

DAFTAR PUSTAKA

- Abbad, M. M. B., Kadhum, A. A. H., Mohamad, A. B., Takriff, M. S. dan Sopian, K. 2012. Synthesis and Catalytic Activity of TiO₂ Nanoparticles for Photochemical Oxidation of Concentrated Chlorophenols under Direct Solar Radiation. *International Journal of Electrochemical Science*. Vol. 7. Hal. 4871-4888.
- Akpan, U. G. dan Hameed, B. H. 2010. The Advancements in Sol-Gel Method of Doped-TiO₂ Photocatalysts. *Applied Catalysis A: General*. Vol. 375. Hal. 1-11.
- Alhoff, F., Lin, P. dan Moore, D. 2010. *What is Nanotechnology and Why does It Matter. 1st Edition*. West Sussex. John Wiley & Sons, Ltd. Hal. 3
- Anggraita, P. 2006. Penelitian Bahan Nano di Bidang Tenaga Nuklir Indonesia. *Jurnal Sains Materi Indonesia*. Hal. 6-8.
- Aryanto, A. dan Nugraha, I. 2014. Fotodegradasi Zat Warna Methyl Orange dengan Komposit TiO₂-Montmorillonit. *Seminar Nasional Kimia dan Pendidikan Kimia VI, Surakarta, 21 Juni 2014*. Hal. 206-214.
- Asahi, R., Morikawa, T., Ohwaki, T., Aoki, K. dan Taga, Y. 2001. Visible Light Photocatalysis in Nitrogen Doped Titanium Oxides. *Science*. Vol. 293. No. 5528. Hal. 269-271.
- Beniac, D., Belova, L., Burgess, R., Barnes, C., Cifuentes, L. T., Crassous, P., DiFiore, A., Gspan, C., Gunning, P., Holthuysen, F., Ito, J., Jane, W. N., Johnson, C., Keller, A. dan Kisielowski, N. C. 2010. *An Introduction of Microscopy Electron*. FEI. ISBN 978-0-578-06276-1. Hal. 4.
- Binitha, N. N., Yaakob, Z. dan Resmi, R. 2010. Influence of Synthesis Methods on Zirconium Doped Titania Photocatalysts. *Central European Journal of Chemistry*. Vol. 8. No. 1. Hal. 182-187.

- Bonazzi, M. 2011. *Outstanding Science and Technology to Match the Needs of Future Society*. European Commission. Hal. 44.
- Branda, F. 2011. The Sol-Gel Route to Nanocomposites. *Advances in Nanocomposites-Synthesis, Characterization and Industrial Applications (Dr. Boreddy Reddy Edition)*. ISBN: 978-953-307-165-7. Hal 323-340.
- Brinker, C. J. dan Scherer, G. W. 1990. *Sol-Gel Science: The Physics and Chemistry of Sol-Gel Processing*. New York. Academic Press, Inc. Hal. 2, 303.
- Brown, G. N., Birks, J. W. dan Koval, C. A. 1992. Development and Characterization of a Titanium Dioxide-Based Semiconductor Photoelectrochemical Detector. *Analysis Chemistry*. Vol. 64. No. 4. Hal. 427-434.
- Bubacz, K., Choina, J., Dolat, D. dan Morawski, A. W. 2010. Methylene Blue and Phenol Photocatalytic Degradation on Nanoparticles of Anatase TiO₂. *Polish Journal of Environmental Study*. Vol. 19. No. 4. Hal. 685-691.
- Cheng, Y., Sun, H., Jin, W. dan Xu, N. 2007. Photocatalytic Degradation of 4-Chlorophenol with Combustion Synthesized TiO₂ under Visible Light Irradiation. *Chemical Engineering Journal*. Vol. 128. Hal 127-133.
- Cullity, B. D. 1956. *Elements of X-Ray Diffraction*. Addison-Wesley Publishing Company Inc. Hal. 2-3, 84, 99.
- Darzi, S. J., Mahjoub, A. R. dan Sarfi, S. 2012. Visible Light Active Nitrogen Doped TiO₂ Nanoparticles Prepared by Sol Gel Acid Catalyzed Reaction. *Iranian Journal of Materials Science & Engineering*. Vol. 9. No. 3. Hal. 17-23.
- Diebold, U. 2003. The Surface Science of Titanium Dioxide. *Surface Science Reports*. Vol. 48. Hal. 53-229.
- Dwandaru, W. S. B. 2012. *Aplikasi Nanosains dalam Berbagai Bidang Kehidupan: Nanoteknologi*. Seminar Regional Nanoteknologi. Hal 5-9.
- Farahmandjou, M. 2014. Self-Cleaning Measurement of Nano-Sized Photoactive TiO₂. *Journal of Computer and Robotics*. Vol. 5. Hal. 15-19.

- Frank, S. N. dan Bard, A. J. 1977. Heterogeneous Photocatalytic Oxidation of Cyanide Ion in Aqueous Solutions at Titanium Dioxide Powder. *Journal American Chemistry Society*. Vol. 99. No. 1. Hal. 303-304.
- Fujishima, A. Rao, T. N. dan Tryk, D. A. 2000. Titanium Dioxide Photocatalysis. *Journal of Photochemistry and Photobiology C: Photochemistry Reviews*. Vol. 1. Hal. 1-21.
- Fujishima, A. dan Zhang, X. 2006. Titanium Dioxide Photocatalysis: Present Situation and Future Approaches. *Chime*. Vol. 6. Hal. 750-760.
- Glatzel, T. 2013. *X-Ray Diffraction*. Raum. Universitat Basel. Hal 1.
- Goldstein, J. I., Nembury, D. E., Joy, D. C., Lyman, C. E., Lifshin, E., Sawyer, L. dan Michael, J. R. 2003. *Scanning Electron Microscopy and X-Ray Microanalysis 3rd Edition*. New York. Plenom Publisher. Hal. 689.
- Gratzel, M. 2003. Dye-Sensitized Solar Cell. *Journal of Photochemistry and Photobiology C*. Vol. 4. Hal. 145-153.
- Han, C. H., Lee, H. S. dan Han, S. D. 2008. Synthesis of Nanocrystalline TiO₂ by Sol-Gel Combustion Hybrid Method and Its Applications to Dye Solar Cells. *Bulletine Korean Chemistry*. Vol. 29. No. 8. Hal. 1495-1498.
- Hayle, S. T. dan Gonfa, G. G. 2014. Synthesis and Characterization of Titanium Oxide Nanomaterials Using Sol-Gel Method. *American Journal of Nanoscience and Nanotechnology*. Vol. 2. No. 1. Hal. 1-7.
- Hench, L. L. dan West, J. K. 1989. The Sol Gel Process. *Chemical Review*. Vol. 90. No. 1. Hal. 33-72
- Herrera, J. A. R. dan Pulgarin, C. 2010. Photocatalytic Activity of N, S Co-Doped and N-Doped Commercial Anatase TiO₂ Powders towards Phenol Oxidation and E-coli Inactivation under Simulated Solar Light Irradiation. *Solar Energy*. Vol. 84. Hal. 37-43.
- Hofer, F. 2014. *Transmission Electron Microscopy and Nanoanalysis*. FELMI-ZFE: Electron Microscopy & Nanoanalysis. portal.tugraz.at/portal/page/portal/felmi/research/TEMandNanoanalysis diakses pada tanggal 21 Juli 2014 pukul 11.00 WIB.
- Honda, T., Yanashima, K., Yoshino, J., Kukimoto, H., Koyama, F. dan Iga, K. 1994. Fabrication of a ZnSe-Based Vertical Fabry-Perot Cavity Using

SiO₂/TiO₂ Multilayer Reflector and Resonant Emission Characteristic. *Journal of Applied Physics*. Vol. 33. Hal. 3960-3961.

- Howard, C. J., Sabine, T. M. dan Dickson, F. 1991. Structural and Thermal Parameters for Rutile and Anatase. *Acta Crystallographica*. Vol. B47. Hal. 462-468.
- Huberty, J. dan Xu, H. 2008. Kinetics Study on Phase Transformation from Titania Polymorph Brookite to Rutile. *Journal of Solid State Chemistry*. Vol. 181. Hal. 508-514.
- Hunter, B. A. 2001. Rietica-A Visual Rietveld Program. *International Union of Crystallography Commission on Powder Diffraction Newsletter*. Vol. 20. Hal. 21.
- Jitputti, J., Pavasupree, S., Suzuki, Y. dan Yoshikawa, S. 2006. Synthesis, Structural Characterization and Photocatalytic Activity for Water Splitting Reaction of Nanocrystalline Mesoporous Titania Prepared by Hydrothermal Method. *The 2nd Joint International Conference on "Sustainable Energy and Environment (SEE 2006)"*. Hal. 1-6.
- Jones, M. D. 2008. *2013: The End of Days or A New Beginning?: Envisioning the World after the Events of*. Franklin Lakes. The Career Press, Inc. Hal. 131-132.
- Kim, Y. C., Sasaki, S., Yano, K., Ikebukuro, K., Hashimoto, K. dan Karube, I. 2000. Relationship Between Theoretical Oxygen Demand and Photocatalytic Chemical Oxygen Demand for Specific Classes of Organic Chemicals. *Analyst*. Vol. 125. Hal. 1915-1918.
- Kisi, E. H. 1994. Rietveld Analysis of Powder Diffraction Pattern. *Material Forum*. Hal. 135-153.
- Kittel, C. 2005. *Introduction to Solid State Physics. 8th Edition*. John Wiley & Sons, Inc. Hal. 185.
- Koparde, V. N. dan Cummings, P. T. 2008. Phase Transformations during Sintering of Titania Nanoparticles. *Article American Chemical Society*. Vol. 2 No. 8. Hal. 1620-1624.
- Landmann, M., Rauls, E. dan Schmidt, W.G. 2012. The Electronic Structure and Optical Response of Rutile, Anatase and Brookite TiO₂. *Journal of Physics: Condensed Matter*. Vol. 24. Hal. 1-6.

- Logothetidis, S. 2012. Nanotechnology: Principles and Applications. *Nanostructured Materials and Their Applications*. Hal. 1-23.
- Mao, L., Li, Q., Dang, H. dan Zhang, Z. 2005. Synthesis of Nanocrystalline TiO₂ with High Photoactivity and Large Specific Surface Area by Sol Gel Method. *Materials Research Bulletin*. Vol. 40. Hal. 201-208.
- Matsuda, A., Higashi, Y., Tadanaga, K. dan Tasumisago, M. 2006. Hot-Water Treatment of Sol-Gel Derived SiO₂-TiO₂ Microparticles and Application to Electrophoretic Deposition for Thick Films. *Journal Material Science*. Vol. 41. Hal. 8101-8107.
- Mhaisagar, Y. S. dan Mahajan, A. M. 2012. Sol Gel Deposited Porogen Based Low-k Thin Films for Interlayer Dielectric Application in ULSI Circuits. *Journal of Nano and Electronic Physics*. Vol. 4. No. 3. Hal. 1-3.
- Miller, G. dan Kinnear, S. 2008. Nanotechnology: The New Threat to Food. *Nexus Magazine*. Hal. 37-40.
- Morikawa, T., Asahi, R., Ohwaki, T., Aoki, K., Suzuki, K. dan Taga, Y. 2001. Visible Light Photocatalyst-Nitrogen-Doped Titanium Dioxide. *R & D Review of Toyota CRDL*. Vol. 40. No. 3. Hal. 46-50.
- Morris, J. dan Willis, J. 2007. *Nanotechnology White Paper*. Science Policy Council. Hal. 4-7, 7-10.
- Nishikiori, H., Hayashibe, M. dan Fujii, T. 2013. Visible Light Photocatalytic Activity of Sulfate-Doped Titanium Dioxide Prepared by the Sol-Gel Method. *Catalysts*. Vol. 3. Hal. 363-377.
- Nishizawa, K., Okada, M. dan Watanabe, E. 2014. New Preparation Method of Visible Light Responsive Titanium Dioxide Photocatalytic Films. *Materials Sciences and Applications*. Vol. 5. Hal. 112-123.
- Nolan, N., Pillai, S. dan Seery, M. K. 2009. Spectroscopic Investigation of the Anatase to Rutile Transformation of Sol Gel Synthesised TiO₂ Photocatalysts. *Journal of Physical Chemistry C*. Vol. 113. Hal. 16151-16157.
- Nurdin, M., Wibowo, W., Supriyono, Febrian, M.B., Surahman, H., Krisnandi, Y. K. dan Gunlazuardi, J. 2009. Pengembangan Metode Baru Penentuan Chemical Oxygen Demand (COD) Berbasis Sel Fotoelektrokimia:

Karakterisasi Elektroda Kerja Lapis Tipis TiO₂/ITO. *Makara Sains*. Vol. 13. No. 1. Hal. 1-8.

- Ohno, T., Akiyoshi, M., Umebayashi, T., Asai, K., Mitsui, T. dan Matsumura, M. 2004. Preparation of S-Doped Titania Photocatalysts and Their Photocatalytic Activities under Visible Light. *Applied Catalysis A: General*. Vol. 265. Hal. 115-121.
- Panpae, K., Angkaew, S., Sritara, C. dan Ngernsuttichaiporn, C. 2007. An Alkoxide Free Sol-Gel Synthesis of Nanosized TiO₂. *Kasetsart Journal Natural Science*. Vol. 41. Hal. 178-185.
- Pelaez, M., Nolan, N. T., Pillai, S., Seery, M. K. Falarras, P., Kontus, A. G., Dunlop, P. S. M., Hamilton, J. W. J., Byrne, J. A., O'shea, K., Entezari, M. H. dan Dionysiou, D. D. 2012. A Review on the Visible Light Active Titanium Dioxide Photocatalysts for Environmental Applications. *Applied Catalysis B: Environmental*. Vol. 125. Hal. 331-349.
- Periyat, P., Pillai, S. C., McComack, D. E., Colreavy, J. dan Hinder, S. J. 2008. Improved High Temperature Stability of Photoactive Sulphur Doped Anatase TiO₂. *Journal of Physical Chemistry C*. Vol. 112. Hal. 7648-7675.
- Pokropivny, V., Lohmos, R., Hussainova, I., Pokropivny, A. dan Vlassov, S. 2007. *Introduction to Nanomaterials and Nanotechnology*. Tartu. Tartu University Press. Hal. 10.
- Qiu, S. 2006. *A Synthesis, Processing and Characterization of Nanocrystalline Titanium Dioxide*. Thesis the University of Central Florida Orlando. Hal. 42.
- Rahaman, M. N. 1995. *Ceramic Processing and Sintering*. 2nd Edition. Issouri. Department of Ceramics Engineering University of Missouri-Rolla. Hal. 18, 250-254.
- Ramsden, J. J. 2011. *Nanotechnology: An Introduction*. Elsevier Inc. Hal. 4-6.
- Rockafellow, E. M., Stewart, L. K. dan Jenks, W. S. 2009. Is Sulfur Doped TiO₂ an Effective Visible Light Photocatalyst for Remediation. *Applied Catalysis B: Environmental*. Vol. 91. Hal. 554-562.

- Rockett, A. 2008. *The Materials Science of Semiconductors*. USA. Springer. Hal. 40.
- Rosenauer, A. 2003. *Transmission Electron Microscopy of Semiconductor Nanostructures: Analysis of Composition and Strain State*. Springer. Hal. 1.
- Rowe, R. C., Sheskey, P. J. dan Quinn, M. E. 2009. *Handbook of Pharmaceutical Excipients. 6th Edition*. Washington DC. Pharmaceutical Press and American Pharmacists Association. Hal. 549, 580-584.
- Saas, J. 2007. *Nanotechnology's Invisible Threat: Small Science, Big Consequences*. New York. Natural Resources Defense Council, Inc. Hal. 1.
- Salager, J. L. 2002. *Surfactants Types and Uses*. Merinda. Universidad de Los Andes. Hal. 2-4.
- Sampson, A. R. 1996. *Scanning Electron Microscopy*. Advanced Research System. www.sem.com diakses pada tanggal 21 Juli 2014 pukul 11.00 WIB.
- Saxton, J. 2007. Nanotechnology: The Future is Coming Sooner than You Think. *Joint Economic Committee United States Congress*. Hal. 1-20.
- Schweitzer, J. 2013. *Scanning Electron Microscope*. <http://www.purdue.edu/rem/rs/sem.htm> diakses pada tanggal 29 November 2014 pukul 16.43 WIB.
- Siefering, K. L. dan Griffin, G. L. 1990. Growth Kinetics of CVD TiO₂: Influence of Carrier Gas. *Journal of the Electrochemistry Society*. Vol. 137. No. 4. Hal. 1206-1208.
- Smallman, R. E. dan Bishop, R. J. 1999. *Modern Physical Metallurgy and Materials Engineering: Science, Process, Applications. 6th Edition*. Reed Educational and Professional Publishing, Ltd. Hal. 133, 143.
- Smith, W. F. 1996. *Principles of Materials Science and Engineering. 3rd Edition*. USA. McGraw-Hill Inc. Hal. 199.
- Smolinske, S. C. 1992. *Handbook of Food, Drug and Cosmetic Excipient*. USA. CRC Press. Hal. 295-296

- Stengl, V. dan Kralova, D. 2011. Photoactivity of Brookite-Rutile TiO₂ Nanocrystalline Mixtures Obtained by Heat Treatment of Hydrothermally Prepared Brookite. *Journal Material Chemistry and Physics*. Vol. 129. Hal. 794-801.
- Thamaphat, K., Limsuwan, P. dan Ngotawornchai, B. 2008. Phase Characterization of TiO₂ Powder by XRD and TEM. *Kasetsart Journal (Natural Science)*. Vol. 42. Hal. 357-361.
- Umebayashi, T., Yamaki, T., Tanaka, S. dan Asai, K. 2003. Visible Light Induced Degradation of Methylene Blue on S-doped TiO₂. *Chemistry Letters*. Vol. 32. Hal. 330-331.
- Varghese, O. K. dan Grimes, C. A. 2003. Metal Oxide Nanoarchitectures for Environmental Sensing. *Journal of Nanoscience and Nanotechnology*. Vol. 3. No.4. Hal. 277-293.
- Wahi, R. K., Yu, W. W., Liu, Y., Meijia, M. L., Falkner, J. C., Nolte, W. dan Colvin, V. L. 2005. Photodegradation of Congo Red Catalyzed by Nanosized TiO₂. *Journal of Molecular Catalysis A: Chemical*. Vol. 242. Hal. 48-56.
- Wangasadinata, W. dan Suprayitno, G. 2008. *Rooseno: Jembatan dan Menjembatani. Edisi Pertama*. Yayasan Obor Indonesia. Hal. 156.
- Wilson, M., Kannangara, K., Smith, G., Simmons, M. dan Raguse, B. 2002. *Nanotechnology: Basic Science and Emerging Technologies*. CRC Press. Hal. 4.
- Xie, Z., Zhang, Y., Liu, X., Wang, W., Zhan, P., Li, Z. dan Zhang, Z. 2013. Visible Light Photoelectrochemical Properties of N-Doped TiO₂ Nanorod Arrays from TiN. *Journal of Nanomaterials*. Hal. 1-8.
- Yanagisawa, K. dan Ovenstone, J. 1999. Crystallization of Anatase from Amorphous Titania Using the Hydrothermal Techniques: Effects of Starting Material and Temperature. *Journal of Physical Chemistry*. Vol. 103. No. 37. Hal. 7781-7787.
- Yu, J. C., Yu, J., Ho, W., Jiang, Z. dan Zhang, L. 2002. Effect of F⁻ Doping on the Photocatalytic Activity and Microstructures of Nanocrystalline TiO₂ Powder. *Chemical Materials*. Vol. 14. No. 9. Hal. 3808-3816.

Zaleska, A. 2008. Characteristic of Doped TiO₂ Photocatalysts. *Physicochemical Problems of Mineral Processing*. Vol. 42. Hal. 211-222.

Zhao, J. dan Yang, X. 2003. Photocatalytic Oxidation for Indoor Air Purification. *A Literatur Review Building and Environmental*. Vol. 38. Hal. 645-654.