



## DAFTAR PUSTAKA

- Adnan M.A. et al. 2017. *Enhancement of hydrogen production in a modified moving bed downdraft gasifier – A thermodynamic study by including tar*, *Int. J. Hydrogen Energy*. Elsevier Ltd, Vol. 42, No. 16. P. 10971–10985.
- Affendi, M., Sugiyatno, Iman, D., dan Haifa, W. 2010. Uji Variasi Beban Listrik dan Rasio Gas Hasil Gasifikasi Sekam Padi Pada Mesin Diesel Dual Fuel. Seminar Rekayasa Kimia dan Proses 2010.
- Aries, R. S. and Newton, R. D. (1955) Chemical engineering cost estimation. 1 st. New York: McGraw-Hill Book Company. doi: 10.1021/ed033p194.1.
- Aydin E.S., Yucel O., Sadikoglu H. 2018. *Numerical and Experimental Investigation of Hydrogen-Rich Syngas Production Via Biomass Gasification*. *Int. J. Hydrogen Energy*. Elsevier Ltd. Vol. 43, № 2. P. 1105–1115.
- Badan Pusat Statistik (BPS). 2021. Provinsi Sumatera Selatan. (<http://www.bps.go.id.>)
- Baig et al., 2017. Coal fired power plants: emission problems and controlling techniques. *J Earth Sci Clim Change*, 8(404), 2.
- Balas, Marek, et al., 2014. Syngas cleaning by wet scrubber. *Heat Mass Transfer*, 9: 195-204.
- Baraj, E., Ciahotný, K., & Hlinčík, T., 2022. Advanced Catalysts for the Water Gas Shift Reaction. *Crystals*, 12(4), 509.
- Bashir, K., 2015. Design and fabrication of cyclone separator. *China University of Petroleum*.
- Barmina, I., Agnese, L., Raimonds,V. , and Maija, Z. 2013. *Effects Of Biomassa Composition Variations On Gasification and Combustion Characteristics*. Engineering for Rural Development.
- Basu, Prabir. 2013. *Biomass Gasification, Pyrolysis and Torrefaction: Practical Design and Theory*. July, 1–530.
- Bhaduri, S., et al., 2015. The effects of biomass syngas composition, moisture, tar loading and operating conditions on the combustion of a tar-tolerant HCCI (Homogeneous Charge Compression Ignition) engine. *Energy*, 87: 289-302Brebu, M. and Vasile, C. 2010. *Thermal Degradation of Lignin-A* 6. Jurnal Energi dan Lingkungan Vol. 16, No. 1, Juni 2020 Hlm. 1-8 Review. Cellulose Chemistry and Technology 44 (9) : 353- 363.
- Brown, G. G. (1950) Unit Operations. 1 sat. New Delhi: John Willey & Sons.



- Brownell, L. E. and Young, E. H. (1959) *Process Equipment Design, Human Factors Methods for Improving Performance in the Process Industries*. New York: John Wiley & Sons. doi: 10.1002/9780470118849.ch4.
- Cempa-Balewicz M. et al. 2013. *Equilibrium Model of Steam Gasification of Coal, x, J. Sustain.* Vol. 12, № 2. P. 21–28.
- Clarke Energy. 2022. Application Synthesis Gas-Syngas. (<https://www.clarke-energy.com/id/applications/synthesis-gas-syngas/>)
- Chakrawarti, P. 2022. Japan Syngas Market Size. ([https://www.linkedin.com/pulse/japan-syngas-market-size-industri-analysis-share-2028-chakrawarti?trk=pulse-article\\_more-articles\\_related-content-card](https://www.linkedin.com/pulse/japan-syngas-market-size-industri-analysis-share-2028-chakrawarti?trk=pulse-article_more-articles_related-content-card))
- Couper, J. R. et al. (2012) *Chemical Process Equipment: Selection and Design*. 3rd editio. Oxford: Butterworth-Heinemann.
- Darwin. 2004. Pengolahan Limbah Cair Pabrik Kelapa Sawit Yang Berasal dari Kolam Akhir (Final Pond) dengan Proses Koagulasi Melalui Elektrolisis. *Jurnal Sains Kimia* 8 (2): 38–40.
- Dascomb, J. et al. 2013. *Thermal Conversion Efficiency of Producing Hydrogen Enriched Syngas from Biomass Steam Gasification*. *International Journal of Hydrogen Energy*. 38:11790–11798.
- Gafur, Abdul. 2017. Studi Eksperimental Gasifikasi Pelepas Kelapa Sawit untuk Meningkatkan Performansi Reaktor Downdraft dengan Masukan Udara Bertingkat. Fakultas Teknologi Industri, Universitas Teknologi Sepuluh Nopember.
- Harahap, M.E. and Tjahjono, E.W. 2016. Kajian Teknologi Proses Pembuatan Gas Sintetik Dari Batubara Dan Prospek Pemanfaatan Pada Industri Hilirnya. *Majalah Ilmiah Pengkajian Industri*, 10(1), pp.61-70.
- Hartley, C.W.S. 1970. *The Oil Palm*. Longman Group Limited. London.
- Hidayat, A. 2013. Karakterisasi Proses Gasifikasi Biomassa pada Reaktor Downdraft Sistem Batch dengan Variasi Air-Fuel Ratio (AFR) dan Ukuran Biomasa. Fakultas Teknik, Universitas Gadjah Mada.
- Indrawan, N. 2018. *Advance Biopower Generation Via Gasification of Biomass and Municipal Solid Waste*. Oklahoma State University.



Javari, M.J., et al., 2012. *Influence of Liquid and Gas Flow Rates on Sulfuric acid Mist Removal from Air by Packed Bed Tower. Iranian Journal of Environmental Health Science and Engineering.*

Kementerian ESDM. 2022. Pemanfaatan Gas Domestis. ([migas.esdm.go.id](http://migas.esdm.go.id))

Kern, D. Q., & Kern, D. Q., 1965. *Process heat transfer* (Vol. 871). New York: McGraw-Hill.

Leiby, S.M., 1994. Options for Refinery Hydrogen. SRI Report No. 212. Menlo Park, CA.

McCabe, W. L., Smith, J. C., & Harriott, P., 1993. *Unit operations of chemical engineering* (Vol. 5, p. 154). New York: McGraw-hill.

Mussatti, D. (2002) 'Chapter 2 Wet Scrubbers for Particulate Matter', in Particulate Matter Controls. Durham: Paula Hemmer.

Panjiva. 2021. *Global Trade Data of Ammonia*. ([panjiva.com](http://panjiva.com))

Panjiva. 2021. *Global Trade Data of Natural Gas*. ([panjiva.com](http://panjiva.com))

Perry, R. H. and Green, D. W. (1997) Chemical Engineers' Hanbook. 7 th. Edited by R. H. Perry. New York: McGraw-Hill.

Popovic, J., Lindenthal, L., Rameshan, R., Ruh, T., Nenning, A., Löffler, S., ... & Rameshan, C., 2020. High temperature water gas shift reactivity of novel perovskite catalysts. *Catalysts*, 10(5), 582. Purnomo, S.E. 2010. Pembuatan Arang Aktif dari Kulit Biji Kopi dan Aplikasinya sebagai Adsorben Zat Warna Metilen Biru dan Naphtol Yellow. Fakultas Sains dan Teknologi, Universitas Islam Negeri Sunan Kalijaga

Rajvanshi, A. K. 2014. *Biomass Gasification*. Text Book Gasification Research at Nimbar Agricultural Research Institute, India.

Sakai, S., Sawell, S.E., Chandler, A.J., Eighmy, T.T., Kosson, D.S., Vehlow, J., Van der Sloot, H.A., Hartlen, J. and Hjelmar, O., 1996. World terends in municipal solid waste management. *Waste management*, 16(5-6), pp.341-350.

Shayan E., Zare V., Mirzaee I. 2017. *Hydrogen Production from Biomass Gasification; A Theoretical Comparison Of Using Different Gasification Agents, Energy Convers. Manag.* Vol. 159, No August 2017. P. 30–41.

Sinnott, R. K. (2005) Chemical Engineering Design. 4 th. Chennai: Jordan Hill. Available at: <https://www.ptonline.com/articles/how-to-get-better-mfi-results>.

Smith, J. M., Van Ness, H. C., Abbott, M. M., & Swihart, M. T., 1949. *Introduction to chemical engineering thermodynamics*. Singapore: McGraw-Hill.



- Siswoko, E., Mulyadi, A., Thamrin, T. and Bahruddin, B. 2017. Pendugaan kandungan karbon limbah batang pohon kelapa sawit peremajaan kebun di Provinsi Riau. *Jurnal Ilmu Lingkungan*, 11(2), pp.154-163.
- Sobczyk, ardiusz T., Jaworek, A., Marchewicz, a., Charchalis, A., 2019. *Particulate Matter Reduction from Marine Diesel Engines by Electrohydrodynamic Methods. Journal of KONES*.
- Spath, P., Aden, A., Eggeman, T., Ringer, M., Wallace, B. and Jechura, J., 2005. Biomass to hydrogen production detailed design and economics utilizing the Battelle Columbus Laboratory indirectly-heated gasifier (No. NREL/TP-510-37408). National Renewable Energy Lab., Golden, CO (US).
- Suyanto, dkk. 2015. Produksi Bioetanol dari Batang Tua Kelapa Sawit dengan Air Panas Bertekanan dan Ball Mill. *Jurnal BPPT*. 2(2015). 49-54. (<http://ejurnal.bppt.go.id/index.php/JBBI/article/view/508>)
- Towler, G. and Sinnott, R., 2021. *Chemical engineering design: principles, practice and economics of plant and process design*. Butterworth-Heinemann.
- Tricahyandaru, F. dan Prihambodo, Y.D. 2008. Pengembangan dan Studi Karakteristik Gasifikasi Batu Bara Sub - Bituminous Menggunakan Reaktor Jenis Fix Bed Downdraft Gasifier. Fakultas Teknik, Universitas Indonesia.
- Tsoumis G. 1991. *Science and Technology Wood. Structur, Properties Utilization*. USA: Van Vostrand Reinhold Inc.
- Turner, J.H., McKenna, J.D., Mycock, J.C., Nunn, A.B. and Vatavuk, W.M., 1998. Fabric filters. Pollution prevention regional information center.
- Ulrich D, G. (1884) *A Guide to Chamical Engineering Process Design and Economic*. New York: John Willey & Sons.
- Yaws, C. L., 1999. *Chemical properties handbook*. McGraw-Hill Education.