

## DAFTAR PUSTAKA

- Acar, C. and Dincer, I. (2019) ‘Review and evaluation of hydrogen production options for better environment’, *Journal of Cleaner Production*. Elsevier Ltd, 218, pp. 835–849. doi: 10.1016/j.jclepro.2019.02.046.
- Achmad, Hiskia. 2001. *Kimia Unsur dan Radio kimia*. Bandung : PT. Citra Aditya Bakti.
- Al-qutub, R. W. A. (2010) ‘Treatment of Surface Water by Autonomous Solar-Powered Membrane Cells’.
- Alimah, S. and Dewita, E. (2008) ‘Pemilihan Teknologi Produksi Hidrogen dengan Memanfaatkan Energi Nuklir’, *Jurnal Pengembangan Energi Nuklir*, 10(2), p. 124.
- Appleby, A. J., Crepy, G. and Jacquelain, J. (1978) ‘High efficiency water electrolysis in alkaline solution’, *International Journal of Hydrogen Energy*, 3(1), pp. 21–37. doi: 10.1016/0360-3199(78)90054-X.
- Badwal, S. P. S., Giddey, S. and Ciacchi, F. T. (2006) ‘Hydrogen and oxygen generation with polymer electrolyte membrane (PEM)-based electrolytic technology’, *Ionics*, 12(1), pp. 7–14. doi: 10.1007/s11581-006-0002-x.
- Baghdadi, I. et al. (2018) ‘Performance investigation of a PV system connected to the grid’, *Procedia Manufacturing*. Elsevier B.V., 22, pp. 667–674. doi: 10.1016/j.promfg.2018.03.096.
- Barbir, F. (2005) ‘PEM electrolysis for production of hydrogen from renewable energy sources’, *Solar Energy*, 78(5), pp. 661–669. doi: 10.1016/j.solener.2004.09.003.
- Beckman, A. W. et. a. (2006) *Solar Engineering of Thermal Processes 3rd Edition2006*.
- Bhandari, R., Trudewind, C. A. and Zapp, P. (2014) ‘Life cycle assessment of hydrogen production via electrolysis e a review’, *Journal of Cleaner Production*.

Elsevier Ltd, 85, pp. 151–163. doi: 10.1016/j.jclepro.2013.07.048.

Bhattacharyya, R., Misra, A. and Sandeep, K. C. (2017) ‘Photovoltaic solar energy conversion for hydrogen production by alkaline water electrolysis: Conceptual design and analysis’, *Energy Conversion and Management*. Elsevier Ltd, 133, pp. 1–13. doi: 10.1016/j.enconman.2016.11.057.

Brisse, A. et al. (2008) ‘Highly efficient, high temperature, hydrogen production by water electrolysis (HI2H2)’, *17th World Hydrogen Energy Conference 2008, WHEC 2008*, 1(June), pp. 115–118.

Cabezas, M. D., Franco, J. I. and Fasoli, H. J. (2018) ‘Optimization of self-regulated hydrogen production from photovoltaic energy’, *International Journal of Hydrogen Energy*, (xxxx). doi: 10.1016/j.ijhydene.2018.10.203.

Chennouf, N. et al. (2012) ‘Experimental study of solar hydrogen production performance by water electrolysis in the south of Algeria’, *Energy Procedia*. Elsevier B.V., 18, pp. 1280–1288. doi: 10.1016/j.egypro.2012.05.145.

Chi, J. and Yu, H. (2018) ‘Water electrolysis based on renewable energy for hydrogen production’, 39(3), pp. 390–394. doi: 10.1016/S1872.

Contained Energy Indonesia (2011) ‘ENERGI yang Terbarukan’, p. 106.

Dahbi, S. et al. (2016) ‘Optimised hydrogen production by a photovoltaic-electrolysis system DC/DC converter and water flow coDahbi, S., Aboutni, R., Aziz, A., Benazzi, N., Elhafyani, M., & Kassmi, K. (2016). Optimised hydrogen production by a photovoltaic-electrolysis system DC/’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 41(45), pp. 20858–20866. doi: 10.1016/j.ijhydene.2016.05.111.

David, M., Ocampo-Martínez, C. and Sánchez-Peña, R. (2019) ‘Advances in alkaline water electrolyzers: A review’, *Journal of Energy Storage*, 23(April), pp. 392–403. doi: 10.1016/j.est.2019.03.001.

Djafour, A. et al. (2011) ‘Photovoltaic-assisted alkaline water electrolysis: Basic principles’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 36(6), pp.

4117–4124. doi: 10.1016/j.ijhydene.2010.09.099.

Domga Richard, G. B. N. and Tchatchueng, J. B. (2017) ‘Study of Some Electrolysis Parameters for Chlorine and Hydrogen Production Using a New Membrane Electrolyzer’, *International Journal of Chemical Engineering and Analytical Science*, Vol. 2(No. 1), pp. 1–8.

Earthscan (2005) *Planning and Installing Photovoltaic Systems: A guide for installers, architects and engineers.*,

El-Askary, W. A. et al. (2015) ‘Hydrodynamics characteristics of hydrogen evolution process through electrolysis: Numerical and experimental studies’, *Energy*. Elsevier Ltd, 90, pp. 722–737. doi: 10.1016/j.energy.2015.07.108.

Elamim, A. et al. (2018) ‘Performance evaluation and economical analysis of three photovoltaic systems installed in an institutional building in Errachidia, Morocco’, *Energy Procedia*. Elsevier B.V., 147, pp. 121–129. doi: 10.1016/j.egypro.2018.07.041.

Emmott, C. J. M., Urbina, A. and Nelson, J. (2012) ‘Environmental and economic assessment of ITO-free electrodes for organic solar cells’, *Solar Energy Materials and Solar Cells*. Elsevier, 97, pp. 14–21. doi: 10.1016/j.solmat.2011.09.024.

Euro Inox (2007) ‘Stainless steel: tables of technical properties, 2nd edition’, *Materials and Applications Series*, 5(5). Available at: [http://www.worldstainless.org/Files/issf/non-image-files/PDF/Euro\\_Inox/Tables\\_TechnicalProperties\\_EN.pdf](http://www.worldstainless.org/Files/issf/non-image-files/PDF/Euro_Inox/Tables_TechnicalProperties_EN.pdf).

Fereidooni, M. et al. (2018) ‘A comprehensive evaluation of hydrogen production from photovoltaic power station’, *Renewable and Sustainable Energy Reviews*. Elsevier Ltd, 82(September 2016), pp. 415–423. doi: 10.1016/j.rser.2017.09.060.

Fitriani, Diah,dkk. 2009. Sifat Fisika dan Kimia Air. Semarang : Universitas Diponegоро.

Ganley, J. C. (2009) ‘High temperature and pressure alkaline electrolysis’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 34(9), pp. 3604–3611.

doi: 10.1016/j.ijhydene.2009.02.083.

Gibson, T. L. and Kelly, N. A. (2008) ‘Optimization of solar powered hydrogen production using photovoltaic electrolysis devices’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 33(21), pp. 5931–5940. doi: 10.1016/j.ijhydene.2008.05.106.

Gustavo, L., Vieira, M. and Damasceno, R. (2018) ‘ScienceDirect Hydrogen production by a low-cost electrolyzer developed through the combination of alkaline water electrolysis and solar energy use’, 3, pp. 0–10. doi: 10.1016/j.ijhydene.2018.01.051.

Hajjaji, N. et al. (2013) ‘Comparative life cycle assessment of eight alternatives for hydrogen production from renewable and fossil feedstock’, *Journal of Cleaner Production*. Elsevier Ltd, 44, pp. 177–189. doi: 10.1016/j.jclepro.2012.11.043.

Halawa, E. et al. (2018) ‘A review on energy conscious designs of building façades in hot and humid climates: Lessons for (and from) Kuala Lumpur and Darwin’, *Renewable and Sustainable Energy Reviews*, 82(August 2017), pp. 2147–2161. doi: 10.1016/j.rser.2017.08.061.

Handayani, K., Krozer, Y. and Filatova, T. (2017) ‘Trade-offs between electrification and climate change mitigation: An analysis of the Java-Bali power system in Indonesia’, *Applied Energy*, pp. 1020–1037. doi: 10.1016/j.apenergy.2017.09.048.

Hauch, A. et al. (2008) ‘Highly efficient high temperature electrolysis’, *Journal of Materials Chemistry*, 18(20), pp. 2331–2340. doi: 10.1039/b718822f.

Heaney, M. B. (2003) ‘Electrical conductivity and resistivity’, *Electrical Measurement, Signal Processing, and Displays*, (January 2003), pp. 7-1-7–14. doi: 10.1201/9780203009406.

House, J. E. and House, K. A. (2016) ‘Hydrogen’, *Descriptive Inorganic Chemistry*, 3, pp. 111–121. doi: 10.1016/B978-0-12-804697-5.00007-5.

Ii, B. A. B. and Pustaka, T. (2008) ‘(sumber : Neni Muliawati, 2008. Hidrogen

- Sebagai Bahan Bakar : Sumber Energi Masa Depan) 5', 2(l), pp. 5–22.
- Ilcham, A. (2011) ‘Pengembangan Teknologi Bersih berbasis Hidrogen menggunakan Sumber Daya Alam Indonesia’, 1(2).
- Istingani, Noor. Erliza, S. (2017) ‘Peningkatan Kualitas Pengolahan Air Bersih Dengan Perbaikan Proses Oksidasi’, 2(2), pp. 91–100. Available at: <https://www.google.co.id/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=2ahUKEwjif2mgKrlAhWb73MBHe3CA9AQFjACegQIARAB&url=http%3A%2F%2Fe-journal.president.ac.id%2Fpresunivojs%2Findex.php%2FJENV%2Farticle%2Fview%2F223&usg=AOvVaw3wtvXNnkOfaDIvP>.
- Jeremiasse, A. W. (2009) ‘Use of Biocompatible Buffers to Reduce the Concentration Overpotential for Hydrogen Evolution’, 43(17), pp. 6882–6887.
- Jovanović, Z. *et al.* (2011) ‘Influence of surface activation on the hydrogen permeation properties of PdAg cathode membrane’, *International Journal of Hydrogen Energy*, 36(23), pp. 15364–15371. doi: 10.1016/j.ijhydene.2011.08.098.
- Ju, H., Badwal, S. and Giddey, S. (2018) ‘A comprehensive review of carbon and hydrocarbon assisted water electrolysis for hydrogen production’, *Applied Energy*. Elsevier, 231(May), pp. 502–533. doi: 10.1016/j.apenergy.2018.09.125.
- Kaddami, M. and Mikou, M. (2017) [ScienceDirect] Effect of operating parameters on hydrogen production by electrolysis of water’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 42(40), pp. 25550–25557. doi: 10.1016/j.ijhydene.2017.07.015.
- Kamali, G., Moradi, I. and Khalili, A. (2006) ‘Estimating solar radiation on tilted surfaces with various orientations : A study Estimating solar radiation on tilted surfaces with various orientations : a study case in Karaj ( Iran )’, (June 2014). doi: 10.1007/s00704-005-0171-y.
- Kaya, M. F. *et al.* (2017) [ScienceDirect] Investigation of alkaline water electrolysis performance for different cost effective electrodes under magnetic

field', 2, pp. 1–10. doi: 10.1016/j.ijhydene.2017.02.039.

Khafizd, A. (2019) 'Alat Ukur Konsentrasi Gas Hidrogen pada Elektrolisis Air Menggunakan Sensor MQ8 Berbasis Arduino'.

Kolhe, M., Kolhe, S. and Joshi, J. C. (2002) 'Economic viability of stand-alone solar photovoltaic system in comparison with diesel-powered system for India', pp. 155–165.

Kova, A., Marciu, D. and Budin, L. (2019) 'ScienceDirect Solar hydrogen production via alkaline water electrolysis', *International Journal of Hydrogen Energy*, 44(20), pp. 9841–9848. doi: 10.1016/j.ijhydene.2018.11.007.

LeRoy, R. L. et al. (1980) 'The Thermodynamics of Aqueous Water Electrolysis', *Journal of the Electrochemical Society*, 127(9), pp. 1954–1962. doi: 10.1149/1.2130044.

Mandin, P. et al. (2008) 'Two-phase electrolysis process: From the bubble to the electrochemical cell properties', *Chemical Engineering and Processing: Process Intensification*, 47(11), pp. 1926–1932. doi: 10.1016/j.cep.2007.10.018.

Maulana, I. (2018) 'Perancangan Alat Pendekripsi Kualitas Air Minum Elektrolisis', *Jurnal Elektronik Pendidikan Teknik Elektronika*, 7, pp. 65–87.

Mazloomi, K., Sulaiman, N. and Moayedi, H. (2012) '<Mazloomi - Electrical Efficiency of Electrolytic Hydrogen Production.pdf>', 7, pp. 3314–3326.

Mazloomi, S. K. and Sulaiman, N. (2012) 'Influencing factors of water electrolysis electrical efficiency', *Renewable and Sustainable Energy Reviews*. Elsevier Ltd, 16(6), pp. 4257–4263. doi: 10.1016/j.rser.2012.03.052.

Menad, C. A., Gomri, R. and Bouchahdane, M. (2018) 'Data on safe hydrogen production from the solar photovoltaic solar panel through alkaline electrolyser under Algerian climate', *Data in Brief*. Elsevier Inc., 21, pp. 1051–1060. doi: 10.1016/j.dib.2018.10.106.

Mench, M. M. (2008) *Fuel Cell Engines, Fuel Cell Engines*. doi: 10.1002/9780470209769.

Menia, S. *et al.* (2017) 'Hydrogen production by methanol aqueous electrolysis using photovoltaic energy: Algerian potential', *International Journal of Hydrogen Energy*. Elsevier Ltd, 42(13), pp. 8661–8669. doi: 10.1016/j.ijhydene.2016.11.178.

Nagai, N. *et al.* (2003) 'Existence of optimum space between electrodes on hydrogen production by water electrolysis', *International Journal of Hydrogen Energy*, 28(1), pp. 35–41. doi: 10.1016/S0360-3199(02)00027-7.

Nikiforov, A. V. *et al.* (2011) 'Corrosion behaviour of construction materials for high temperature steam electrolyzers', *International Journal of Hydrogen Energy*, 36(1), pp. 111–119. doi: 10.1016/j.ijhydene.2010.09.023.

Nikolaidis, P. and Poullikkas, A. (2017) 'A comparative overview of hydrogen production processes', *Renewable and Sustainable Energy Reviews*. Elsevier, 67(January 2018), pp. 597–611. doi: 10.1016/j.rser.2016.09.044.

Oh, J. G., Lee, W. H. and Kim, H. (2012) 'The inhibition of electrochemical carbon corrosion in polymer electrolyte membrane fuel cells using iridium nanodendrites', *International Journal of Hydrogen Energy*. Elsevier Ltd, 37(3), pp. 2455–2461. doi: 10.1016/j.ijhydene.2011.10.072.

Olivares-Ramírez, J. M. *et al.* (2007) 'Studies on the hydrogen evolution reaction on different stainless steels', *International Journal of Hydrogen Energy*, 32(15 SPEC. ISS.), pp. 3170–3173. doi: 10.1016/j.ijhydene.2006.03.017.

Omran, W. (2010) 'Performance Analysis of Grid-Connected Photovoltaic Systems'.

Othman, A. Ben, Belkilani, K. and Besbes, M. (2018) 'Global solar radiation on tilted surfaces in Tunisia: Measurement, estimation and gained energy assessments Global solar radiation on tilted surfaces in Tunisia: Measurement, estimation and gained energy assessments', *Energy Reports*. Elsevier Ltd, 4(April), pp. 101–109. doi: 10.1016/j.egyr.2017.10.003.

Othman, A. R. and Rushdi, A. T. (2014) 'Potential of Building Integrated Photovoltaic Application on Roof Top of Residential Development in Shah

Alam', *Procedia - Social and Behavioral Sciences*. Elsevier B.V., 153, pp. 491–500. doi: 10.1016/j.sbspro.2014.10.082.

Patel, M. R. (2006) *Wind and Solar Power Systems design, Analysis, and Operation*.

Peraturan Presiden RI (2017) 'Perpres No. 22 Tahun 2017 tentang Rencana Umum Energi Nasional'.

PLN (2018) 'Electricity Supply Business Plan (RUPTL) 2018–2027'.

Rahim, A. H. A. et al. (2015) *Optimization of Direct Coupling Solar PV Panel and Advanced Alkaline Electrolyzer System*, *Energy Procedia*. Elsevier B.V. doi: 10.1016/j.egypro.2015.11.464.

Ratnawati, S. E. et al. (2012) 'Aplikasi Response Surface Methodology (RSM) pada Optimasi Ekstraksi Kalsium Tulang Lele The Application of Response Surface Methodology (RSM) on the Optimization of Catfish Bone Calcium Extraction', *Jurnal Perikanan Universitas Gadjah Mada*, 20(1), pp. 41–48.

Rizal, M. F. (2008) 'Penerapan Panel Fotovoltaik'.

Ronzino, A. et al. (2015) 'The energy efficiency management at urban scale by means of integrated modelling.', *Energy Procedia*. Elsevier B.V., 83, pp. 258–268. doi: 10.1016/j.egypro.2015.12.180.

SACE, A. and A (2010) 'Technical Application Papers No.10 Photovoltaic plants', (10).

Sakr, I. M. and Abdelsalam, A. M. (2017) 'Effect of electrodes separator-type on hydrogen production using solar energy', *Energy*. Elsevier Ltd, 140, pp. 625–632. doi: 10.1016/j.energy.2017.09.019.

Salami, A. et al. (2014) 'Mathematical modelling and simulation analysis of advanced alkaline electrolyzer system for hydrogen production Direct current', *Procedia Technology*. Elsevier B.V., 15, pp. 799–807. doi: 10.1016/j.protcy.2014.09.053.

Sellami, M. H. and Loudiyi, K. (2017) 'Electrolytes behavior during hydrogen

production by solar energy', *Renewable and Sustainable Energy Reviews*. Elsevier Ltd, 70(July 2016), pp. 1331–1335. doi: 10.1016/j.rser.2016.12.034.

Setiawan, I. K. A., Kumara, I. N. S. and Sukerayasa, I. W. (2014) 'Analisis Analisis Unjuk Kerja Pembangkit Listrik Tenaga Surya (Plts) Satu Mwp Terinterkoneksi Jaringan Di Kayubihi , Bangli', 13(1), pp. 27–33.

Singh, V. (2015) 'Fundamentals And Use Of Hydrogen As A Fuel', 6, pp. 63–68.

de Souza, R. F. *et al.* (2008) 'Molybdenum electrodes for hydrogen production by water electrolysis using ionic liquid electrolytes', *Electrochemistry Communications*. Elsevier B.V., 10(11), pp. 1673–1675. doi: 10.1016/j.elecom.2008.08.029.

Stojić, D. L. *et al.* (2003) 'Hydrogen generation from water electrolysis - Possibilities of energy saving', *Journal of Power Sources*, 118(1–2), pp. 315–319. doi: 10.1016/S0378-7753(03)00077-6.

Suleman, F., Dincer, I. and Agelin-Chaab, M. (2015) 'Environmental impact assessment and comparison of some hydrogen production options', *International Journal of Hydrogen Energy*. Pergamon, 40(21), pp. 6976–6987. doi: 10.1016/J.IJHYDENE.2015.03.123.

Udagawa, J., Aguiar, P. and Brandon, N. P. (2007) 'Hydrogen production through steam electrolysis: Model-based steady state performance of a cathode-supported intermediate temperature solid oxide electrolysis cell', *Journal of Power Sources*, 166(1), pp. 127–136. doi: 10.1016/j.jpowsour.2006.12.081.

Udagawa, J., Aguiar, P. and Brandon, N. P. (2008) 'Hydrogen production through steam electrolysis: Control strategies for a cathode-supported intermediate temperature solid oxide electrolysis cell', *Journal of Power Sources*, 180(1), pp. 354–364. doi: 10.1016/j.jpowsour.2008.01.069.

Ursúa, A. *et al.* (2009) 'Influence of the power supply on the energy efficiency of an alkaline water electrolyser', *International Journal of Hydrogen Energy*, 34(8), pp. 3221–3233. doi: 10.1016/j.ijhydene.2009.02.017.

- Ursúa, A., Gandía, L. M. and Sanchis, P. (2012) ‘Hydrogen production from water electrolysis: Current status and future trends’, *Proceedings of the IEEE*, 100(2), pp. 410–426. doi: 10.1109/JPROC.2011.2156750.
- Vermeiren, P. (1998) ‘Evaluation Of The Zirfon @ J Separator For Use In Alkaline Water Electrolysis’, 3199(97).
- Victorina, V. . ; Y. P. . (2016) ‘Prarencana Pabrik Sabun Cair dari Minyak Goreng Bekas Kapasitas Produksi 7000 tonth’, *Kimia, Jurusan Teknik Teknik, Fakultas Katolik, Universitas Mandala*.
- Wang, J. T. *et al.* (2012) ‘Corrosion behavior of three bipolar plate materials in simulated SPE water electrolysis environment’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 37(17), pp. 12069–12073. doi: 10.1016/j.ijhydene.2012.04.146.
- Wang, M. *et al.* (2014) ‘The intensification of cation technologies to water electrolysis for hydrogen production – A review’, *Renewable and Sustainable Energy Reviews*. Elsevier, 29, pp. 573–588. doi: 10.1016/j.rser.2013.08.090.
- Wang, M., Wang, Z. and Guo, Z. (2010) ‘Water electrolysis enhanced by super gravity field for hydrogen production’, *International Journal of Hydrogen Energy*. Elsevier Ltd, 35(8), pp. 3198–3205. doi: 10.1016/j.ijhydene.2010.01.128.
- Wei, Z. D. *et al.* (2007) ‘Water electrolysis on carbon electrodes enhanced by surfactant’, *Electrochimica Acta*, 52(9), pp. 3323–3329. doi: 10.1016/j.electacta.2006.10.011.
- Widayat, S. and Haryani, K. (2006) ‘Optimasi proses adsorbsi minyak goreng bekas dengan adsorbent zeolit alam: Studi pengurangan bilangan asam’, *Jurnal Teknik Gelagar*, 17(01), pp. 77–82.
- Widyatama, A. . (2017) ‘Rancang Bangun Proses Produksi Gas Hidrogen ( H 2 ) Melalui Elektrolisis Air Menggunakan Buck Converter Berbasis’.
- Yasmitha Andewil, N. M. A. (no date) ‘Sumber Energi Hydrogen Production By Electrolysis Process As An Energy’, pp. 1–16.

Yuvaraj, A. L. and Santhanaraj, D. (2014) ‘A Systematic Study on Electrolytic Production of Hydrogen Gas by Using Graphite as Electrode 3 . Results and Discussions’, 17(1), pp. 83–87.

Zeng, K. and Zhang, D. (2010) ‘Recent progress in alkaline water electrolysis for hydrogen production and applications’, *Progress in Energy and Combustion Science*. Elsevier Ltd, 36(3), pp. 307–326. doi: 10.1016/j.pecs.2009.11.002.

[https://www.chemicalbook.com/chemicalproductproperty\\_en\\_cb3107908.htm](https://www.chemicalbook.com/chemicalproductproperty_en_cb3107908.htm)



Sekolah Pascasarjana  
Universitas Diponegoro