

## DAFTAR PUSTAKA

- Agung, G. F., Hanafie, M. R., & Mardina, P. (2013) 'Ekstraksi Silika Abu Sekam Padi Dengan Pelarut KOH'. *Konversi*. 2(1). pp. 28–31.
- Andritsos, N., Ungemach, P., & Koutsoukous, P. (2014) *Corrosion and Scaling*. 3. pp. 181–194.
- Aries, R. S. dan Newton, R. D. (1955) *Chemical Engineering Cost Estimation*, McGraw-Hill, New York.
- Astrayudha, M. A., & Darmawati, G. A. (2018) *Prarancangan Pabrik Semen Dari Lumpur Geotermal, Abu Terbang, dan Batu Gamping dengan Kapasitas Produksi 6.000.000 ton/tahun*. Universitas Gadjah Mada.
- Badan Pusat Statistik Provinsi Jawa tengah. (2020) *Profil Ketenagakerjaan Provinsi Jawa Tengah Hasil Sakernas Agustus 2019*. 92.
- Bank Indonesia. (2021) Statistik Ekonomi dan Keuangan *Indonesia-Interest Rate of Rupiah Loans by Group of Bank and Type of Loans*, tabel I26, BI, Jakarta
- Bank Indonesia. (2021) <https://www.bi.go.id/id/publikasi/ruang-media/news-release/Pages/Suku-Bunga-Obligasi-Pemerintah-RI-Yang-Akan-Jatuh-Waktu-Tanggal-25-April-2021.aspx>, diakses pada 16 Mei 2021.
- Bates, H. C. (1926) 'Glass Wool as Insulator for Refrigeration Purposes'. *Journal of the American Ceramic Society*, 9(10), 690–692. doi:10.1111/j.1151-2916.1926.tb17120.x
- Brata, A. S. (2017) *Profil Kecamatan Kejajar*.  
<https://kecamatankejajar.wonosobokab.go.id/postings/detail/1029439/Profil.HTM>
- Brown, G. G., Katz, D., Foust, A. S., dan Schneidewind, C. (1950) *Unit Operation*, John Wiley and Sons, Inc., New York.
- Brownell, L.E and Young, E.H. (1959) *Equipment Design*, John Willey & Sons, Inc., New York.



- Casey, B. (2011) *Hydraulic Pumps and Motors: Considering Efficiency*. Available at: <https://www.machinerylubrication.com/Read/28430/hydraulic-pump-motors-maintenance> (Accessed: 19 April 2021).  
ce.html, diakses pada 14 Mei 2021.
- Chemistry-reference.com. n.d. *Chemistry Reference*. [online] Available at: <http://chemistry-reference.com/> [Accessed 30 November 2020].
- CO-LaN consortium. (2011) *Unit Operations*. New Delhi: CBS Publishers & Distributors.
- Coulson, J. M. and Richardson, J. F. (1983) *Chemical Engineering*. Pergamon Press, Oxford.
- Couper, J.R., Penney, W.R., Fair, J.R. (2012) *Chemical Process Equipment: Selection and Design*, 3 ed., Butterworth-Heinemann, Massachusetts.
- Crowl, D.A dan Louvar, J.F. (2002) *Chemical Process Safety*. Prentice Hall, New Jersey.
- Department of Chemical Engineering, E., n.d. *Perpindahan Panas Dan Massa Konvektif*. [online] Elkimkor. Available at: <https://elkimkor.com/2019/01/07/3-perpindahan-panas-dan-massa-konvektif/> [Accessed 30 November 2020].
- Dincer, I., & Ozcan, H. (2018) Geothermal Energy. *Comprehensive Energy Systems*. Elsevier Ltd., 1(February), pp. 702–732. doi: 10.1016/B978-0-12-809597-3.00119-X.
- Engineering ToolBox, (2003) *Recommended Velocities in Steam Systems*. [online] Available at: [https://www.engineeringtoolbox.com/flow-velocity-steam-pipes-d\\_386.html](https://www.engineeringtoolbox.com/flow-velocity-steam-pipes-d_386.html) [Accessed Day Mo. Year].
- Engineering ToolBox. (2005) *Fuel Gases Heating Values*, [https://www.engineeringtoolbox.com/heating-values-fuel-gases-d\\_823.html](https://www.engineeringtoolbox.com/heating-values-fuel-gases-d_823.html), diakses pada 27 Maret 2021.
- Fertani-Gmati, M., Brahim, K., Khattec, I., Jemal, M. (2014). "Thermochemistry and kinetics of silica dissolution in NaOH solutions: Effect of the alkali

concentration', *Thermochimica Acta*. Elsevier B.V. doi:  
10.1016/j.tca.2014.09.003.

Geankoplis, C. (1993) *Transport Processes and Unit Operations*. Englewood Cliffs,  
N.J.: PTR Prentice Hall.

Godwin E. Akpan, David N. Onwe, Olugbenga A. Fakayode, Ubong D. Offiong.  
(2016) *Design and Development of an Agricultural and Biomaterials  
Cabinet Tray Dryer*. *Science Research*, 4(6), pp. 174-182. doi:  
10.11648/j.sr.20160406.15

Gorji, B., Fazaeli, R., & Branch, S. T. (2012) 'Synthesis and Characterizations of  
Silica Nanoparticles by a New Sol-Gel Method'. *Journal of Applied  
Chemical Research*. 3(January). pp. 22–26.

Grand View Research. (2017). *NanoSilica Market Size, Share & Trends Analysis  
Report By Product, By Application, and Segment Forecast, 2018-2025*.  
<https://www.grandviewresearch.com/industry-analysis/nanosilica-market>

Gualtieri, C., Angeloudis, A., Bombardelli, F., Jha, S., dan Stoesser, T. (2017) *On  
the Values for the Turbulent Schmidt Number in Environmental Flows*,  
Multidisciplinary Digital Publishing Institute (MDPI), Switzerland.

Handymath.com. n.d. *Calculators*. [online] Available at:  
<<https://handymath.com/calculators.html>> [Accessed 2 January 2021].

Herman, A. dan Jeffress, C. (2000) *Process Safety Management (PSM)*. Washington,  
D.C.: OSHA.

Holman, J. (2002) *Heat Transfer*. New York: McGraw Hill.

Ibrahim, R. F., Sanusi, A., Herman, D., Sukarna, D., Nur, M. I., Hasibuan, A., &  
Wachjudiningsih, A. (2017) *2017 Annual Report PT Geo Dipa Energi  
Persero* (p. 39). [https://www.geodipa.co.id/wp-  
content/uploads/2019/03/2017-Laporan-Tahunan-PT-Geo-Dipa-Energi-  
Persero.pdf](https://www.geodipa.co.id/wp-content/uploads/2019/03/2017-Laporan-Tahunan-PT-Geo-Dipa-Energi-Persero.pdf)

- Ismayana, A., Maddu, A., Saillah, I., Mafquh, E., Indrasti, N.S. (2017) ‘Sintesis nanosilika dari abu ketel industri gula dengan metode ultrasonikasi dan penambahan surfaktan’. *Jurnal Teknologi Industri Pertanian*, 27, pp. 228–234. doi: 10.24961/j.tek.ind.pert.2017.27.2.228.
- Jafari, V., Allahverdi, A., & Vafaei, M. (2014) ‘Ultrasound-assisted synthesis of colloidal nanosilica from silica fume : Effect of sonication time on the properties of product’. *Advanced Powder Technology*. The Society of Powder Technology Japan, 25(5), pp. 1571–1577. doi: 10.1016/j.apr.2014.05.011.
- Jenie, S. N. A., Ghaisani, A., Ningrum, Y.P., Kristiani, A., Aulia, F., & Petrus, H.T.B.M. (2018) ‘Preparation of Silica Nanoparticles from Geothermal Sludge via Sol-Gel Method’. *AIP Conference Proceedings*. 020008. pp. 1–6. doi: 10.1063/1.5064968.
- Kasaai, M. R. (2015) ‘Nanosized Particles of Silica and Its Derivatives for Applications’. *Journal of Nanotechnology*. 2015.
- Keputusan Gubernur Jawa Tengah Nomor 561/62 Tahun 2020 tentang Upah Minimum Pada 35 (Tiga Puluh Lima) Kabupaten/Kota di Provinsi Jawa Tengah Tahun 2021, diakses pada 16 Mei 2021.
- Kern, D.Q. (1965) *Process Heat Transfer*, International ed., p. 102-160, New York, McGraw-Hill Book Company.
- Kikuchi, S., Koga, N., Sheino, H., Ohno, S. (2016) ‘Experimental study and kinetic analysis on sodium oxide – silica reaction’, *Journal of Nuclear Science and Technology*. Taylor & Francis, 3131. doi: 10.1080/00223131.2015.1121843.
- Lawate, S. and Deshmukh, B. B. (2015) ‘Analysis of Heads of Pressure Vessel’, *International Journal of Innovative Research in Science, Engineering and Technology*, 4(2), pp. 759–765. doi: 10.15680/IJIRSET.2015.0402098.
- Lenntech. (2016) www.lenntech.com, diakses pada 27 Maret 2021.
-

Matches. (2014) <http://www.matche.com/equipcost/EquipmentIndex.html>, diakses pada 14 Mei 2021.

*Material Safety Data Sheet.*

McGraw-Hill Higher Ed. (2002) <http://www.mhhe.com/engcs/chemical/peters/data/>

Merck Indonesia. (2017) *Lembaran Data Keselamatan Bahan Larutan Sodium Hidroksida 50%.*

[https://www.merckmillipore.com/ID/id/product/msds/MDA\\_CHEM-158793?Origin=PDP](https://www.merckmillipore.com/ID/id/product/msds/MDA_CHEM-158793?Origin=PDP)

Merritt, C. (2016) *Process Steam Systems*, John Willey & Sons, Inc., New Jersey.

Mordor Intelligence. (2019) *Nanosilica Market-Growth, Trends, and forecast (2020-2025)*. <https://www.mordorintelligence.com/industry-reports/nanosilica-market>

nanoComposix. n.d. *Nanoparticle Volume, Mass and Concentration*. [online] Available at: <<https://nanocomposix.com/pages/nanoparticle-volume-mass-and-concentration#target>> [Accessed 2 January 2021].

Nanografi Nano Technology. n.d. *Silicon Dioxide (Sio2) Nanopowder/Nanoparticles, P-Type, Purity: 99.65+%, Size: 13-23 Nm, Nonporous And Amorphous*. [online] Available at: <<https://nanografi.com/nanoparticles/silicon-dioxide-sio2-nanopowder-nanoparticles-p-type-purity-99-65-size-13-23-nm-nonporous-and-amorphous/>> [Accessed 15 November 2020].

Niu, Y.M., Zhu, X.L., Chang, B., Tong, Z.H., Cao, W., Qiao, P.H., Zhang, L.Y., Zhao, J., & Song, Y.G. (2016) 'Nanosilica and Polyacrylate / Nanosilica : A Comparative Study of Acute Toxicity'. *BioMed Research International*, 2016.

Novrianti. (2016) 'Studi Laboratorium Pengaruh Nanocomposite Nanosilika dan Arang Cangkang Kelapa Sawit Dengan Variasi Temperatur Pemanasan Terhadap Free Water dan Kekuatan Semen Pemboran'. *Journal of Earth*

- Energy Engineering*, 5(1), 21–27. <https://doi.org/10.22549/jeee.v5i1.465>
- Outokumpu. (2020) *Stainless Steel Finder: Corrosion Table*. Available at: <https://secure.outokumpu.com/steelfinder/Corrosion/Default.aspx#> (Accessed: 17 April 2021).
- Peraturan Kementrian Lingkungan Hidup Republik Indonesia Nomor 5 Tahun 2014 tentang Baku Mutu Air Limbah Industri Petrokimia.
- Peraturan Menteri Kesehatan RI Nomor 32 Tahun 2017, diakses 31 Maret 2021.
- Peraturan Pemerintah Republik Indonesia No. 41 Tahun 1999 tentang Pengendalian Pencemaran Udara, diakses 31 Maret 2021.
- Perry, R.H. (1999) *Perry's Chemical Engineers' Handbook*, 7 ed., p. 2.37-2.38, New York, McGraw-Hill Book Company.
- Perry, R.H. (2008) *Perry's Chemical Engineers' Handbook*, 8 ed., McGraw-Hill Book Company, New York.
- Peters, M. S. dan Timmerhaus, K. D. (1991) *Plant Design and Economics for Chemical Engineers*, 4th ed, McGraw-Hill, Singapura.
- Plant Cost Index. (2020) <https://www.chemengonline.com/site/plant-cost-index/>.
- Powell, S.T. (1954) *Water Conditioning for Industry*, 1 ed., Mc Graw-Hill, Inc., Tokyo.
- Priyanto, Hendrik. (2018) *Teori Aliran Sedimen dalam Pipa*. Universitas Muhammadiyah Sorong. doi: 10.31227/osf.io/bfv7g.
- PubChem, P., n.d. *Silicon Dioxide*. [online] Pubchem.ncbi.nlm.nih.gov. Available at: <<https://pubchem.ncbi.nlm.nih.gov/compound/Silicon-dioxide>> [Accessed 1 November 2020].
- Pubchem.ncbi.nlm.nih.gov. n.d. *Pubchem*. [online] Available at: <<https://pubchem.ncbi.nlm.nih.gov/>> [Accessed 2 January 2021].
- Purnama, S. (2018) 'Potensi Sumberdaya Air Das Serayu'. *Jurnal Rekayasa Lingkungan*. 6(3). <https://doi.org/10.29122/jrl.v6i3.1942>
- Qisti, N., Indrasti, N. S., & Suprihatin. (2017) 'Optimization of process condition of

nanosilica production by hydrothermal method Optimization of process condition of nanosilica production by hydrothermal method'. *IOP Conference Series: Materials Science and Engineering*. 162.  
<https://doi.org/10.1088/1757-899X/162/1/012036>

R. Couper, James, W. Roy Penney, James R. Fair, dan Stanley M. Walas, (2012) *Chemical Process Equipment: Selection and Design*. 3<sup>rd</sup> ed. Butterworth Heinemann.

Rahman, I. A., & Padavettan, V. (2012) 'Synthesis of Silica Nanoparticles by Sol-Gel : Size-Dependent Properties , Surface Modification , and Applications in Silica-Polymer Nanocomposites — A Review'. *Journal of Nanomaterials*, 2012. doi: 10.1155/2012/132424.

Rakhmasari, K. D., Perdana, I., Prasetya, A., & Pidhatika, B. (2019) *Nanosilika dari Prekursor Silika Geotermal: Pengaruh Konsentrasi Surfaktan dan Dekomposisi Termal Pasca Sintesis*. April, 1–7.

Rao, A. S. M., & Narender, K. (2014) 'Studies on Thermophysical Properties of CaO and MgO by  $\gamma$  -Ray Attenuation'. *Journal of Thermodynamics*.

Rase, H. F., dan Barrow, M. H. (1977) *Chemical Reactor Design for Process Plant*, 1<sup>st</sup> ed., Mc Graw Hill Book Company, Inc., New York.

ScienceLab.com. (2013a) *Material Safety Data Sheet Hydrochloric Acid, 37% MSDS*.

ScienceLab.com. (2013b) *Material Safety Data Sheet Water, Purified MSDS*.

Setiyono, U., Gunawan, I., Priyobudi, Yatimantoro, T., Imananta, R. T., Ramdhan, M., Hidayanti, Anggraini, S., Rahayu, R. H., Hawati, P., Yogaswara, D. S., Julius, A. M., Apriani, M., Harvan, M., Simangunsong, G., & Kriswinarso, T. (2019) *Katalog Gempa Bumi Signifikan dan Merusak 1821-2018*.

Sinnott, R.K. (2005), *Chemical Engineering Design*, 4 ed., Elsevier, Oxford.

Sirajuddin, S., Reddy, T. C. S., Vijaya, T. B., & Reddy, K. R. (2017) 'Study of the Effect of Silica Fume on the Self-Healing Ability of High Strength

Concrete With Crystalline Admixture'. *International Journal of Advance Engineering and Research Development*, 4(09), 69–74.

<https://doi.org/10.21090/ijaerd.98660>

Smith, J., Van Ness, H., & Abbott, M. (2005) *Introduction to Chemical Engineering Thermodynamics*. Boston, Mass.: McGraw-Hill.

Smith, J.M., Ness, H.C.V., dan Abbott, M.M. (2001) *Chemical Engineering Thermodynamics*, Volume 6, p.635-636, Mc Graw Hill, New York.

Stapleton, P. dan Glover, M. (2001) *Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations Environmental Policy Management Review Continual Planning Checking / Corrective Action Implementation*. Michigan: NSF.

Stopic, S., Dertmann, C., Koiwa, I., Kremer, D., Wotruba, H., Etzold, S., Telle, R., Knops, P., & Friedrich, B. (2019) 'Synthesis of Nanosilica via Olivine Mineral Carbonation under High Pressure in an Autoclave'. *Metals*, 9.

Sukaryadi, D. (2013) 'ASPEK ENDAPAN ( SCALING ) PADA RENCANA PLTP SIKLUS BINARI DI LAPANGAN PANAS BUMI DIENG , JAWA TENGAH'. *Ketenagalistrikan dan Energi Terbarukan*, 12(1), pp. 1–10.

Sulardjaka, S., Rahman, M. S., & Wahyudianto, C. (2013) 'Pengaruh Waktu Dan Temperatur Sinter Terhadap Densitas Dan Porositas Komposit Aluminium Yang Diperkuat Limbah Geothermal'. *Rotasi*, 15(4), 28.

<https://doi.org/10.14710/rotasi.15.4.28-32>

Treybal, R.E. (1981) *Mass-Transfer Operations*, Int.ed., p. 139-210, Singapore, McGraw-Hill Book Company.

U.S. Department of Labor. (2021) <http://www.dol.gov/agencies/whd/minimum-wage/state>, diakses pada tanggal 16 Mei 2021.

U.S. Research Nanomaterials. n.d. *Silicon Oxide Nanopowder / SiO<sub>2</sub> Nanoparticles (SiO<sub>2</sub>, 99.5+%, 15-20Nm, S-Type, Spherical)*. [online] Available at:

<<https://www.us-nano.com/inc/sdetail/410>> [Accessed 15 November 2020].

- Ulrich, G.D. (1984) *A Guide to Chemical Engineering Process Design and Economics*, John Wiley and Sons, New York.
- Vatavuk, W.M. (2002) *Updating the CE Plant Cost Index*, [https://www.chemengonline.com/Assets/File/CEPCI\\_2002.pdf](https://www.chemengonline.com/Assets/File/CEPCI_2002.pdf), diakses pada 13 Mei 2021.
- Wang, W., Xue, T., Wang, D., & Qi, T. (2014) 'Kinetic study on sulfuric acid dissolution of  $\text{Na}_x\text{H}_{2-x}\text{TiO}_3$  from sodium hydroxide molten method', *Advanced Materials Research*, 883, pp. 1545–1548. doi: 10.4028/www.scientific.net/AMR.881-883.1545.
- Xin, X. L., Wang, Z.L., Yao, N., Li, Y., & Liang, Y. (2014) 'TEOS hydrolysis method synthesise nano silica and biocompatibility research'. *Advanced Materials Research*, 916, pp. 958–961. doi: 10.4028/www.scientific.net/AMR.915-916.958.
- Yan, F., Jiang, J., Chen, X., Tian, S., & Li, K. (2014) 'Synthesis and Characterization of Silica Nanoparticles Preparing by Low-Temperature Vapor-Phase Hydrolysis of  $\text{SiCl}_4$ '. *Industrial & Engineering Chemistry Research*, 53(July), p. 11884–11890.
- Yaws, C.L. (1999) *Chemical Properties Handbook: Physical, Thermodynamic, Environmental, Transport, Safety, and Health Related Properties for Organic and Inorganic Chemicals*, Oxford, Elsevier.