

DAFTAR PUSTAKA

- Agliullin, M.R., Danilova, I. G., Faizullin, A. V., Amarantov, S. V., Bubennov, S. V., Prosochkina T.R., Grigor'eva, N.G., Paukshtis, E.A., and Kutepov, B. I., 2016, Sol-gel Synthesis of Mesoporous Aluminosilicates with a Narrow Pore Size Distribution and Catalytic Activity thereof in The Oligomeration of dec-1-ene, *Micro. Meso. Mater.*, 230, 118-127.
- Albayanti, T.M., and Doyle, A.M., 2014, SBA-15 Supported Bimetallic Catalysts for Enhancement Isomers Production During N-Heptane Decomposition, *Int. J. Chem. React. Eng.*, 12(1): 345-354.
- Almanza, L.O., Narbeshuber, T., d'Araujo, P., Naccache, C., and Taarit, Y.B., 1999, On the Influence of The Mordenite Acidity in The Hydroconversion of Linear Alkanes over Pt Mordenite Catalyst, *Appl. Catal. A*, 178, 34-47.
- Amiruddin, 2002, Preparasi dan Karakterisasi Katalis Logam Ni, Mo, Cr, dan Modifikasi Menggunakan Pengembangan γ -Al₂O₃ untuk Hidrorengkah Fraksi Apalten dari Aspal Buton, *Tesis*, Universitas Gadjah Mada, Yogyakarta.
- Arwiyansyah, D., 2010, Preparasi CMWM-41, H-CMWM-41, dan Ni/CMWM-41 untuk perengkahan Minyak Jagung menjadi Fraksi Biogasolin, *Skripsi*, Universitas Gadjah Mada, Yogyakarta.
- Augustine, R.I., 1996, Heterogenous Catalysis for Synthetic Chemist, *Marcel Dekker Inc.*, New York.
- Borchardt-Ott, W., 1995, *Crystallography*, Second Edition, Springer, Berlin.
- Budianto, A., Sumari, S., dan Udayani, K., 2015, Biofuel Production From Nyamplung Oil Using Catalytic Cracking Process With Zn-HZSM-5/ γ Alumina Catalyst, *ARPJ. Eng. and Appl. Sci.*, 10(22), 10317-10323.
- Chorkendorff, I., and Niemantsverdriet, J.W., 2003, *Concepts of Modern Catalysis and Kinetics*, WILEY-VCH Verlag GmbH & Co, Weinheim.
- Coulier, L., 2001 Hydrotreating Model Catalysts: From Characterization to Kinetics, *Dissertation*, Technische Universiteit Eindhoven, Eindhoven.
- Darmawan, A., 2004, Hidrorengkah Fraksi Berat Minyak Bumi Menggunakan Katalis Lempung Terpillar Aluminium Berpengembangan Nikel, *J. Kim. Sains & Apl.*, 7(1), 6-9.

- Fessenden, R.J., and Fessenden, J.S., 1986, *Organic Chemistry*, 3rd Ed., Wadsworth, California.
- Gates, B.C., Katzer, J.R., dan Schuit, G.C.A., 1979, *Chemistry of Catalytic Processes*, 2nd Ed., McGraw-Hill Book Company, New York.
- Gates, B.C., Katzer, J.Z., and Schuit, G.A., 1995, *Chemistry of Catalytic Process*, 1st Ed., CMW Gram-Hill, New York.
- Gosh, U., Kulkarni, K., A.D., and Chaudari, P.I., Revie-Hydrocracking using Different Catalyst, *Chem. Process Eng. Res*, 51-55.
- Grilc, M., Likozar, B., and Levec, J., 2014, Hydrodeoxygenation and Hydrocracking using Different Catalyst, *Chem. Process Eng. Res*, 34, 51-55.
- Guisnet, M., Gnep, N.S.M., and Morin, S., 2000, Mechanism of Xylene Isomerizaion over Acidic Solid Catalyst, *Micro. Meso. Mater.*, 35, 47-59.
- Hafshah, Roesyadi, A., dan Prajitno, D.H., 2016, Synthesis and Characterization of Ni/Hydrotalcite and Its Application in Hydrocracking *Callophyllum Inophyllum Oil*, *J. Pure App. Chem. Res.*, 5(3), 182-188.
- Hagen, J., 2006, *Industrial Catalysis*, WILEY-VCH Verlag GmbH 7 Co, Mannheim.
- Hambali, E., Suryani, A., Dadang, Haryadi, Hanafie, H., Reksowardjojo, I., K., Rivai, M., Ihsanur, M., Suryadarma, P., Prawitasari, T., Prakoso, T., Purnama, W., 2006, *Jarak Pagar Tanaman Penghasil Biodiesel*, Penebar Swadaya, Jakarta, Hal. 132.
- Hasanudin, Said, M., Faizal, M., Hatta, M., Dahlan, Wijaya, K., 2012, Hydrocracking of Oil Residue from Palm Oil Mill Effluence to Biofuel, *Sus. Env. Res.*, 22(6), 395-400.
- Hegedus, L.L., 1987, *Catalyst Poisoning*, Marcel Dekker Inc., New York.
- Heyne, K., 1987, *Tumbuhan Berguna Indonesia III*, Balai Penelitian dan Pengembangan Kehutanan, Departemen Kehutanan, Jakarta.
- Huheey, J., and Keither, R., 1993, Inorganic Chemistry, 4th Ed., *Hamper Collins Collage Publisher*, New York.
- Kalangit, H., 1995, Pembuatan dan Karakteristik Nikel-Zeolit sebagai Katalis dalam Proses Oksidasi Langsung n-pentana, *Tesis*, FMIPA, Universitas Gadjah Mada, Yogyakarta.

- Kamyab, A., 2015, Preparation and Evaluation of Sulfided NiMo/ γ -Al₂O₃ Hydrotreating Catalysts, *Thesis*, Royal Institute of Technology, Inggris.
- Kim, H., Nguyen-Huy, C., Shin, E.W., 2014, Macroporous NiMo/Alumina Catalyst for The Hydrocracking of Vacuum Residue, *React. Kinet. Mech. Cat.*, 113, 431-443.
- Khawatimy, F. A., Priastomo, Y., Febriyanti, E., Riyantoko, H. Dan Trisunaryanti, W., 2014, Study of Waste Lubricant Hydrocracking into Fuel Fraction over the Combination of Y-Zeolite and ZnO Catalyst, *Procedia Environ. Sci.*, 225-234.
- Kolasinski, Kurt, W., 2012, *Surface Science Foundations of Catalyst and Nanoscience, 3rd Ed.*, John Wiley and Sons, Chichester.
- Kosim, M., dan Munasir, 2014, Studi Pengaruh Penambahan SiO₂ Terhadap Porositas γ -Al₂O₃, *J. Phys.*, 3(3), 37-40.
- Leksono, B., Windyarini, E., Hasnah, T.M., 2014, *Budidaya Tanaman Nyamplung (Calophyllum inophyllum L.) untuk Bioenergi dan Prospek Pemanfaatan Lainnya*, Balai Penelitian dan Pengembangan Kehutanan, Departemen Kehutanan, Jakarta.
- Li, X., Han, D., Xu, Y., Liu, X., and Yan, Z., 2011, Bimodal mesoporous γ -Al₂O₃: A promising support for CoMo-based catalyst in hydrosulfurization of 4,6-DMDBT, *Mater. Lett.*, 65, 1765-1767.
- Mahardiani, L., Kurniawan, E., Trisunaryanti, W., dan Triyono, 2011, Hidrorengkah Metil Ester Asam Lemak (MEPO) Menggunakan Zeolit Alam Teraktivasi, *Molekul*, 6(2), 105-112.
- Marzuki, Sintesis Katalis Co, Mo, CoMo dan MoCo dengan Pengembangan Silika Alumina Mesopori dari Lumpur Lapindo menggunakan Cetakan Gelatin Tulang Ikan Lele untuk Hidrorengkah Minyak Pirolisis α -selulosa, *Thesis*, Departemen Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Gadjah Mada, Yogyakarta.
- Moulijn, J.A., Leeuwen, P.W.N.W.V., dan Santen, R.A.V, 1993, *Catalyst : An Integrated Approach to Homogeneous, Heterogeneous dan Industrial Catalyst*, Elsevier, Amsterdam.
- Nakamura, I., Sunada, K., dan Fujimoto, K., 1997, Low Temperature Hydrocracking of Paraffinic Hydrocarbon over Hybrid Catalysts, *Stud. Surf. Sci. Catal.*, 106, 361-370.

- Pines, H., 1981, *The Chemistry of Catalytic Hydrocarbon Conversions*, Academic Press, London, pp. 1/305.
- Purnawan, I., dan Muftiyah, S., 2013, Pembuatan Katalis Hydrotreating NiMo yang tahan Terhadap Racun Katalis (silika), *Konversi*, 2(2), 45-57.
- Rad, M. R., Rashidi, M. A., and Vafajoo, L., 2012, The Effect of Support in Ni-Mo Catalyzed Hydrocracking of Extra Heavy Oil, *4th Int. Conf. Nanostructures*, Kish Island, I. R. Iran.
- Radiansono, Trisunaryanti, W., dan Triyono, 2007, Pembuatan, Karakterisasi dan Uji Aktivitas Katalis NiMo/Z dan NiMo/Z-Nb₂O₅ pada Reaksi Hidrorengkah Fraksi Sampah Plastik menjadi Fraksi Bensin, *Berkala MIPA*, Universitas Gadjah Mada, Yogyakarta.
- Rasyid, R., Prihartantyo, A., Mahfud, M., dan Roesyadi, A., 2015, Hydrocracking of *Calophyllum inophyllum* Oil with Non-Sulfide CoMo Catalyst, *Bulletin of Chem. React. Eng. & Catal.*, 10(1), 61-69.
- Riyanto, L. B., Amalia, S., dan Khalifah, S. N., 2012, Pengaruh Impregnasi Logam pada Zeolit Alam Malang terhadap Luas Permukaan Zeolit, *Alchemy*, 2(1), 58-67.
- Santi, D., 2011, Karakterisasi dan Uji Aktivitas Katalis NiMo/Zeorlit Alam Aktif dan NiMo/Zeorlit Y dalam Reaksi Hidrorengkah Minyak Jambu Mete (*Anacardium occidentale*), *Tesis*, FMIPA, Universitas Gadjah Mada, Yogyakarta.
- Satterfield, C. N., 1980, *Heterogenous Catalysis in Praticce*, McGraw-Hill Book Company, New York.
- Savitri, Effendi, R., Primahana, G., dan Tursiloadi, S., 2015, Cracking *Callophyllum Inaphyllum* L. Oil to Bio-gasoline by Micro-porous based Zeolite and Al₂O₃ Catalyst, *Int. Sym. Appl. Chem.*, 16(2015), 555-562.
- Shawn, D.J, 1992, *Introduction to Colloid & Surface Chemistry* 4th ed., Butterworth-Heinemann, Burlington.
- Sie, S.T., 1993, Acid-Catalyzed Cracking of Paraffinic Hydrocarbons, Evidence for The Protonated Cyclopropane Mechanism from Hydrocracking/Hydroisomerization Experiment, *Ind. Eng. Chem. Res.*, 32(3), 403-408.
- Sing K.S.W., Everett, D.H., Haul, R.A.W., Moscou, L., Pierotti, R.A., Rouqueol, J., and Siemieniewska, T., 1985, Reporting Physisorption Data for Gas/Solid System with Special Reference to the Dertemination of Surface Area and Porosity, *Pure App. Chem.*, 57, 603-619.

- Susanti, R., dan Fibriana, F., 2017, *Teknologi Enzim*, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Semarang, Semarang.
- Tanabe, K., 1970, *Solid Acid and Bases : their catalytic properties*, Kodansha Catalyst, Scientific Books, Japan.
- Trisunaryanti, W., 1991, Modifikasi Karakterisasi dan Pemanfaatan Zeolit Alam, *Tesis*, FMIPA, Universitas Gadjah Mada, Yogyakarta.
- Trisunaryanti, W., Triyono, dan Fibirna, D. A., 2003, Preparation of Ni-Mo/Mordenite Catalysts Under the Variation of Mo/Ni Ratio and Their Characterizations for Stearic Acid Conversion, *Ind. J. Chem.*, 3(2), 80-90.
- Trisunaryanti, W., Triyono, Mudasir, Nuryanto, R., Nomura, M., Miura, M., Satoh, T., and Kidena, K., 2003, Hydrocracking Process of Butonian Asphalt-driven Asphaltene using a Mo-Ni/ γ -Al₂O₃ Catalyst, *3rd Asia Pacific Congr. Catalist*, Dalian, China.
- Trisunaryanti, W., Purwono, S., and Putranto, A., 2008, Catalytic Hydrocracking of Waste Lubricant Oil into Liquid Fuel Fraction using Zn, Nb₂O₅, Activated Natural Zeolite and Their Modification, *Indo. J. Chem. Eng.*, 7, 175-180.
- Trisunaryanti, W., 2015, *Material Katalis dan Karakterisasinya*, Universitas Gadjah Mada Press, Yogyakarta.
- Ulfah, M., Subagyo, Makertihartha, I.G.B.N., dan Laniwati, M., 2010, Pembuatan Katalis NiMo Berpenyangga Gamma Alumina untuk Proses Hydrotreating, *Prosiding*, 105-110.
- Upare, D.P., Park, S., Kim, M.S., Kim, J., Lee, D., Lee, J., 2016, Cobalt Promoted Mo/Beta Zeolite for Selective Hydrocracking of Tetralin dan Pyrolysis Fuel Oil into Monocyclic Aromatic Hydrocarbons, *J. Ind. Eng. Chem.*, 35: 99-107.
- Wijaya, K., Syoufian, A., Ariantika, S. D., 2014, Hydrocracking of Used Cooking Oil into Biofuel Catalyzed by Nickel-Bentonite, *A. J. Chem.*, 13(26), 3785-3789.
- Witanto, E., Trisunaryanti, W., dan Triyono, 2010, Preparasi dan Karakterisasi Katalis Ni-Mo/Zeolit Alam Aktif, *Sem. Nas. SDM Teknol. Nukl. VII*, Yogyakarta.
- Yabushita, H., Kobayashi, and Fukuoka, A., 2014, Catalytic Transformation of Cellulose into Platform Chemical, *Appl. Catal., B. Enviro*, 145, 1-9.

Zhang, Z., and Perschbacher, P., 2003, Comparison of the Zeolite Sodium Chabazite and Activated Charcoal for Ammonia Control in Sealed Containers, University of Arkansas at Oine Bluff, Manila, *Asian Fish. Sci.*, 16, 141-145.

Zhang, T., Leyva, C., Froment, F. G., 2014, Vacuum Gas Oil Hydrocracking on NiMo/USY Zeolite, *Catal. Ind. Eng. Chem. Res.*, 54, 858-868.

Zhao, Y., and Yu, Y., 2011, Kinetics of Asphaltene thermal Cracking and Catalytic Hydrocracking, *Fuel Process Technol.*, 92, 977-982.