

DAFTAR PUSTAKA

- Alothman, Z.A., 2012, A Review Fundamental Aspect of Silicate Mesoporous Materials *Materials*, 2874-2902.
- Badriyah, L., 2014, Sintesis dan Karakterisasi Katalis Berbasis Ni-MCM-41 Sebagai Perengkah Untuk Minyak Sawit, *Tesis*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Beck, J.S., Vartuli, J.C., Roth, W.J., Leonowicz, M.E., Kresge, C.T., Schmitt, K.D., Chu, C.T.W., Olson, D.H., and Sheppard, E.W., 1992, A New Family of Mesoporous Molecular Sieves Prepared with Liquid Crystal Templates, *J. Am. Chem. Soc.*, 114(27), 10834-1.
- Bhagiyalaksmi, M., Yun, L., Anuradha, R. and Jang, T., 2009, Utilization Of rice Husk Ash as Silica Source for Synthesis of Mesoporous Silicas and their Application to CO₂ Adsorpsi through TREN/TEPA grafting, *J. Hazard. Mat.*, 928-938.
- Bhange, P., Bhange, D., Pradhan, S. and Ramaswamy, V., 2011, Direct Synthesis of Well-Ordered Mesoporous Al-SBA-15 and its Correlation with The Catalytic Activity, *Appl. Catal.*, A-Gen., 400, 176-184.
- Burns, D.T., Tungkananurak, K., dan Jadsadapattarakul, D., 2006. Semi-Micro Preparation and Characterization of Bonded Phase ODS-Silica Prepared from Rice Husk Silica. *Micro. Acta.*, 154, 81-85.
- Cahaya, D., 2014. Sintesis MCM-41 dengan Metode Sonokimia dari Sekam Padi dan Aplikasinya Sebagai Adsorben Zn (II), *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Cao, J., Wu, Y., Jin, Y., Zilihan, P., and Huang W., 2014. Response Surface Methodology Approach for Optimization of the Removal of Chromium (VI) by NH₂-MCM-41, *J. Taiwan Inst. Chem. Eng.*, 45, 860-868.
- Chiarakorn, S., Areerob, N. and Grisndurak., 2007, Influence of Functional Silanes on Hydropobicity of MCM-41 Synthesis from Rice Huck, *Sci.Technol. Adv. Mater.*, 8, 110-115.
- Ding, W., Liang, J., and Anderson, L., 1997, Hydricracking and Hydroisomerization of High-Density Polyethylene and Waste Plastic over Zeolite and Silica-Alumina-Supported Ni and Ni-Mo Sulfides, *Energ. Fuel.*, 11, 1219-1224.
- Fadli, A., Tjahjanto, R. dan Darjito, 2013, Ekstraksi Silika Dalam Lumpur Lapindo Menggunakan Metode Kontinyu, *Kimia Student Journal*, 1(2), 182-187.
- Fedeyko, J., Vlachos, D., and Lobo, R., 2006. Understanding The Differences Between Microporous and Mesoporous Synthesis Through The Phase Behavior of Silica, *Micropor. Mesopor. Mater.*, 90, 102-111.

- Gomez-Guillen, M., Gimenez, B., Lopez-Caballero, M., and Montero, M., 2011, Functional and Bioactive Properties of Collagen and Gelatin from Alternative Sources: A Review, *Food Hydrocoll*, 25, 1813-1827.
- Hsu, C., H.P., L., Tang, C., and Lin, C., 2007, Synthesis of Mesoporous Silica and Mesoporous Carbon Using Gelatin as Organic Template, *Stud. Surf. Sci. Catal.*, 165, 385-388.
- Hui, K., and Chao, C., 2006, Synthesis of MCM-41 from Coal Fly Ash by a Green Approach: Influence of Synthesis pH, *J. Hazard. Mater. B*, 137, 1135-1148.
- Ifah, A., Trisunaryanti, W., Triyono and Dewi, K., 2016, Synthesis of MCM-41-NH₂ Catalyst by Sonochemical Method for Transesterification of Waste Palm Oil, *Inter. J. ChemTech*, 9, 382-387.
- Iler, R.K., 1979, *The Chemistry of Silica: Solubility, Polymerization, Colloid, and Surface Properties, and Biochemistry*, John Willey and Sons, New York.
- Iliade, P., Miletto, I., Coluccia, S. and Berlier, G., 2012, Funcionalization of Mesoporous MCM-41 with Aminopropyl Groups by Co-condensation and Grafting: A Physico-chemical Chaeacterization, *Res. Chem. Intermed.*, 38, 785-794.
- IUPAC, 1985, Reporting Physisorption Data for Gas/Solid Systems with Special to the Determination of Surface Area and Porosity, *Pure Appl. Chem.*, 57, 605-619.
- Kandel, K., Frederickson, C., Smith, E.A., Lee, Y.J., and Slowing, I.I., 2013, Bifunctional Adsorbent-Catalytic Nanoparticles for the Refining Feedstocks, *ACS. Catal.*, 3, 2750-2758.
- Karim, A., and Basth, R., 2009, Fish Gelatin Properties, Challenges, and Prospects as an Alternative to Mammalian Gelatinns, *Food Hydrocoll*, 23, 563-576.
- Klimova, T., Calderon, M., and Ramirez, J., 2002, Ni and Mo Interaction with Al-Containing MCM-41 Support and Its Effect on The Catalytic Behavior in DBT Hydrodesulfurization, *Appl. Catal. A-Gen.*, 335, 159-171.
- Klimova, T., Calderon, M., and Ramirez, J., 2003, Ni and Mo Interaction with Al-Containing MCM-41 Support and Its Effect on The Catalytic Behavior in DBT Hydrodesulfurization, *Appl. Catal. A-Gen.*, 335, 159-171.
- Klimova, T., Reyes, J., Gutierrez, O., and Lizama, L., 2008, Novel Bifunctional NiMo/Al-SBA-15 Catalysts for Deep Hydrodesulfurization: Effect of Support Si/Al Ratio, *Appl. Catal. A-Gen.*, 335, 159-171.
- Kresge, C.T., Leonowicz, M.E., Roth, W.J., Vartuli, J.C. and Beck, J.S., 1992, Ordered Mesoporous Molecular Sieves Synthesized by a Liquid-Crystal Template Mechanism, *Nature*, 359, 710-712.

- Lin, S., Shi, L., Carrott, M.M.L.R., Carrott, P.J.M., Rocha, J., Li, M.R., Zou, X.D., 2011, Direct Synthesis Without Addition of Acid of Al-SBA-15 with Controllable Porosity and High Hydrothermal Stability. *Micropor. Mesopor. Mat.*, 142, p. 526–534.
- Li, Q., Brown, S.E., Broadbelt, L.J., Zheng, J.G., and Wu, N.Q., 2003, Synthesis and Characterization of MCM-41-Supported Ba₂SiO₄ Base Catalyst. *Micropor, Mesopor, Mater*, 59, 105-111.
- Majid, A.B., Trisunaryanti, W., Triyono, dan Dewi, K. 2014, Synthesis and Characterization of MCM-41 Using Lapindo Mud as The Silica Resources, *The 6th International Symposium on Nano and Supramolecular Chemistry*, 10-14th August 2014, Bali.
- Malik, J., Santoso, G., Purwoto, S. dan Bagio, H.E., 2009. *Kajian Penggunaan Lahan Untuk Pembangunan Unit Produksi Bahan Bangunan*, Badan Penelitian dan Pengembangan Provinsi Jawa Timur, Surabaya.
- Mello, M.R., Phanon, D., Silveira, G.Q., Llewellyn, P.L. and Ronconi, C.M., 2011, Amina-modified MCM-41 Mesoporous Silica for Carbon Dioxide Capture. *Micropor. Mesopor. Mat.*, 143, 174-179.
- Mubarok, M. A. S. A., 2013, Sintesis dan Karakterisasi Mordenit dari Lumpur Lapindo dengan Variasi Sumber Alumina, *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Muyonga, J.H., Cole, C.G.B., and Duodu, K.G, 2004, Extraction and Physico-chemical Characterisation of Nile Perch (*Lates niloticus*), Skin and Bone Gelatin, *Food Hydrocoll*, 18, 581-592.
- Nale, D.B., Rana, S., Parida, K., and Bhanage, B.M., 2014, Aminae Functionalized MCM-41 as A Green, Efficient, and Heterogeneous Catalyst for The Regiselective Synthesis of 5-aryl-2-oxazolidinones, from CO₂ and Aziridines, *Appl Catas A: Gen.*, 469, 340-349.
- Nandiyanto, A.B.D., Kim, S.G., Iskandar, F., and Okuyama, K., 2009, Synthesis of Spherical Mesoporous Silica Nanoparticle with Nanometer-Size Controllable Pores and Outer Diameters, *Micropor. Mesopor. Mater.*, 120, 447-453.
- Okoronkwo, E.A., Imoisili, P.E., and Olusunle, S.O.O., 2013, Extraction and Characterization of Amorphous Silica from Corn Cob Ash by Sol-Gel Method, *J. Chem. Mater. Res.*, 3, 68-72.
- Olawale, Olamide, and Oyawale, F., 2012, Characterization of Rice Husk via Atomic Absorption Spectrophotometer for Optimal Silica Production, *Inter. J. Sci. Tech.*, 2, 210-213.
- Ortiz, H.I.M., Silva, A.M., Cerda, L.A.G., Castruita, G., and Mercado, Y. A. P., 2014, Functionalization with Amine-containing Organosilane of Mesoporous Silica MCM-41 and MCM-48 Obtained at Room Temperature. *Ceram. Int.*, 40, 9701-9707.

- Perwitasari, D.S., 2008, Hidrolisis Tulang Sapi Menggunakan HCl untuk Pembuatan Gelatin, *Makalah Seminar Nasional Soeardjo Brotohardjono, Pengolahan Sumber Daya Alam Dan Energi Terbarukan*, Surabaya.
- Phillips, G.O., and Williams, P.A., 2009, *Handbook of Hydrocolloids*, Second Edition, Woodhead Publishing, Cambridge.
- Putra, A.N.H.E., Tjahjanto, R.T., dan Khunur, M.M., 2013, Optimasi Ekstraksi Silika dan Alumina dari Lumpur Sidoarjo, *Kimia Student Journal*, 2, 365-371.
- Ryong, R., Kim, J. M., Ko, C. H., and Shin, C. H., 1996, Disordered Molecular Sieve with Branched Mesoporous Channel Network, *J. Phys. Chem.*, 100, 17718-17721.
- Saikia, B.J., dan Parthasarathy G., 2010, Fourier Transform Infrared Spectroscopic Characterization of Kaolinite from Assam and Meghalaya, Northeastern India, *J. Mod. Phys.*, 1, 206-210.
- Setyawan, H. and Balgis, R., 2011, Mesoporous Silica Prepared from Sodium Silicate Using Gelatin Templating, *Asia-Pac. J. Chem. Eng.*, 7, 3.
- Setyowati, W.E., 2009, The Use of Lapindo Mud Mixture Toward the Quality of Ceramic Roof, *dinamika TEKNIK SIPIL*, 9(1), 67-75.
- Shang, F., Liu, H., Sun, J., Liu, B., Wang, C., Guan, J., and Kan, Q., 2011, Synthesis, characterization and Catalytic Application of Bifunctional Catalyst: Al-MCM-41-NH₂, *Catal. Comm.*, 12, 739-743.
- Suyanta, S., and Kuncaka, A., 2011, Utilization of Rice Husk as Raw Material in Synthesis of Mesoporous Silicates MCM-41, *Indo. J. Chem.*, 11(3), 279-284.
- Susanto, Heru, 2015, Sintesis Silika Mesopori Menggunakan Cetakan Gelatin Tulang Sapi Dan Impregnasi Cr Untuk Katalis Hidrorengkah Pelumas Bekas, *Skripsi*, Universitas Gadjah Mada, Yogyakarta.
- Trisunaryanti, W., 2014. Material Katalis dan Karakternya, *Gadjah Mada University Press*, Yogyakarta.
- Trisunaryanti, W., Triwahyuni, E., and Sudiono, S., 2005, Preparation Characterizations and Modification of Ni-Pd/Natural Zeolite Catalysts. *Indo. J. Chem.*, 5(1), 48-53.
- Trisunaryanti, W., Purwono, S., dan Putranto, A., 2008, Hidrorengkah Katalitik Oli Bekas Menjadi Fraksi Bahan Bakar Cair Menggunakan ZnO, Nb₂O₅ Zeolit Alam Aktif dan Modifikasinya, *Indo. J. Chem.*, Volume 8, 342-347.
- Trisunaryanti, W., Majid, A.B., dan Pratika, S.D.I., 2012, Sintesis dan Karakterisasi Katalis Mesopori MCM-41 Berbahan Dasar Lumpur Lapindo, *Laporan Penelitian*, LPPM UGM, Yogyakarta.

- Trisunaryanti, W., Triyono, Rizki, C.N., Saptoadi, H., Alimudin, Z., Syamsiro, M., and Yoshikawa, K., 2013, Characteristics of Metal Supported-Zeolite Catalysts for Hydrocracking of Polyethylene Terephthalate, *IOSR-JAC*, Volume 3, 4, 29-34.
- Trisunaryanti, W., 2016, Extraction of Gelatin From Bovine Bone and Its Application as Mesoporous Silica Template. *Asian J. Chem.*, 28, 996-1000.
- Triyono, T., Khoiri, H.M., Trisunaryanti, W. and Dewi, K., 2015, Synthesis of NH₂/MCM-41-Catalysts using Silica of Sidoarjo Mud and Their Characterization for Palm Oil Transesterification, *IOSR-JAC.*, 8 (8), 50-56.
- Triyono, T., Trisunaryanti, W. and Sudiono, S., 2010, Compensation Effect in Heterogeneous Catalysis: Correlation Between Observed Pre-Exponential Factor (Aobs) and Observed Activation Energies (Eobs) of isoamilalcohol Hydrogenolysis on Platinum Catalyst, *J. Mater. Sci. Eng.*, 4(1), 57-63.
- Uriarte-Muntoya, M.H., Santacruz-Ortega, H., Cinco-Moroyoqui, F.J., Rouzaud-Sandez, O., Plascencia-Jatomea, M., and Ezquerro-Brauner, J. M., 2011, Giant Squid Skin Gelatin: Chemical Composition and Biophysical Characterization. *Food Res. Int.*, 44, 3243-3249.
- Venkatesan, C., Cidambaram, M., and Signh, A.P., 2005, 3-Aminopropyltriethoxysilyl Functionalized Na-Al-MCM-41 Solid Base Catalyst for Selective Preparation of 2-Phenylpropionitrile from Phenylacetoneitrile, *Appl. Catal. A-Gen.*, 292, 344-353.
- Wang, X., Zhaou, G., Zhang, H., Du, S., Xu, Y., and Wang C., 2011, Immobilization and Catalytic Activity of Lipase on Mesoporous Silica Prepared from Biocompatible Gelatin Organic Tamplate, *J. Non-Cryst. Solids.*, 357, 3027-3032.
- Wu, H.Y., X.L., Yang, C.Y., Chen, X. And Zheng, X.C., 2013, Alkali-hydrothermal Synthesis and Characterization of W-MCM-41 Mesoporous Materials with Various Si/W Molar Ratio, *Appl. Surf. Sci.*, 270, 590-595.
- Xie, C. Liu, F., Yu, S., Xie, F., Li, L., Zhang, S., and Yang, J., 2008, Catalytic Cracking of Polypropylene into Liquid Hidrocarbon Over Zr and Mo Modified MCM-41 Mesoporous Molecule Seive, *Catal. Comm.*, 10, 79-82.
- Xue, W., He, H., Zhu, J., and Yuan, P., 2006, FTIR Investigation of CTAB-Al-Montmorillonite Complexes, *Spectrochim. Acta, Part A*, 67, 1030-1036.
- Yanagasiwa, T., Shimizu, T., and Kuroda, K., 1990, The Preparation of Alkyltrimethylaninonium-Kaneinite Complexes and Their Conversion to Microporous Materials, *Bull. Chem. Soc. Jpn.*, 63, 988-992.

Zhao, D., Huo, Q., Feng, J., Chemelka, B.F., and Stucky G.D., 1998, Nonionic Triblock and Star Diblock Copolymer and Oligomeric Surfactant Syntheses or Highly Ordered, Hydrothermally Stable, Mesoporous Silica Structure, *J. Am. Chem.*, 120, 6024-6036.

Zhou, P., and Regenstein, J., 2005, Effects of Alkaline and Acid Pretreatments on Alaska Pollock Skin Gelatin Extraction, *J. Food Sci.*, 70, 392-396.