

REFERENCES

- Arduni, A., Pochini, A., Reverberi, S., and Ungaro, R. (1986). *Tetrahedron*, 42, 2089-2100.
- Böhmer, V. (1995). *Angew. Chem. Int. Ed. Engl.*, 34, 713-745.
- Burke, W. J., Hammer, C. R., and Weatherbee, C. (1961). *J. Org. Chem.*, 26, 4403.
- Burke, W. J., Mortenson, G. E. L., and Weatherbee, C. (1964). *J. Org. Chem.*, 29, 909.
- Burke, W. J., Bishop, J. L., Mortenson, G. E. L., and Bauer, Jr., W. N. (1965). *J. Org. Chem.*, 30, 3423.
- Chirachanchai, S., Laobuthee, A., Phongtamrug, S., Siripatanasarakit, W., and Ishida, H. (2000). *J. Appl. Polym. Sci.*, 77, 2561-2568.
- Cram, D. J. and Ho., S. P. (1986). *J. Am. Chem. Soc.*, 108, 2998-3005.
- Diamond, D. and McKervey, M. A. (1996). *Chemical Society Reviews*, 15-24.
- Diemer, R. B., Jr., Ellis, T. D., Silcox, G. D., Lighty, J. S., and Pershing, D. W. (Eds.). (1991). *Inclusion Compound Encyclopedia of Chemical Technology* (pp. 122-154). New York: John Wiley & Sons.
- Gutsche, C. D. (1989). *Calixarenes*. Cambridge: Royal Society of Chemistry.
- Gutsche, C. D. (1997). *Calixarenes 2*. Cambridge: Royal Society of Chemistry.
- Holly, F. W. and Cope, A. C. (1944). *J. Am. Chem. Soc.*, 66, 1875.
- Ishida, H. and Krus, C. M. (1998). *Macromolecules*, 31, 2409.
- Kopf, P. W. and Wagner, E. R. (1973). *J. Polym. Sci. Part A: Chem. Ed.*, 11, 939.
- Lehn, J. M. (1995). *Supramolecular Chemistry*. Weinheim: VCH.
- Murakami, H., Kikuchi, J., and Hisawda, Y. (Eds.). (1991). *Inclusion Compound*. Oxford: Oxford University Press.
- Ning, X. and Ishida, H. (1994). *J. Polym. Sci., Polym. Chem. Ed.*, 32, 1121.
- Ohba, Y., Irie, K., Zhang, F. S., and Sone, T. (1993). *Bull. Chem. Soc. Jpn.*, 66, 828.
- Elderfield, R. C., Todd, W. H., and Gerber, S. (1957). The Benzoxazines. In Elderfield, R. K. (Ed.), *Heterocyclic Compound*. New York: Wiley.

- Reiss, G., Schwob, J. M., Guth, G., Roche, M., and Laude, B., (1985). In Culbertson, B. M. and McGrath, J. E. (Eds.), Advances in Polymer Synthesis, Polymer Science and Technology (pp. 27). New York: Plenum.
- Shinkai, S. (1993). Tetrahedron, 49, 40, 8933-8968.
- Sone, T., Ohba, Y., and Yamazaki, H. (1989). Bull. Chem. Soc. Jpn., 62, 1111.
- Steed, J. W. and Atwood, J. L. (Eds.). (2000). Supramolecular Chemistry. New York: John Wiley & Sons, Ltd.
- Yamagishi, T., Tani, K., Ishida, S., and Nakamoto, Y. (1994). Polym. Bull., 33, 281.

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1. Chirachanchai, S.; Laobuthee, A.; Phongtamrag, S.; Siripattanasarakit, W.; Ishida, H. "A Novel Ion Extraction Material using Host-Guest Properties of Oligobenzoxazine Local Strcture and benzoxazine Monomer Molecular Assembly", *J. Appl. Polym. Sci.*, **2000**, 77, 2561-2568.
2. Laobuthee, A.; Chirachanchai, S.; Ishida, H.; Tashiro, K. "Asymmetric Mono-oxazine: An Inevitable Product from Mannich Reaction of Benzoxazine Dimers" *J. of Am. Chem. Soc.*, **2001**, 123, 9947-9955.
3. Chirachanchai, S.; Yoswathananont, N.; Laobuthee, A.; Ishida, H. "Silica Surface Modified with Benzoxazine-functional Silane", *Composite Interfaces*, **2001**, 8, 5, 355-366.
4. Hemvichian, K.; Laobuthee, A.; Chirachanchai, A.; Ishida, H. "Thermal Decomposition Processes in Polybenzoxazine Model Dimers investigated by TGA-FTIR and GC-MS", *Polymer Degradation and Stability*, **2002**, 76, 1-15.

5. Laobuthee, A.; Chirachanchai, S. "An Elegant; -Simple, Effective, and Selective-, Synthesis Routes for Difunctional 30-Membered Macrocyclic Ester and Linear Oligoester Derived from Benzoxazine Dimers" (Accepted in Chemistry Letters, 2002).
6. Laobuthee, A.; Ishida, H.; Chirachanchai, S. " Self Termination of Benzoxazine Dimer: An Obstructive Effect on Polymerization of *p*-Substituted Phenol-Based Benzoxazine Monomers" (Submitted in JACS).
7. Laobuthee, A.; Chirachanchai, S. "Metal Ion Guest Responsive of Benzoxazine Dimers via Molecular Assembly and Stoichiometric Inclusion Phenomena of Cyclic Derivatives" (Submitted in Supramolecular Chemistry).

Proceedings:

1. Chirachanchai, S.; Chea, Y. S.; Laobuthee, A.; Theeraworakul, C.; Yoswathananont, N.; Ishida, H. "A Novel Ion Extraction Material Derived from Benzoxazine Monomer and Dimer Coupling onto Silica Surface", Mulhouse, France (2001).
2. Chirachanchai, S.; Laobuthee, A.; Yoswathananont, N.; Ishida, H. "Silica Surface Modified with Benzoxazine-functional Silane", Proceedings of International Conference on Composite Interfaces (ICCI-VII), Cleveland, Ohio (2000): 74.
3. Chirachanchai, S.; Laobuthee, A.; Techakamolsuk, P.; Ishida, H. "Metal ion Interaction via the Host-Guest Properties of the Open Ring Benzoxazines Assembly", Proceedings of the 218th ACS Meeting: Division of Polymer Materials: Science and Engineering, New Orleans 81(1999): 549-550
4. Takolpuckdee, P.; Chirachanchai, S.; Laobuthee, A.; Ishida. H. "A Novel Type of Ion Entrapment Materials Based on Benzoxazine Derivatives", Proceedings of the 1st HSA Symposium on Science and Technology, Chiang Mai, Thailand (1999): 110.
5. Chirachanchai, S.; Laobuthee, A.; Techakamolsuk, P.; Ishida, H. "Metal Ion Interaction via the Supramolecular Structured; An Approach via Molecular Design", Proceedings of the 1st HSA Symposium on Science and Technology, Chiang Mai, Thailand (1999): 113.

Presentations:

1. Laobuthee, A.; Pulpoka, B.; Chirachanchai, S. "Synthesis of Macrocyclic Compound from Benzoxazine Dimer Derivatives", *27th Congress on Science and Technology of Thailand*, Thailand (2001): 920.
2. Threeraworakul, C.; Chea, Y. S.; Laobuthee, A., Chirachanchai, S., "Ion Interaction Phenomena via Silica Surface Functionalized Monooxazine Benzoxazine Dimer in Soilid-Liquid System", *27th Congress on Science and Technology of Thailand*, Thailand (2001): 919.
3. Chirachanchai, S.; Laobuthee, A.; Yoswathananont, N.; Ishida, H. "Silica Surface Modified with Benzoxazine-functional Silane", *Proceedings of International Conference on Composite Interfaces (ICCI-VII)*, Cleveland, Ohio (2000): 74.
4. Chirachanchai, S.; Laobuthee, A.; Ishida, H.; Tashiro, K. "Self-terminated of Benzoxazines Ring Opening Polymerization and Generation of Asymmetric Typed Monooxazine-benzoxazine Dimer", *26th Congress on Science and Technology of Thailand*, Bangkok, Thailand (2000): 737
5. Chirachanchai, S.; Laobuthee, A.; Techakamolsuk, P.; Ishida, H. "Metal Ion Interaction via the Host-Guest Properties of the Open Ring Benzoxazines Assembly", *Proceedings of the 218th ACS Meeting: Division of Polymer Materials: Science and Engineering*, New Orleans 81(1999): 549-550
6. Takolpuckdee, P.; Chirachanchai, S.; Laobuthee, A.; Ishida, H. "A Novel Type of Ion Entrapment Materials Based on Benzoxazine Derivatives", *Proceedings of the 1st HSA Symposium on Science and Technology*, Chiang Mai, Thailand (1999): 110.
7. Chirachanchai, S.; Laobuthee, A.; Techakamolsuk, P.; Ishida, H. "Metal Ion Interaction via the Supramolecular Structured; An Approach via Molecular Design", *Proceedings of the 1st HSA Symposium on Science and Technology*, Chiang Mai, Thailand (1999): 113.
8. Yoswathananont, N.; Laobuthee, A.; Chirachanchai, S.; Ishida, H. "Silica Surface Modified Silylbenzoxazine for Ion Extraction Resin", *7th SPSJ International Polymer Conference*, Yokohama, Japan (1999): 319.