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DAFTAR PUSTAKA

Akita, K., & Yoshida, F. (1974). Bubble size, interfacial area, and liquid-phase mass transfer coefficient in bubble columns. Industrial & Engineering Chemistry Process Design and Development, 13(1), 84-91.

American National Standards Institute / International Safety Equipment Association. (2014). *ANSI/ISEA Z358.1-2014: American National Standard for Emergency Eyewash and Shower Equipment*. Arlington, VA: ISEA.

American Petroleum Institute. (2019). *Specification for shop welded tanks for storage of production liquids* (API Specification 12F, 13th ed.).

Ammunition Management Advisory Team. (2020). *Explosion risk management: Ammonium nitrate storage and handling practices*. Geneva International Centre for Humanitarian Demining (GICHD).

Anchem Sales. (2017). Nitric acid 58% safety data sheet (SDS). London, ON, Canada: Anchem Sales.

Aries, R.S. and Newton, R.D., 1955, CHEMICAL ENGINEERING COST ESTIMATION, McGraw Hill Companies, Inc., New York, available at:https://doi.org/10.1021/ed033p194.1.

Armour, J. C., & Cannon, J. N. (1968). Fluid flow through woven screens. AIChE Journal, 14(3), 415-420.

ASME BPVC Section II Part D-2015. (2015). *ASME Boiler and Pressure Vessel Code, Section II: Materials - Part D: Properties (Metric)*. American Society of Mechanical Engineers.

ASTM D1998-21. (2021). *Standard specification for polyethylene upright storage tanks*. ASTM International.

Badan Pusat Statistik Kota Bontang. (2025). *Kota Bontang dalam angka 2025* [Edisi ke-26]. Badan Pusat Statistik Kota Bontang. https://bontangkota.bps.go.id

Badan Pusat Statistik. (2025). *Tabel ekspor-impor amonium nitrat (HS 282810) tahun 2020–2024* [Basis data]. Badan Pusat Statistik. https://www.bps.go.id/id/exim

Bai, W. (2010). Experimental and numerical investigation of bubble column reactors.

Bednar, H. H. (1986). Pressure vessel design handbook (2nd ed.). Van Nostrand Reinhold.

Bodenstein, M. (1918). The rate of the reaction between nitric oxide and oxygen. Zeitschrift für Elektrochemie, 34, 183.

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
Saddam Dzaki Hadiputra, Ir. Dr. Endang Kasmiati, M.T., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Booth, D. H., & Vinyard, V. C. (1967). Density and viscosity of ammonium nitrate, ammonium nitrate–potassium chloride and ammonium nitrate—ammonium phosphate melts. Journal of Applied Chemistry, 17(3), 86-88.

Brandner, J. D., Junk, N. M., Lawrence, J. W., & Robins, J. (1962). Vapor pressure of ammonium nitrate. Journal of Chemical & Engineering Data, 7(2), 227–228. https://doi.org/10.1021/je60013a019

Brownell, L. E., & Young, E. H. (1959). *Process equipment design: Vessel design*. John Wiley & Sons.

Burdick, C. L., & Freed, E. S. (1921). The equilibrium between nitric oxide, nitrogen peroxide, and aqueous solutions of nitric acid. Journal of the American Chemical Society, 43, 518.

Burkholder, J. B., Sander, S. P., Abbatt, J. P. D., Barker, J. R., Cappa, C., Crounse, J. D., Dibble, T. S., Huie, R. E., Kolb, C. E., Kurylo, M. J., Orkin, V. L., Wilmouth, D. M., & Wine, P. H. (2019). Chemical kinetics and photochemical data for use in atmospheric studies: Evaluation No. 19. Jet Propulsion Laboratory, National Aeronautics and Space Administration. https://jpldataeval.jpl.nasa.gov

Calderbank, P. H., & Eng, C. (1967). Review series no. 3. Gas absorption from bubbles. Chemical Engineering Journal, 45.

Callister, W. D., Jr., & Rethwisch, D. G. (2020). *Materials science and engineering: An introduction* (10th ed.). John Wiley & Sons.

Carberry, J. J. (1959). Chemical equilibrium and kinetics in the nitrogen oxides–water system. Chemical Engineering Science, 9(2).

Carbonell, R. G. (1980). Chemical reactor analysis and design, Gilbert F. Froment and Kenneth B. Bischoff. John Wiley and Sons, New York.

Center for Chemical Process Safety (CCPS) (2001). *Layer of Protection Analysis: Simplified Process Risk Assessment*. John Wiley & Sons / AIChE, New York. ISBN: 978-0-8169-0811-7. https://www.aiche.org/resources/publications/books/layer-protection-analysis-simplified-process-risk-assessment

Center for Chemical Process Safety (CCPS) (2015). *Guidelines for Initiating Events and Independent Protection Layers in Layer of Protection Analysis*. John Wiley & Sons / AIChE, New York. ISBN: 978-0-470-34385-2.

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
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Saddam Dzaki Hadiputra, Ir. Dwiwahju Prasetyo, S.T., M.T., Ph.D.

https://www.aiche.org/resources/publications/books/guidelines-initiating-events-and-independent-protection-layers-layer-protection-analysis

Central Drug House (P) Ltd. (n.d.). *Tri-Calcium Phosphate: Material Safety Data Sheet.* Diakses 2 November 2025 dari https://share.google/ptRoHtxvBEK177ubI

Chambers, F. S., & Sherwood, T. K. (1937). Absorption of nitrogen oxides by aqueous solutions. Industrial & Engineering Chemistry, 29, 1415.

Chase, R.B., Aquilano, N.J., & Jacobs, F.R. (2006). Operations Management for Competitive Advantage (11th ed.). McGraw-Hill/Irwin.

Chemos GmbH & Co. KG. (2019). *Nitric acid 65%: Safety Data Sheet*. Diambil dari https://share.google/PKJ3UhnhcrlZ9hgNE.

Chuang, K. T., & Nandakumar, K. (2000). Tray columns: design. *Encyclopedia of separation science*, 1135-1140.

Coherent Market Insights. (2025). *Ammonium nitrate market size and share analysis – growth trends and forecasts (2025–2032).* Coherent Market Insights. https://www.coherentmarketinsights.com/industry-reports/ammonium-nitrate-market

Coulson, J. M., & Richardson, J. F. (2005). *Chemical engineering design* (Vol. 6, 4th ed.). Elsevier Butterworth-Heinemann.

Couper, J. R., Penney, W. R., Fair, J. R., & Walas, S. M. (2005). Chemical process equipment: Selection and design (2nd ed.). Gulf Professional Publishing.

Cox, J. D., Harrop, D., & Head, A. J. (1979). The standard enthalpy of formation of ammonium nitrate and of the nitrate ion. The Journal of Chemical Thermodynamics, 11(8), 811–814. https://doi.org/10.1016/0021-9614(79)90065 4

Crawley, F., Preston, M., & Tyler, B. (2000). HAZOP: Guide to bestpractice, Guidelines to best practice for the process and chemical industries, European Process Safety Centre. *Chemical Industries Association & Institution of Chemical Engineers, Rugby, England, IChem*.

Deckwer, W. D. (1980). On the mechanism of heat transfer in bubble column reactors. *Chemical Engineering Science*, *35*(6), 1341-1346.

Denbigh, K. G., & Prince, A. J. (1947). Kinetics of nitrous gas absorption in aqueous nitric acid. Journal of the Chemical Society, 790.

Dessler, G. (2020). Human Resource Management (16th ed.). Pearson Education.

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
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Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan Kapasitas 290.000 Ton/Tahun

Dyno Nobel Asia Pacific Limited. (2020). *Ammonium Nitrate: Safety Data Sheet.* Diambil dari https://share.google/xo1EO8dT6p5irDWIH

Dyno Nobel. (2018). *Technical Bulletin: Ammonium Nitrate for ANFO Production*. Dyno Nobel Inc.

Eigenberger, G., & Ruppel, W. (2000). Catalytic fixed-bed reactors. *Ullmann's Encyclopedia of Industrial Chemistry*.

Einarsson, M. I., Jokumsen, A., Bæk, A. M., Jacobsen, C., Pedersen, S. A., Samuelsen, T. A., ... & Flesland, O. (2019). Nordic centre of excellence network in fishmeal and fish oil.

EPA. (1981). *Ammonium Nitrate Manufacturing Industry – Technical Document.* EPA.

Epshstein, D. A. (1939). Equilibrium $NO–NO_2–HNO_3–H_2O$ at 0°C. Journal of General Chemistry of the USSR, 9, 792.

European Commission. (2003). Regulation (EC) No 2003/2003 of the European Parliament and of the Council of 13 October 2003 Relating to Fertilisers – Annex I: Straight Ammonium Nitrate Fertiliser of High Nitrogen Content. Official Journal of the European Union, L 304, 1–194.

European Union. (2012). *Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (Seveso III Directive)*. Official Journal of the European Union, L 197, 1-37.

Evans, F. L. (1980). *Equipment design handbook for refineries and chemical plants* (2nd ed.). Gulf Publishing Company.

Faith, W. L., Keyes, D. B., & Clark, R. L. (1996). *Industrial Chemical* (4th ed.). John Wiley & Sons Inc.

Federico, S. A. P., Hizon-Fradejas, A. B., Grabato, J. R. H., & Mojica, E. R. E. (2024). *Ammonium nitrate.*

Fertilizers Europe. (2011). Guidance for UN Transport Classification of Ammonium Nitrate Based Substances. Product Stewardship Fertilizers, Brussels.

Froment, G. F., & Bischoff, K. B. (1979). *Chemical Reactor Analysis and Design*. John Wiley & Sons.

Floden, C. S. (1994). Friction properties of fertilizers and methods of analysis. *International agrophysics*, *8*(1), 53-57.

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
Saddam Dzaki Hadiputra, Ir. Dr. Endang Kapasitas, M.T., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Gas Processors Suppliers Association, & Gas Processors Association. (1992). Engineering data book (10th ed.). Gas Processors Suppliers Association.

Gexcon AS. (2020). *Ammonium nitrate explosion hazards and lessons learned from historical accidents*. Gexcon Safety Documentation.

Gezerman, A. O. (2020). Mathematical modeling for prilling processes in ammonium nitrate production. Engineering https://doi.org/10.1002/eng2.12173 Reports, 2(6), Article e12173.

Global Market Insights. (2025). *Ammonium nitrate market size, share & trend report, 2034.* Global Market Insights. https://www.gminsights.com/industry-analysis/ammonium-nitrate-market

Gowland, R. (2006). *The accidental risk assessment methodology for industries (ARAMIS)/layer of protection analysis (LOPA) methodology: A step forward towards convergent practices in risk assessment?*. Journal of Hazardous Materials, 130(3), 307–310. https://doi.org/10.1016/j.jhazmat.2005.07.007

Groves, M. C. E. (2020). Nitric Acid. In Kirk-Othmer Encyclopedia of Chemical Technology (4th ed., Vol. 5, pp. 1–37). Wiley. https://doi.org/10.1002/0471238961.1409201803120118.a01.pub3

Gungor, K. E., & Winterton, R. H. S. (1986). A general correlation for flow boiling in tubes and annuli. International journal of heat and mass transfer, 29(3), 351-358.

Hignett, T. P. (Ed.). (2013). *Fertilizer manual* (Vol. 15). Springer Science & Business Media.

International Electrotechnical Commission (IEC) (2016). *IEC 61511-1:2016 – Functional Safety: Safety Instrumented Systems for the Process Industry Sector, Part 1*. IEC, Geneva. https://webstore.iec.ch/publication/22945

International Finance Corporation (IFC). (2007). Environmental, Health, and Safety Guidelines for Nitrogenous Fertilizers. World Bank Group.

International Labour Organization (ILO). (2004). Shift Work: Prevention and Control. ILO Publications.

International Organization for Standardization (ISO). (2018). ISO 45001:2018 – Occupational Health and Safety Management Systems – Requirements with Guidance for Use. ISO.

J. J. Dorsey, J. (1955). *Ammonium Nitrate by the Stengel Process. Pilot Plants*, 47(1), 11–17.

Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia. (2019). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor*

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
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Melalui Proses UHDE dengan Kapasitas 290.000 Ton/Tahun

P.16/MENLHK/SETJEN/KUM.1/4/2019 tentang perubahan kedua atas Peraturan Menteri Lingkungan Hidup Nomor 5 Tahun 2014 tentang baku mutu air limbah. Berita Negara Republik Indonesia Tahun 2019 Nomor 433.

Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia. (2019). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Republik Indonesia Nomor P.17/MENLHK/SETJEN/KUM.1/4/2019 tentang baku mutu emisi bagi usaha dan/atau kegiatan industri pupuk dan industri amonium nitrat*. Berita Negara Republik Indonesia Tahun 2019 Nomor 434.

Keputusan Gubernur Kalimantan Timur tentang Penetapan Upah Minimum Kabupaten/Kota (UMK) Tahun 2026. Pemerintah Provinsi Kalimantan Timur.

Keputusan Menteri Tenaga Kerja dan Transmigrasi No. KEP-233/MEN/2003 tentang Jenis dan Sifat Pekerjaan yang Dijalankan Secara Terus Menerus.

Kern, D. Q. (1950). *Process heat transfer*. McGraw-Hill.

Maharani, N. (2021). *Prarancangan Pabrik Amonium Nitrat dari Amonia dan Asam Nitrat dengan Proses Prilling Kapasitas 100.000 Ton/Tahun. Jurnal Tugas Akhir Teknik Kimia*, 4(1), 1–5.

Miller, D. N. (1987). Mass transfer in nitric acid absorption. AIChE Journal, 33(8), 1351 1358.

Mordor Intelligence. (2025). *Ammonium nitrate market size & share analysis – growth trends and forecast (2025–2030).* Mordor Intelligence. https://www.mordorintelligence.com/industry-reports/ammonium-nitrate-market

Mori, Y., & Nakayama, W. (1967). Study on forced convective heat transfer in curved pipes:(3rd report, theoretical analysis under the condition of uniform wall temperature and practical formulae). *International journal of heat and mass transfer*, *10*(5), 681-695.

Moss, D. R. (2004). *Pressure vessel design manual*. Elsevier.

Nakajima, S. (1988). Introduction to TPM: Total Productive Maintenance. Productivity Press.

National Fire Protection Association (NFPA) (2019). *NFPA 430: Code for the Storage of Liquid and Solid Oxidizers*. NFPA, Quincy, MA. https://www.nfpa.org/codes-and-standards/nfpa-430-code-for-the-storage-of-liquid-and-solid-oxidizers/editions/2019

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
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Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan Kapasitas Produksi 290.000 Ton/Tahun

National Fire Protection Association (NFPA) (2022). *NFPA 13: Standard for the Installation of Sprinkler Systems*. NFPA, Quincy, MA. https://www.nfpa.org/codes-and-standards/nfpa-13-standard-for-the-*Install*ation-of-sprinkler-systems/editions/2022

Peraturan Pemerintah No. 22 Tahun 2021 tentang Penyelenggaraan Perlindungan dan Pengelolaan Lingkungan Hidup.

Peraturan Pemerintah No. 35 Tahun 2021 tentang Perjanjian Kerja Waktu Tertentu, Alih Daya, Waktu Kerja dan Waktu Istirahat, dan Pemutusan Hubungan Kerja.

Peraturan Pemerintah No. 36 Tahun 2021 tentang Pengupahan.

Peraturan Pemerintah No. 74 Tahun 2001 tentang Pengelolaan Bahan Berbahaya dan Beracun (B3).

Perry, R. H., Green, D. W., & Maloney, J. O. (1997). *Perry's Chemical Engineers' Handbook* (7th ed.). McGraw-Hill.

Perry's chemical engineers' handbook (7th ed.). McGraw-Hill.

Peters, M.S., Timmerhaus, K.D. and West, R.E., 2003, Plant Design and Economics for Chemical Engineers, 5th ed., McGraw-Hill, Inc., New York.

Pradhan, M. P., Suchak, N. J., Walse, P. R., & Joshi, J. B. (1997). Multicomponent gas absorption with multiple reactions: Modelling and simulation of NOx absorption in nitric acid manufacture. Chemical Engineering Science, 52(24), 4569-4591.

Rao, P. S. (2014). *Ammonium nitrate.*

Republik Indonesia. (2021). *Peraturan Pemerintah Nomor 5 Tahun 2021 tentang Penyelenggaraan Perizinan Berusaha Berbasis Risiko*. Sekretariat Negara.

Republik Indonesia. (2021). *Undang-Undang Nomor 7 Tahun 2021 tentang Harmonisasi Peraturan Perpajakan*. Lembaran Negara Republik Indonesia Tahun 2021 Nomor 246. Sekretariat Negara. https://jdih.kemenkeu.go.id/dok/uu-7-tahun-2021/view

Rizkillah, T. N. (2014). *LKP: Implementasi web user management model menggunakan Oracle ADF* [Undergraduate thesis, Stikom Surabaya]. Repositori Universitas Dinamika.

Rogers, G. F. C., & Mayhew, Y. R. (1964). Heat transfer and pressure loss in helically coiled tubes with turbulent flow. *International Journal of Heat and Mass Transfer*, *7*(11), 1207-1216.

S&P Global Energy. (2024, February). *Emissions guidebook: Part 3: Reference definitions and data* (Version 1.0). Center of Emissions Excellence.

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
Muhammad Hadistra, ST., MT., PhD
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Saleh, S. N., Ahmed, S. M., Al-mosuli, D., & Barghi, S. (2015). Basic design methodology for a prilling tower. *The Canadian Journal of Chemical Engineering*, *93*(8), 1403-1409.

Sales, G. D. M., Queiroz, E. M., Nahes, A. L., Bagajewicz, M. J., & Costa, A. L. (2021). Globally optimal design of kettle vaporizers. *Thermal Science and Engineering Progress*, *25*, 100962.

Sigma-Aldrich. (2024). *Ammonia: Safety Data Sheet*. Diambil dari https://share.google/oulRPNlg6k3NlZPLN.

Simplicio, S. S., Santos, V. L. A., Campos, W. R. A., Guimarães, D. G., Gonsalves, A. A., & Araújo, C. R. M. (2021). *Nitrato de Amônio: Mocinho ou Vilão? Revista Virtual de Química*, 13(1), 156–166.

Sinnott, R. K., & Towler, G. (2009). Coulson and Richardson's chemical engineering: Vol. 6. Chemical engineering design (5th ed.). Butterworth-Heinemann.

Smith, J. M. (1970) Chemical Engineering Kinetics 2nd Edition. New York: McGraw Hill Book Company.

Smith, J. M., Van Ness, H. C., Abbott, M. M., & Swihart, M. T. (2021). *Introduction to chemical engineering thermodynamics* (9th ed.). McGraw-Hill Education.

Stengel, L. A., Haute, T., & J. J. (1956). *Process for Producing of Ammonium Nitrate.* United States of America, Paten No. 2,739,037.

Stoecker, W. F. (1998). Industrial refrigeration handbook. McGraw-Hill Education.

Thararux, C., & Kiatsiriroat, T. (2003). Drying strategy of a rotary drum longan dryer. *International Energy Journal*, *4*(2).

Thermo Fisher Scientific Chemicals, Inc. (2024, March 29). *Octadecylamine* [Safety Data Sheet]. https://www.thermofisher.com

Towler, G., & Sinnott, R. (2021). *Chemical engineering design: principles, practice and economics of plant and process design*. Butterworth-Heinemann.

Treybal, R. E. (1980). Mass transfer operations. *New York*, *466*, 493-497.

Tsukahara, H., Ishida, T., & Mayumi, M. (1999). Gas-phase oxidation of nitric oxide: chemical kinetics and rate constant. Nitric Oxide, 3(3), 191-198.

Turton, R., Bailie, R. C., Whiting, W. B., & Shaeiwitz, J. A. (2009). *Analysis, synthesis, and design of chemical processes* (3rd ed.). Prentice Hall.

UHDE GmbH. (1989). *Nitrate Fertilisers.* A company of Thyssen Krupp Technologies. https://www.thyssenkrupp.com/uhde

Prarancangan Pabrik Amonium Nitrat (Prill) dari Amonia dan Asam Nitrat Melalui Proses UHDE dengan
Kapasitas Produksi 290.000 Ton/Tahun
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Kapasitas Produksi 290.000 Ton/Tahun
Saddam Dzaki Hadiputra, Ir. Dr. Endang Kapasiati, M.T., IPM

Ullmann, F. (2012). *Ullmann's Encyclopedia of Industrial Chemistry* (6th ed.). Wiley-VCH Verlag GmbH & Co. KGaA.

Ulrich, G.D., & Vasudevan, P.T. (2004). Chemical Engineering Process Design and Economics: A Practical Guide (2nd ed.). Process Publishing.

Van Dierendonck, L. L. (1970). Vergrotingsregels voor gasbelwassers (Doctoral dissertation, Technische Hogeschool Twente).

Warner, M. (2013). The kinetics of industrial ammonia combustion. University of Sydney.

Woodcock, C. R., and J. S. Mason. *Bulk solids handling: an introduction to the practice and technology*. Springer Science & Business Media, 2012.

World Bank. (2025). *Ammonium nitrate (HS 310230) exports by country in 2024* [Database]. WITS. https://wits.worldbank.org/trade/comtrade/en/country/ALL/year/2024/tradeflow/Exports/partner/WLD/product/310230

Yaws, C. L. (1999). Chemical properties handbook: Physical, thermodynamic, environmental, transport, safety, and health related properties for organic and inorganic chemicals. McGraw-Hill.

Youssef, G. (2016). Development of conveyor belts design for reducing energy consumption in mining applications. *Ain Shams University: Cairo, Egypt*.

Yuda, A. I. S., & Ananda, R. (2024). *Pra Rancangan Pabrik Prill Amonium Nitrat Kapasitas 185.000 Ton Per Tahun* (Doctoral dissertation, Politeknik Negeri Ujung Pandang).

Zhao, H., Li, X., Wu, Y., & Wu, X. (2020). Friction factor and Nusselt number correlations for forced convection in helical tubes. *International Journal of Heat and Mass Transfer*, *155*, 119759.

Zheng, S., Song, K., Zhao, J., & Dong, C. (2016). Inverse estimation of effective moisture diffusivity in lumber during drying using genetic algorithms. BioResources, 11(4), 8415–8426.