



REFERENCES

- Al Mamari, H. H., 2023, Developments and Uses of Lewis Acids: From Conventional Catalysts to Modern Green Catalysts.
- Al Muttaqii, M., Kurniawansyah, F., Prajitno, D. H., & Roesyadi, A., 2021, Hydrocracking Process of Coconut Oil using Ni-Zn/HZSM-5 Catalyst for Hydrocarbon Biofuel Production, *J. Phys. Conf. Ser.*, Vol. 1725, No. 1, p. 012008, IOP Publishing.
- Ashley, J. H., & Mitchell, P. C. H., 1969, Cobalt–molybdenum–alumina hydro desulphurisation catalysts. Part II. Incorporation of cobalt (II) and molybdenum (VI) into γ -alumina, *J. Chem. Soc. A.*, 2730-2735.
- Ayoola, H. O., House, S. D., Bonifacio, C. S., Kisslinger, K., Saidi, W. A., & Yang, J. C., 2020, Evaluating The Accuracy of Common γ -Al₂O₃ Structure Models by Selected Area Electron Diffraction from High-quality Crystalline γ -Al₂O₃, *Acta Mater.*, 182, 257-266.
- Bekkum, H. V., Jansen, J. C., & Flanigen, E. M., 1991, Introduction to Zeolite Science and Practice.
- Boateng, L., Ansong, R., Owusu, W., & Steiner-Asiedu, M., 2016, Coconut Oil and Palm Oil's Role in Nutrition, Health, and National Development: A Review, *Ghana Med.J.*, 50(3), 189-196.
- Chen, L., Li, H., Fu, J., Miao, C., Lv, P., & Yuan, Z., 2016, Catalytic Hydroprocessing of Fatty Acid Methyl Esters to Renewable Alkane Fuels Over Ni/HZSM-5 Catalyst. *Catal. Today*, 259, 266-276.
- Dahdah, E., Estephane, J., Gennequin, C., El Khoury, B., Aboukaïs, A., Abi-Aad, E., & Aouad, S., 2023, A Comparative Study of Zirconia-supported Nickel and/or Ruthenium Catalysts for Glycerol Steam Reforming, *Sustain. Chem. Pharm.*, 32, 101019.
- Dahman, Y., Syed, K., Begum, S., Roy, P., & Mohtasebi, B., 2019, *Biofuels: Their Characteristics and Analysis*, In: Verma D., Fortunati E., Jain S., and Zhang X., *Biomass, biopolymer-based materials, and bioenergy*, 277-325, Cambridge, Woodhead Publishing.
- Digne, M., Sautet, P., Raybaud, P., Euzen, P., & Toulhoat, H., 2004, Use of DFT to Achieve a Rational Understanding of Acid–basic Properties of γ -alumina Surfaces, *J. Catal.*, 226(1), 54-68.
- Feng, R., Yan, X., & Hu, X., 2018, Effects of Boron and Fluorine Modified γ -Al₂O₃ with Tailored Surface Acidity on Catalytic Ethanol Dehydration to Ethylene, *J. of Porous Mater.*, 25, 1105-1114.
- Folayan, A. J., Anawe, P. A. L., Aladejare, A. E., & Ayeni, A. O., 2019, Experimental Investigation of The Effect of Fatty Acids Configuration, Chain Length, Branching and Degree of Unsaturation on Biodiesel Fuel Properties



Obtained from Lauric Oils, High-oleic and High-linoleic Vegetable Oil Biomass, *Energy Rep.*, 5, 793-806.

Gamal, M. S., Asikin-Mijan, N., Khalit, W. N. A. W., Arumugam, M., Izham, S. M., Taufiq-Yap, Y. H., 2020, Effective Catalytic Deoxygenation of Palm Fatty Acid Distillate for Green Diesel Production Under Hydrogen-Free Atmosphere Over Bimetallic Catalyst CoMo Supported on Activated Carbon, *Fuel Processing Technology*, 208, 106519.

Gary, J. H., 2003, Petroleum Refining. In R. A. Meyers (Ed.), *Encyclopedia of Physical Science and Technology* (Third Edition) (pp. 741-761). Academic Press.

Gotovuša, M., Pucko, I., Racar, M., & Faraguna, F., 2022, Biodiesel produced from propanol and longer chain alcohols—Synthesis and properties, *Energies*, 15(14), 4996.

Handayani, U. F., Suliansyah, I., Rizal, Y., & Mahata, M. E., 2019, The evaluation of dietary addition of palm and coconut oils in steaming tomato (*Lycopersicon esculentum*) waste powder on *digestibility* of crude fiber and retention of lycopene and nitrogen in broiler chickens, *Journal of World Poultry Research*, 9(4), 187-195.

Hasnah, T., Leksono, B., Sumedi, N., Windyarini, E., Adinugraha, H. A., Baral, H., & Artati, Y., 2020, Pongamia as a potential biofuel crop: Oil content of Pongamia pinnata from the best provenance in Java, Indonesia, In *2020 International Conference and Utility Exhibition on Energy, Environment and Climate Change (ICUE)* (pp. 1-6). IEEE.

Holechek, J. L., Geli, H. M., Sawalhah, M. N., & Valdez, R., 2022, A global assessment: can renewable energy replace fossil fuels by 2050?, *Sustainability*, 14(8), 4792.

Ibrahim, M. A., El-Araby, R., Abdelkader, E., Saied, M. E., Abdelsalam, A. M., & Ismail, E. H., 2023, Waste cooking oil processing over cobalt aluminate nanoparticles for liquid biofuel hydrocarbons production, *Scientific reports*, 13(1), 3876.

Islam, A. K. M. A., Primandari, S. R. P., & Yaakob, Z., 2018, Non-edible vegetable oils as renewable resources for biodiesel production: South-East Asia perspective, *Advances in biofuels and bioenergy*, 201(2-7).

Jing, J. Y., Yang, Z. F., Huo, J. M., Bai, H. C., & Li, W. Y., 2019, Metal precursor impregnation sequence effect on the structure and performance of NiCo/MgO catalyst. *International Journal of Hydrogen Energy*, 44(16), 8089-8098.

Jogarao, B., & Swarna Kumari, A., 2019, Biodiesel production using second-generation feedstocks: a review. *Recent Advances in Material Sciences: Select Proceedings of ICLIET 2018*, 693-709.

Lee, K., Lee, M. E., Kim, J. K., Shin, B., & Choi, M., 2019, Single-step hydroconversion of triglycerides into biojet fuel using CO-tolerant PtRe catalyst supported on USY, *Journal of Catalysis*, 379, 180–190.



Li, H., Li, M., & Nie, H., 2014, Tailoring the surface characteristic of alumina for preparation of highly active NiMo/Al₂O₃ hydrodesulfurization catalyst, *Microporous and mesoporous materials*, 188, 30-36.

Li, T., Tao, Z., Hu, C., Zhao, C., Yi, F., Zhao, G., Zhang, L., & Yang, Y., 2022, Brønsted acidity of amorphous silica-aluminas for hydrocracking of Fischer-Tropsch wax into diesel fractions, *Applied Catalysis A: General*, 630, 118439,

Liu, K., Cao, Y., Yang, S., Wu, C., Zhang, Z., Zhang, Q., & Zhang, H., 2020, Molybdenum carbide-promoted cobalt as an efficient catalyst for selective hydrogenation, *Industrial & Engineering Chemistry Research*, 59(32), 14267-14277.

Liu, L., & Corma, A., 2018, Metal catalysts for heterogeneous catalysis: from single atoms to nanoclusters and nanoparticles, *Chemical reviews*, 118(10), 4981-5079.

Mampuru, M. B., Nkazi, D. B., & Mukaya, H. E., 2020, Hydrocracking of waste cooking oil into biogasoline in the presence of a bi-functional Ni-Mo/alumina catalyst. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 42(20), 2564-2575.

Marlina, E., Wijayanti, W., Yuliati, L., & Wardana, I. N. G., 2020, The role of pole and molecular geometry of fatty acids in vegetable oils droplet on ignition and boiling characteristics, *Renewable Energy*, 145, 596-603.

Marlinda, L., Muttaqii, M. A., Roesyadi, A., & Hari Prajitno, D., 2016, Production of biofuel by hydrocracking of Cerbera manghas oil using Co-Ni/HZSM-5 catalyst: Effect of reaction temperature. *The Journal of Pure and Applied Chemistry Research*, 5(3), 189. Universitas Brawijaya.

Mosallanejad, S., Dlugogorski, B. Z., Kennedy, E. M., & Stockenhuber, M., 2018, On the chemistry of iron oxide supported on γ -alumina and silica catalysts. *ACS omega*, 3(5), 5362-5374Mosallanejad, S., Dlugogorski, B. Z., Kennedy, E. M., & Stockenhuber, M. (2018). On the chemistry of iron oxide supported on γ -alumina and silica catalysts. *ACS omega*, 3(5), 5362-5374.

Nie, H., Li, H., Yang, Q., & Li, D., 2018, Effect of structure and stability of active phase on catalytic performance of hydrotreating catalysts, *Catalysis Today*, 316, 13-20.

Niyas, M. M., & Shaija, A., 2022, Effect of repeated heating of coconut, sunflower, and palm oils on their fatty acid profiles, biodiesel properties and performance, combustion, and emission, characteristics of a diesel engine fueled with their biodiesel blends. *Fuel*, 328, 125242.

Ooi, X. Y., Gao, W., Ong, H. C., Lee, H. V., Juan, J. C., Chen, W. H., & Lee, K. T., 2019, Overview on catalytic deoxygenation for biofuel synthesis using metal oxide supported catalysts, *Renewable and Sustainable Energy Reviews*, 112, 834-852.



París, R. S., L'Abbate, M. E., Liotta, L. F., Montes, V., Barrientos, J., Regali, F., Aho, A., Boutonnet, M., & Järås, S., 2016, Hydroconversion of paraffinic wax over platinum and palladium catalysts supported on silica–alumina, *Catalysis Today*, 275, 41-148.

Prins, R., 2020, On the structure of γ -Al₂O₃. *Journal of Catalysis*, 392, 336-346.

Rasyid, R., Prihartantyo, A., Mahfud, M., & Roesyadi, A., 2015, Hydrocracking of Calophyllum inophyllum oil with non-sulfide CoMo catalysts, *Bulletin of Chemical Reaction Engineering & Catalysis*, 10(1), 61-69.

Robinson, P. R., 2011, Hydroconversion processes and technology for clean fuel and chemical production. In Advances in clean hydrocarbon fuel processing (pp. 287-325). Woodhead Publishing.

Rodionova, M. V., Poudyal, R. S., Tiwari, I., Voloshin, R. A., Zharmukhamedov, S. K., Nam, H. G., Zayadan, B. K., Bruce, B. D., Hou, H. J. M., & Allakhverdiev, S. I., 2017, Biofuel production: challenges and opportunities, *International Journal of Hydrogen Energy*, 42(12), 8450-8461.

Romero, M., Pizzi, A., Toscano, G., Alessandro, C., Bosio, B., & Arato, E., 2018, Deoxygenation of non-edible vegetable oil to produce hydrocarbons over Mg-Al mixed oxides, *Chemical Engineering Transactions*, 64, 121-126.

Sanjaya, Y., 2019, B20 biodiesel mandate a lifeline for Indonesia's palm oil sector, *Smart Agribusiness and Food*, <https://www.smart-tbk.com/en/mandat-biodiesel-b20-selamatkan-industri-kelapa-sawit-indonesia/>

Seo, M. G., Lee, D. W., Lee, K. Y., & Moon, D. J., 2015, Pt/Al-SBA-15 catalysts for hydrocracking of C21–C34 n-paraffin mixture into gasoline and diesel fractions, *Fuel*, 143, 63-71.

Sriatun, S., Susanto, H., Widayat, W., & Darmawan, A., 2021, Hydrocracking of Coconut Oil on the NiO/Silica-Rich Zeolite Synthesized Using a Quaternary Ammonium Surfactant, *Ind. J. Chem.*, 21(2), 361-375.

Srinivasan, G. R., Shankar, V., & Jambulingam, R., 2019, Experimental study on the influence of dominant fatty acid esters in engine characteristics of waste beef tallow biodiesel. *Energy Exploration & Exploitation*, 37(3), 1098-1124.

Selpiana, S., Bahrin, D., Habibie, M. R., & Samara, F. S., 2023, Preparation and Characterization of Catalyst Zn/Al₂O₃ Catalyst using Dry and Wet Impregnation Method, *IJFAC*, 8(1), 25-33.

Sundaram, T., Rajendran, S., Gnanasekaran, L., Rachmadona, N., Jiang, J. J., Khoo, K. S., & Show, P. L., 2023, Bioengineering strategies of microalgae biomass for biofuel production: recent advancement and insight, *Bioengineered*, 14(1), 2252228.



Trabelsi, A. B. H., Zaafouri, K., Baghdadi, W., Naoui, S., & Ouerghi, A., 2018, Second generation biofuels production from waste cooking oil via pyrolysis process. *Renewable energy*, 126, 888-896.

Triyono, Trisunaryanti, W., Purbonegoro, J., & Aksanti, S. I. (2023). Effect of cobalt impregnation methods on Parangtritis sand towards catalysts activity in hydrocracking of degummed low-quality Ujung Kulon Malapari oil into biohydrocarbons. *Reaction Kinetics, Mechanisms and Catalysis*, 1-19.

Upare, D. P., Park, S., Kim, M. S., Kim, J., Lee, D., Lee, J., ... & Lee, C. W., 2016, Cobalt promoted Mo/beta zeolite for selective hydrocracking of tetralin and pyrolysis fuel oil into monocyclic aromatic hydrocarbons, *Journal of Industrial and Engineering Chemistry*, 35, 99-107.

Van Gerpen, J., 2005, Biodiesel processing and production, *Fuel Process. Technol.*, 86, 1097– 1107.

Vuurman, M. A., Wachs, I. E., Stufkens, D. J., & Oskam, A. D. (1993). Characterization of chromium oxide supported on Al₂O₃, ZrO₂, TiO₂, and SiO₂ under dehydrated conditions. *Journal of molecular catalysis*, 80(2), 209-227.

Yosuk, B., Sanggam, P., Wiengket, S., & Prasassarakich, P. (2019). Hydrodeoxygenation of oleic acid and palmitic acid to hydrocarbon-like biofuel over unsupported Ni-Mo and Co-Mo sulfide catalysts. *Renewable Energy*, 139, 1391-1399.

Zhang, C., Brorson, M., Li, P., Liu, X., Liu, T., Jiang, Z., & Li, C., 2019, CoMo/Al₂O₃ catalysts prepared by tailoring the surface properties of alumina for highly selective hydrodesulfurization of FCC gasoline, *Applied Catalysis A: General*, 570, 84-95.