, triolein and oleyl alcohol. In Friberg, S.E., and Linman, B. (Eds.). <u>Organized Solutions</u>. New York: Marcel Dekker.
- Verma, S., and Kumar, V.V. (1998) Relationship between oil-water interfacial tension and oily soil removal in mixed surfactant systems. <u>Journal of Colloid and Interface Science</u>, 207, 1-10.
- Wang, S.L. (1999) Vegetable products. In Ang, C.Y.W., Keshun, L., and Yao-Wen, H. (Eds.). <u>Asian food: science and technology</u>. Lancaster PA, Technomic Publishing.
- Webb, J.J., and Obendorf, S.K. (1988) Detergency study of the synergism between oily and particulate soil on polyester/cotton fabric. <u>Journal of American Oil Chemist's Society</u>, 67(11), 722-729.
- Whang, H.S., Kim, Y.J., and Ko, S.W. (2001) Effect of hydrophile-lipophile balance values of surfactant mixtures on the detergency of oily-soiled single fiber. <u>Textile Research Journal</u>, 71(7), 650-654.
- Winsor, P. (1954) Solvent properties of amphiphilic compounds. London: Butterworth.
- Wu, B., Cheng, H., Childs, J.D., and Sabatani, D.A. (2000) Surfactant-enhanced removal of hydrophobic oil contamination. In Smith, J.A., and Burns, S.E. (Eds.). Physicochemical Ground Water Remediation, New York: Plenum.

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Publications:

- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. (2008) Microemulsion Formation and Detergency of Oily Soil: IV Effect of
 Rinse Cycle Design. <u>Journal of Surfactant and Detergent</u>, 11:117-128
- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. Palm Oil Removal from Fabric Using Mixed Surfactants under
 Microemulsion Conditions. Journal of Surfactant and Detergent (in preparation).
- Tanthakit, P., Nakrachata-amorn, A., Chavadej, S., Scamehorn, J.F., Sabatini,
 D.A. and Tongcumpou, C. Microemulsion Formation and Detergency of Oily
 Soil: V Effects of Hardness and Builder. <u>Journal of Surfactant and Detergent</u> (accepted Jan 2009).
- Tanthakit, P., Ratchatawetchakul, P., Scamehorn, J.F., Sabatini, D.A.,
 Tongcumpou, C. and Chavadej, S. Microemulsion Formation and Detergency of Oily Soils: VI. Residual Surfactants on Fabric. <u>Journal of Surfactant and</u> <u>Detergent (in preparation)</u>.

Proceedings:

1. **Tanthakit**, **P**., Chavadej, S., Kitiyanan, B., and Scamehorn, J.F. (2004, October 17-21) Microemulsion of Motor Oil with Mixed Surfactants at Low Salinity for

- Detergency. <u>Proceedings of 10th Asian Pacific Confederation of Chemical Engineering (AppChe)</u>, Kitakyushu, Japan.
- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. (2006, December 3-5) Palm Oil Removal from Fabric Using Mixed
 Surfactants under Microemulsion Conditions. <u>Proceedings of 13th Regional</u>
 Symposium on Chemical Engineering (RSCE), Singapore.

Presentations:

- Tanthakit, P., Chavadej, S., Scamehorn, J.F., and Kitiyanan, B. (2005)
 Microemulsion Formation and Detergency with Oily Soil: Formulation of Mixed
 Surfactants with Low Salinity and Effect of Rinsing Water. 96th AOCS Annual
 Meeting & Expo, May 1-4, Salt Lake City, Utah, USA. (Oral Presentation)
- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou, C. (2006) Microemulsion of Palm Oil Relating to Detergency. 97th AOCS Annual Meeting & Expo, April 30 - May 3, America's Center, Saint Louis, Missouri, USA. (Oral Presentation)
- Chavadej, S., Tanthakit, P., Tongcumpou, C., Ratchatawetchakul, P., and Scamehorn, J.F. (2006) Oily Soil Detergency under Microemulsion: Effects of Interfacial Tension, Rinsing Water and Water Hardness. 45th Japan Oil Chemists' Society Annual Meeting (JOCS), September 8-10, Noda, Chiba, Japan. (Oral Presentation)
- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. (2007) Palm Oil Removal from Fabric Using Mixed Surfactants under
 Microemulsion Conditions. 98th AOCS Annual Meeting & Expo, May 13-16,
 Québec city, Canada. (Oral Presentation)
- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. (2007) Microemulsion Formation of Palm Oil Using Extended Surfactant
 Related to Detergency. 2nd ICAPP 2007, June 25-28, Bangkok, Thailand. (Poster Presentation)

- Tanthakit, P., Chavadej, S., Scamehorn, J.F., Sabatini, D.A. and Tongcumpou,
 C. (2007) Detergency of Oily Soil under Microemulsion Conditions Using
 Extended Surfactant: Effect of Hardness and Builder. 2nd Asian Symposium on
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- Chavadej, S., Tanthakit, P., Tongcumpou, C., Ratchatawetchakul, P., Nakrachata-amorn, A., and Scamehorn, J.F. (2007) Detergency of Oily Soil under Microemulsion Conditions Using Extended Surfactant: Effect of Hardness and Builder. 2nd Asian Symposium on Colloid and Interface Chemistry (ASCIC), October 28-30, Jinan, China. (Oral Presentation)