

REFERENCES

- Abdollahzadeh-Ghom, S., Zamani, C., Andreu, T., Epifani, M., and Morante, J.R. (2011) Improvement of oxygen storage capacity using mesoporous ceria-zirconia solid solutions. Applied Catalysis B: Environmental, 108–109, 32-38.
- Angevine, P.J., Gaffney, A.M., Shan, Z., Koegler, J.H., and Yeh, C.Y. “TUD-1: A generalized mesoporous catalyst family for industrial applications. “Digital Refining. Dec 2008. 10 May 2013 <www.digitalrefining.com/article/1000209>
- Aranda, A., Solsana, B., and Garcia, T. (2010) Total oxidation of naphthalene using mesoporous CeO₂ catalysts synthesized by nanocasting from two dimensional SBA-15 and three dimensional KIT-6 and MCM-48 silica templates. Catalysis Letters, 134, 110-117.
- Ballem, A.M., Cordoba, M.J., and Oden, M. (2011) Mesoporous silica template zirconia nanoparticles. Journal of Nanoparticle Research, 13, 2743-2748.
- Chaisuwan, T. (2011) Porous Materials from Polybenzoxazine. In Ishida, H. and Agag T. Handbook of Benzoxazine Resins (pp.457-468) Oxford : Elsevier.
- Charoenpinijkarn, W., Suwankruhasn, M., Kesapabutr, B., Wongkasemjit, S., and Jamieson, A. (2001) Sol-gel processing of silatranes. European Polymer Journal, 37, 1441-1448.
- Chen, K. L., Chiang Anthony, S. T., and Tsao, H. K. (2001) Preparation of zirconia nanocrystals from concentrated zirconium aqueous solutions. Journal of Nanoparticle Research, 3, 119-126.
- Ciesla, U. and Schüth, F. (1999) Ordered mesoporous materials. Microporous and Mesoporous Materials, 27(2–3), 131-149.
- Damyanova, S., Pawelec, B., Arishtirova, K., Huerta, M. M., and Fierro, G.J.L. (2008) Study of the surface and redox properties of ceria-zirconia oxides. Applied Catalysis A: General, 337, 86-96.
- Deeprasertkul, C., Longloilert, R., Chaisuwan, T., and Wongkasemjit, S. (2014) Impressive low reduction temperature of synthesized mesoporous ceria via nanocasting. Materials Letters, 130, 218-222.

- Evans, A.G. and Cannon, R.M. (1986) Toughening of brittle solids by martensitic transformations. *Acta Metallurgica*, 34, 761.
- Horikawa, T., Do, D. D., and Nicholson, D. (2011) Capillary condensation of adsorbates in porous materials. *Advances in Colloid and Interface Science*, 169, 40-58.
- Ji, P., Zhang, J., Chen, F., and Anpo, M. (2008) Ordered mesoporous CeO₂ synthesized by nanocasting from cubic Ia3d mesoporous MCM-48 silica: formation, characterization and photocatalytic activity. *Journal of Physical Chemistry C*, 112, 17809-17813.
- Juan, L., Chiang, Y., C-WWu, K., and Yamauchi, Y. (2012) Recent progress in mesoporous titania materials: adjusting morphology for innovative applications. *Science and Technology of Advance Materials*, 13, 013003.
- Kaspar, J., Fornasiero, P., and Graziani, M. (1999) Use of CeO₂-based oxides in the three-way catalysis. *Catalysis Today*, 50, 285-298.
- Kim, J.-R., Lee, K.-Y., Suh, M.-J., and Ihm, S.-K. (2012) Ceria-zirconia mixed oxide prepared by continuous hydrothermal synthesis in supercritical water as catalyst support. *Catalysis Today*, 185(1), 25-34.
- Kim, J.-R., Myeong, W.-J., and Ihm, S.-K. (2007) Characteristics in oxygen storage capacity of ceria-zirconia mixed oxides prepared by continuous hydrothermal synthesis in supercritical water. *Applied Catalysis B: Environmental*, 71(1-2), 57-63.
- Kong, A., Zhu, H., Wang, W., Zhang, Q., Yang, F., and Shan, Y. (2011) Novel nanocasting method for synthesis of ordered mesoporous metal oxides. *Journal of Porous Materials*, 18, 107-112.
- Kuo, C.-W., Shen, Y.-H., Wen, S.-B., Lee, H.-E., Hung, I.M., Huang, H.-H. and Wang, M.-C. (2011) Phase transformation kinetics of 3 mol% yttria partially stabilized zirconia (3Y-PSZ) nanopowders prepared by a non-isothermal process. *Ceramics International*, 37(1), 341-347.
- Lu, A-H., Zhao, D., and Wan, Y. (2009) *Nanocasting: A Versatile Strategy for Creating Nanostructured Porous Materials*. (pp.1-28) London: The Royal Society of Chemistry.

- Longloilert, R., Chaisuwan, T., Luengnaruemitchai, A., and Wongkasemjit, S. (2011) Synthesis of MCM-48 from silatrane via sol-gel process. Journal of Sol-Gel Science and Technology, 58, 427-435.
- Ma, X., Feng, X., He, X., Guo, H., Lv, L., Guo, J., Cao, H., and Zhou, T. (2012) Mesoporous CuO/CeO₂ bimetal oxides: One-pot synthesis, characterization and their application in catalytic destruction of 1,2-dichlorobenzene. Microporous and Mesoporous Materials, 158, 214-218.
- Maneesuwan, H., Longloilert, R., Chaisuwan, T., and Wongkasemjit, S. (2013) Synthesis and characterization of Fe-Ce-MCM-48 from silatrane precursor via sol-gel process. Materials Letters, 94, 65-68.
- Maneesuwan, H., Tantisriyanurak, S., Chaisuwan, T., and Wongkasemjit, S. (2014) Impressivephenol hydroxylation activity using Fe-Ti-TUD-1 synthesized from silatrane via sol-gel process. Applied Catalysis A: General, (in press).
- Oye, G., Sjöblom, J., and Stocker, M. (2001) Synthesis, characterization and potential application of new materials in the mesoporous range. Advances in Colloid and Interface Science, 89-90, 439-466.
- Rao, R. G., Sahu, R., and Mishra G. B. (2003) Surface and catalytic properties of Cu-Ce-O prepared by combustion method. Colloids and Surfaces A: Physicochemical and Engineering, 220, 261-269.
- Roggenbuck, J., Schafer, H., Tsoncheva, T., and Tiemann, M. (2007) Mesoporous CeO₂: synthesis by nanocasting, characterization and catalytic properties. Microporous and Mesoporous Materials, 101, 335-341.
- Rumruangwong, M. and Wongkasemjit, S. (2006) Synthesis of ceria-zirconia mixed oxide from cerium and zirconium glycolate via sol-gel process and its reduction property. Applied Organometallic Chemistry, 20, 615-625.
- Rumruangwong, M. and Wongkasemjit, S. (2008) Anionic surfactant-aided preparation of high surface area and high thermal stability ceria/zirconia-mixed oxide from cerium and zirconium glycolates via sol-gel process and its reduction property. Applied Organometallic Chemistry, 22, 167-170.

- Shen, W., Dong, X., Zhu, Y., Chen, H., and Shi, J. (2005) Mesoporous CeO₂ and CuO-loaded mesoporous CeO₂: Synthesis, characterization, and CO catalytic oxidation property. *Microporous and Mesoporous Materials*, 85, 157-162.
- Smått, J.-H., Schüwer, N., Järn, M., Lindner, W., and Lindén, M. (2008) Synthesis of micrometer sized mesoporous metal oxide spheres by nanocasting. *Microporous and Mesoporous Materials*, 112(1–3), 308-318.
- Thammachart, M., Meeyoo, V., Risksomboon, T., and Osuwan, S. (2001) Catalytic activity of CeO₂-ZrO₂ mixed oxide catalysts prepared via sol-gel technique: CO oxidation. *Catalysis Today*, 68, 53-61.
- Valdés-Solís, T. and Fuertes, A.B. (2006) High-surface area inorganic compounds prepared by nanocasting techniques. *Materials Research Bulletin*, 41(12), 2187-2197.
- Wang, C.-H., Wang, M.-C., Du, J.-K., Sie, Y.-Y., Hsi, C.-S., and Lee, H.-E. (2013) Phase transformation and nanocrystallite growth behavior of 2 mol% yttria-partially stabilized zirconia (2Y-PSZ) powders. *Ceramics International*, 39(5), 5165-5174.
- Wang, Y., Li, B., Zhang, C., Cui, L., Kang, S., Li, X., and Zhou, L. (2013) Ordered mesoporous CeO₂-TiO₂ composites: Highly efficient photocatalysts for the reduction of CO₂ with H₂O under simulated solar irradiation. *Applied Catalysis B: Environmental*, 130-131, 277-284.
- Xu, L., Song, H., and Chou, L. (2012) Mesoporous nanocrystalline ceria-zirconia solid solutions supported nickel based catalysts for CO₂ reforming of CH₄. *International Journal of Hydrogen Energy*, 37(23), 18001-18020.
- Xu, R., Pang, W., Yu, J., Huo, Q., and Chen, J. (2007) *Chemistry of Zeolites and Related Porous Materials: Synthesis and Structure*. Singapore: John Wiley.
- Yue, W. and Zhou, W. (2008) Crystalline mesoporous metal oxide. *Progress in Natural Science*, 18, 1329-1338.
- Zhang, Y., Anderson, S., and Muhammed, M. (1995) Nanophase catalytic oxides: I. Synthesis of doped cerium oxides as oxygen storage promoters. *Applied Catalysis B: Environmental*, 6, 325-337.

Zhu, H., Qin, Z., Shan, W., Shen, W., and Wang, J. (2004) Pd/CeO₂–TiO₂ catalyst for CO oxidation at low temperature: a TPR study with H₂ and CO as reducing agents. Journal of Catalysis, 225, 267-277.

APPENDIX

Appendix A Silatrane Precursor

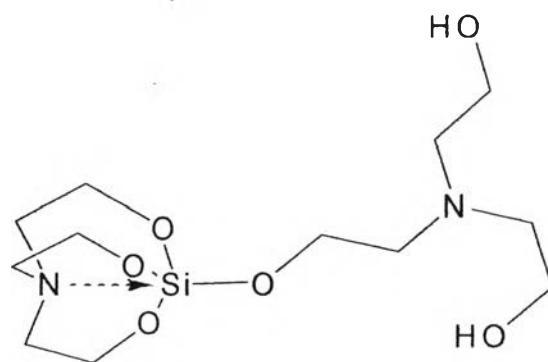


Figure A1 Structure of silatrane precursor.

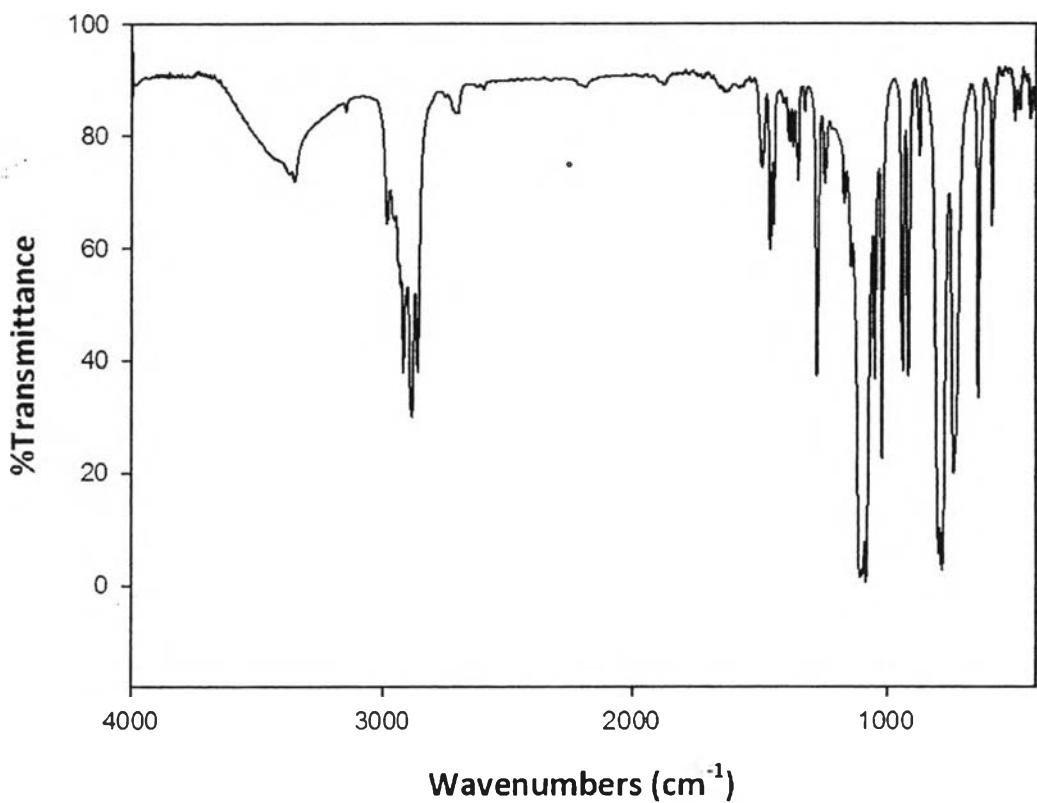


Figure A2 FTIR spectrum of silatrane precursor.

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3. Phathidee, W.; Tantisriyanurak, S.; Jampa, S.; Chaisuwan, T.; and Wongkasemjit, S. (2015, April 21) Preparation of mesoporous CeO₂-ZrO₂ for catalytic converter, Paper presented at the 6th Research Symposium on Petrochemical and Materials Technology and The 21th PPC Symposium on Petroleum, Petrochemicals and Polymers, Bangkok, Thailand.