

DAFTAR PUSTAKA

- Abdeltawab, A.A., Shoeib, M.A., Mohamed, S.G., 2011. Electrophoretic deposition of hydroxyapatite coatings on titanium from dimethylformamide suspensions. *Surf. Coat. Technol.* 206, 43–50.
- Abdullah, M., Khairurrijal, 2009. Karakterisasi Nanomaterial. *J. Nanosains Nanoteknologi* 2, 1–9.
- Abdullah, M., Y, V., Nirmin, Khairurrijal, 2008. Sintesis Nanomaterial. *J Nanosci T* 1.
- Afshar, A., Ghorbani, M., Ehsani, N., Saeri, M.R., Sorrell, C.C., 2003. Some important factors in the wet precipitation process of hydroxyapatite. *Mater. Des.* 24, 197–202.
- Albayrak, O., Altintas, S., 2010. Production of “Tricalcium Phosphate/Titanium Dioxide” Coating Surface on Titanium Substrates. *J. Mater. Sci. Technol.* 26, 1006–1010.
- Anand, R., 2012. Electrophoretic deposition of hydroxy-apatite on Ti6Al4V (Tesis). National Institute of Technology Rourkela, Rourkela.
- Aoki, H., 1991. Science and medical applications of hydroxyapatite. *JAAS* 1991, 123–134.
- Bakin B, 2015. Bioactive coatings for functionalization of the medical implants. Turkey: Dokuz Eylül university, Izmir.
- Bathini, U., 2010. A Study of Microstructure, Tensile Deformation, Cyclic Fatigue and Final Fracture Behavior of Commercially Pure Titanium and a Titanium Alloy (Masrer Thesis). University of Akron, Ohio.
- Besra, L., Liu, M., 2007. A review on fundamentals and applications of electrophoretic deposition (EPD). *Prog. Mater. Sci.* 52, 1–61.
- Bharati, S., Sinha, M.K., Basu, D., 2005. Hydroxyapatite coating by biomimetic method on titanium alloy using concentrated SBF. *Bull. Mater. Sci.* 28, 617–621.
- Bhatti, A.R., Farries, P.M., 2000. Preparation of Long-fiber-reinforced Dense Glass and Ceramic Matrix Composites, in: *Comprehensive Composite Materials*. pp. 645–667. <https://doi.org/10.1016/B0-08-042993-9/00107-8>
- Borsari, V., Giavaresi, G., Fini, M., Torricelli, P., Salito, A., Chiesa, R., Chiusoli, L., Volpert, A., Rimondini, L., Giardino, R., 2005. Physical characterization of different-roughness titanium surfaces, with and without hydroxyapatite coating, and their effect on human osteoblast-like cells. *J.*

- Biomed. Mater. Res. Part B Appl. Biomater. Off. J. Soc. Biomater. Jpn. Soc. Biomater. Aust. Soc. Biomater. Korean Soc. Biomater. 75, 359–368.
- Bouyer, E., Gitzhofer, F., Boulos, M.I., 2000. Morphological study of hydroxyapatite nanocrystal suspension. *J. Mater. Sci. Mater. Med.* 11, 523–531.
- Breding, K., Jimbo, R., Hayashi, M., Xue, Y., Mustafa, K., Andersson, M., 2014. The effect of hydroxyapatite nanocrystals on osseointegration of titanium implants: an in vivo rabbit study. *Int. J. Dent.* 2014.
- Corni, I., Ryan, M.P., Boccaccini, A.R., 2008. Electrophoretic deposition: From traditional ceramics to nanotechnology. *J. Eur. Ceram. Soc.* 28, 1353–1367. <https://doi.org/10.1016/j.jeurceramsoc.2007.12.011>
- Costa de Almeida, C., Sena, L.Á., Pinto, M., Muller, C.A., Cavalcanti Lima, J.H., Soares, G. de A., 2005. In vivo characterization of titanium implants coated with synthetic hydroxyapatite by electrophoresis. *Braz. Dent. J.* 16, 75–81.
- Damodaran, R., Moudgil, B.M., 1993. Electrophoretic deposition of calcium phosphates from non-aqueous media. *Colloids Surf. Physicochem. Eng. Asp.* 80, 191–195.
- Daugaard, H., Elmengaard, B., Bechtold, J.E., Jensen, T., Soballe, K., 2010. The effect on bone growth enhancement of implant coatings with hydroxyapatite and collagen deposited electrochemically and by plasma spray. *J. Biomed. Mater. Res. Part Off. J. Soc. Biomater. Jpn. Soc. Biomater. Aust. Soc. Biomater. Korean Soc. Biomater.* 92, 913–921.
- De Riccardis, M.F., 2012. Ceramic coatings obtained by electrophoretic deposition: fundamentals, models, post-deposition processes and applications, in: *Ceramic Coatings-Applications in Engineering*. InTech.
- Donachie, M.J., 2000. *Titanium: A Technical Guide*, 2nd Edition. ASM International, United States of America.
- Elliott, J.C., Mackie, P.E., Young, R.A., 1973. Monoclinic hydroxyapatite. *Science* 180, 1055–1057.
- Farhani, A.N., 2014. *Kombinasi Teknik Top Down dan Bottom Up dalam Pembuatan Nanokristalin Hidroksiapatit dari Batu Gamping (Skripsi)*. Institut Pertanian Bogor, Bogor.
- Ferrari, B., Moreno, R., 1996. The conductivity of aqueous Al₂O₃ slips for electrophoretic deposition. *Mater. Lett.* 28, 353–355.
- Figueira, R., Silva, C., Pereira, E., 2015. Influence of experimental parameters using the dip-coating method on the barrier performance of hybrid sol-gel coatings in strong alkaline environments. *Coatings* 5, 124–141.

- Figueiredo, M., Fernando, A., Martins, G., Freitas, J., Judas, F., Figueiredo, H., 2010. Effect of the calcination temperature on the composition and microstructure of hydroxyapatite derived from human and animal bone. *Ceram. Int.* 36, 2383–2393.
- Fleet, M.E., 2014. Carbonated hydroxyapatite: materials, synthesis, and applications. Pan Stanford.
- Fontana, M.G., 2005. Corrosion engineering. Tata McGraw-Hill Education.
- Gemelli, E., Camargo, N.H.A., 2007. Oxidation kinetics of commercially pure titanium. *Matér. Rio Jan.* 12, 525–531.
- Gomes, J.F., Granadeiro, C.C., Silva, M.A., Hoyos, M., Silva, R., Vieira, T., 2008. An investigation of the synthesis parameters of the reaction of hydroxyapatite precipitation in aqueous media. *Int. J. Chem. React. Eng.* 6.
- Govindaraj, D., Rajan, M., 2018. Coating of bio-mimetic minerals-substituted hydroxyapatite on surgical grade stainless steel 316L by electrophoretic deposition for hard tissue applications, in: *IOP Conference Series: Materials Science and Engineering*. IOP Publishing, p. 012029.
- Grillon, F., Fayeulle, D., Jeandin, M., 1992. Quantitative image analysis of electrophoretic coatings. *J. Mater. Sci. Lett.* 11, 272–275.
- Habibie, S., Hadi, A., Wargadipura, S., Gustiono, D., Herdianto, N., Riswoko, A., Clarke, S., 2017. Production and characterization of hydroxyapatite bone substitute material performed from Indonesian limestone. *Int J Biomed Eng Sci* 4, 11–23.
- Hackley, V., Somasundaran, P., Lewis, J., 2001. *Polymers in particulate systems: properties and applications*. CRC Press.
- Hamaker, H.C., 1940. Formation of a deposit by electrophoresis. *Trans Faraday Soc* 35, 279–287. <https://doi.org/10.1039/TF9403500279>
- Hamaker, H.C., Verwey, E.J.W., 1940. Part II.—(C) Colloid stability. The role of the forces between the particles in electrodeposition and other phenomena. *Trans Faraday Soc* 35, 180–185. <https://doi.org/10.1039/TF9403500180>
- Han, J.-K., Song, H.-Y., Saito, F., Lee, B.-T., 2006. Synthesis of high purity nano-sized hydroxyapatite powder by microwave-hydrothermal method. *Mater. Chem. Phys.* 99, 235–239.
- Hedia, H.S., 2007. Effect of coating thickness and its material on the stress distribution for dental implants. *J. Med. Eng. Technol.* 31, 280–287.
- Hendayana, S., Kadarohman, A., Sumarna, A., Supriatna, A., 1994. *Kimia Analitik Instrumen*. IKIP Press, Semarang.

- Herawaty, L., 2014. Sintesis Nano Hidroksiapatit dari Cangkang Tutut (Bellamyia Javanica) dengan Metode Presipitasi dan Hidrotermal. Sekolah Pascasarjana, Institut Pertanian Bogor, Bogor.
- Hessam, H.H.H., Izman, S.I.S., Hamtaiepour, S.H.S., 2013. Evaluating the surface properties of hydroxyapatite coating on titanium alloy substrate. *J. Mek.* 36.
- Javidi, M., Bahrololoom, M.E., Javadpour, S., Ma, J., 2009. In vitro electrochemical evaluation and phase purity of natural hydroxyapatite coating on medical grade 316L stainless steel. *Mater. Corros.* 60, 336–343.
- Javidi, M., Javadpour, S., Bahrololoom, M.E., Ma, J., 2008. Electrophoretic deposition of natural hydroxyapatite on medical grade 316L stainless steel. *Mater. Sci. Eng. C* 28, 1509–1515.
- Koelmans, H., 1955. Suspensions in non aqueous media. *Phillips Res. Rep.* 10, 161–193.
- Kollath, V.O., Chen, Q., Closset, R., Luyten, J., Traina, K., Mullens, S., Boccaccini, A.R., Cloots, R., 2013. AC vs. DC electrophoretic deposition of hydroxyapatite on titanium. *J. Eur. Ceram. Soc.* 33, 2715–2721. <https://doi.org/10.1016/j.jeurceramsoc.2013.04.030>
- Kubota, T., Nakamura, A., Toyoura, K., Matsunaga, K., 2014. The effect of chemical potential on the thermodynamic stability of carbonate ions in hydroxyapatite. *Acta Biomater.* 10, 3716–3722.
- Lazić, S., 1995. Microcrystalline hydroxyapatite formation from alkaline solutions. *J. Cryst. Growth* 147, 147–154.
- Leni, D., 2018. Perilaku Titanium Murni (CPTi grade 2) terhadap Lapisan Hydroxyapatite Untuk Aplikasi Medis. *Rang Tek. J.* 1.
- Liu, C., Huang, Y., Shen, W., Cui, J., 2001. Kinetics of hydroxyapatite precipitation at pH 10 to 11. *Biomaterials* 22, 301–306.
- Liu, D.-M., Yang, Q., Troczynski, T., 2002. Sol–gel hydroxyapatite coatings on stainless steel substrates. *Biomaterials* 23, 691–698.
- Madupalli, H., Pavan, B., Tecklenburg, M.M., 2017. Carbonate substitution in the mineral component of bone: Discriminating the structural changes, simultaneously imposed by carbonate in A and B sites of apatite. *J. Solid State Chem.* 255, 27–35.
- Mahmoudi, M., Maleki-Ghaleh, H., Kavanlouei, M., 2014. Electrophoretic Deposition and Reaction-Bond Sintering of Al₂O₃/Ti Composite Coating: Evaluation of Microstructure, Phase and Wear Resistance. *Bull. Mater. Sci.* 38. <https://doi.org/10.1007/s12034-015-0882-3>

- Massaro, C., Rotolo, P., De Riccardis, F., Milella, E., Napoli, A., Wieland, M., Textor, M., Spencer, N.D., Brunette, D.M., 2002. Comparative investigation of the surface properties of commercial titanium dental implants. Part I: chemical composition. *J. Mater. Sci. Mater. Med.* 13, 535–548.
- Matthew, B., Steven J, M., Andrew P, B., 2012. Comparison of hydrothermal and sol-gel synthesis of nano-particulate hydroxyapatite by characterisation at the bulk and particle level. *Open J. Inorg. Non-Met. Mater.* 2012.
- Meng, X., Kwon, T.-Y., Yang, Y., Ong, J.L., Kim, K.-H., 2006. Effects of applied voltages on hydroxyapatite coating of titanium by electrophoretic deposition. *J. Biomed. Mater. Res. Part B Appl. Biomater. Off. J. Soc. Biomater. Jpn. Soc. Biomater. Aust. Soc. Biomater. Korean Soc. Biomater.* 78, 373–377. <https://doi.org/10.1002/jbm.b.30497>
- Miyazaki, T., Kawashita, M., 2013. Electrochemical deposition of hydroxyapatite and its biomedical applications. *Hydroxyapatite Coat. Biomed. Appl.* Zhang Ed CRC Press Boca Raton FL USA 31–54.
- Mohamed, A.R., Bahru, R., Yeoh, W.M., Yaacob, K.A., 2016. Dimethyl formamide as dispersing agent for electrophoretically deposited of multi-walled carbon nanotubes. *Int J Petrochem Sci Eng* 1.
- Mohseni, E., Zalnezhad, E., Bushroa, A.R., 2014. Comparative investigation on the adhesion of hydroxyapatite coating on Ti–6Al–4V implant: A review paper. *Int. J. Adhes. Adhes.* 48, 238–257.
- Mondal, S., Mondal, B., Dey, A., Mukhopadhyay, S.S., 2012. Studies on processing and characterization of hydroxyapatite biomaterials from different bio wastes. *J. Miner. Mater. Charact. Eng.* 11, 55.
- Murugan, R., Ramakrishna, S., Rao, K.P., 2006. Nanoporous hydroxy-carbonate apatite scaffold made of natural bone. *Mater. Lett.* 60, 2844–2847.
- Nurbainah, E., 2016. Pelapisan Komposit Hidroksiapatit-Kitosan pada Paduan Logam TiAl dengan Metode Elektroforesis Deposisi (Skripsi). Institut Pertanian Bogor, Bogor.
- Olszta, M.J., Cheng, X., Jee, S.S., Kumar, R., Kim, Y.-Y., Kaufman, M.J., Douglas, E.P., Gower, L.B., 2007. Bone structure and formation: A new perspective. *Mater. Sci. Eng. R Rep.* 58, 77–116.
- Oshida, Y., 2014. *Hydroxyapatite: Synthesis and Applications*. Momentum Press.
- Porter, A., Patel, N., Brooks, R., Best, S., Rushton, N., Bonfield, W., 2005. Effect of carbonate substitution on the ultrastructural characteristics of hydroxyapatite implants. *J. Mater. Sci. Mater. Med.* 16, 899–907.

- Pourgheysari, H., Pourzamani, H., Ebrahimi, A., Bonyadinezhad, G., 2016. Comparison between distilled water and dimethylformamid as solvent to fabricate electrodes coated with single wall carbon nanotubes. *Int. J. Environ. Health Eng.* 5, 3–3.
- Powers, R.W., 1975. The Electrophoretic Forming of Beta-Alumina Ceramic. *J. Electrochem. Soc.* 122, 490–500.
- Purwamargapratala, Y., 2011. Sintesis dan Karakterisasi Hidroksiapatit Dengan Pori Terkendali (Tesis). Institut Pertanian Bogor, Bogor.
- Qian, J., Li, H., Li, P., Chen, Y., 2012. Preparation of hydroxyapatite coatings by acid etching-electro deposition on pure titanium, in: 2012 International Conference on Biomedical Engineering and Biotechnology. IEEE, pp. 433–436.
- Rad, A.T., Solati-Hashjin, M., Osman, N.A.A., Faghihi, S., 2014. Improved biophysical performance of hydroxyapatite coatings obtained by electrophoretic deposition at dynamic voltage. *Ceram. Int.* 40, 12681–12691.
- Ramli, M.I., Sulong, A.B., Muhamad, N., Muchtar, A., Arifin, A., Foudzi, F.M., Al-Furjan, M.S.H., 2018. Effect of sintering parameters on physical and mechanical properties of powder injection moulded stainless steel-hydroxyapatite composite. *PloS One* 13, e0206247.
- Raynaud, S., Champion, E., Bernache-Assollant, D., Thomas, P., 2002. Calcium phosphate apatites with variable Ca/P atomic ratio I. Synthesis, characterisation and thermal stability of powders. *Biomaterials* 23, 1065–1072.
- Rehman, I., Bonfield, W., 1997. Characterization of hydroxyapatite and carbonated apatite by photo acoustic FTIR spectroscopy. *J. Mater. Sci. Mater. Med.* 8, 1–4. <https://doi.org/10.1023/a:1018570213546>
- Salem, E. ben, Nasr, S., Gravereau, P., Bouzouita, K., 2013. Synthesis and characterization of sodium and carbonate-co-substituted fluoroapatites. *J. Société Chim. Tunis.* 15, 201–210.
- Sandewi, N., 2017. Karakterisasi Nanohidroksiapatit dari Cangkang Telur Menggunakan Uji SEM dan XRD (Skripsi). UIN Alauddin Makassar, Makassar.
- Santos, M.H., Oliveira, M. de, Souza, L.P. de F., Mansur, H.S., Vasconcelos, W.L., 2004. Synthesis control and characterization of hydroxyapatite prepared by wet precipitation process. *Mater. Res.* 7, 625–630.
- Sari, R.I.F., 2012. Sintesis dan Karakterisasi Mikroskopik Nano-Komposit Hidroksiapatit/Kitosan (n-HA/CS) untuk Aplikasi Jaringan Tulang (Skripsi). Universitas Airlangga, Surabaya.

- Sarkar, P., Nicholson, P.S., 1996. Electrophoretic deposition (EPD): mechanisms, kinetics, and application to ceramics. *J. Am. Ceram. Soc.* 79, 1987–2002.
- Setiabudi, A., Hardian, R., Mudzakir, A., 2012. *Karakterisasi Material: Prinsip dan Aplikasinya dalam Penelitian Kimia*. UPI Press, Bandung.
- Smallwood, I.M., 1996. *Handbook of organic solvent properties*. Arnold, London.
- Sun, Y., 2012. *Electrophoretic Deposition of Organic-Inorganic Nanocomposites (Thesis)*. McMaster University, Hamilton, Ontario.
- Surmenev, R.A., Surmeneva, M.A., Grubova, I.Y., Chernozem, R.V., Krause, B., Baumbach, T., Loza, K., Epple, M., 2017. RF magnetron sputtering of a hydroxyapatite target: A comparison study on polytetrafluorethylene and titanium substrates. *Appl. Surf. Sci.* 414, 335–344. <https://doi.org/10.1016/j.apsusc.2017.04.090>
- Suryadi, 2011. *Sintesis dan Karakterisasi Biomaterial Hidroksiapatit dengan Proses Pengendapan Kimia Basah (Tesis)*. Universitas Indonesia, Depok.
- Tsui, Y.C., Doyle, C., Clyne, T.W., 1998. Plasma sprayed hydroxyapatite coatings on titanium substrates Part 1: Mechanical properties and residual stress levels. *Biomaterials* 19, 2015–2029.
- Wang, G., Sarkar, P., Nicholson, P.S., 1997. Influence of acidity on the electrostatic stability of alumina suspensions in ethanol. *J. Am. Ceram. Soc.* 80, 965–972.
- Wang, G., Wan, Y., Wang, T., Liu, Z., 2017. Corrosion behavior of titanium implant with different surface morphologies. *Procedia Manuf.* 10, 363–370.
- Wang, L., Nancollas, G.H., 2008. Calcium orthophosphates: crystallization and dissolution. *Chem. Rev.* 108, 4628–4669.
- Wang, Y.-Q., Jie, T.A.O., Ling, W., He, P.-T., Tao, W., 2008. HA coating on titanium with nanotubular anodized TiO₂ intermediate layer via electrochemical deposition. *Trans. Nonferrous Met. Soc. China* 18, 631–635.
- Wang, Z.C., Chen, F., Huang, L.M., Lin, C.J., 2005. Electrophoretic deposition and characterization of nano-sized hydroxyapatite particles. *J. Mater. Sci.* 40, 4955–4957. <http://dx.doi.org/10.1007/s10853-005-3871-x>
- Widegren, J., Bergström, L., 2000. The effect of acids and bases on the dispersion and stabilization of ceramic particles in ethanol. *J. Eur. Ceram. Soc.* 20, 659–665.
- Wong, P.K., Kwok, C.T., 2008. Corrosion of Nano-Hydroxyapatite Coating on Titanium Alloy Fabricated by Electrophoretic Deposition, in: *Medical*

Device Materials IV: Proceedings of the Materials & Processes for Medical Devices Conference 2007, September 23-27, 2007, Palm Desert, California, USA. ASM International, p. 213.

- Xiao, X.F., Liu, R.F., 2006. Effect of suspension stability on electrophoretic deposition of hydroxyapatite coatings. *Mater. Lett.* 60, 2627–2632.
- Xu, Q., Gabbitas, B., Matthews, S., Zhang, D., 2013. The development of porous titanium products using slip casting. *J. Mater. Process. Technol.* 213, 1440–1446. <https://doi.org/10.1016/j.jmatprotec.2013.03.011>
- Yao, F., LeGeros, J.P., LeGeros, R.Z., 2009. Simultaneous incorporation of carbonate and fluoride in synthetic apatites: Effect on crystallographic and physico-chemical properties. *Acta Biomater.* 5, 2169–2177.
- Yoruç, A., Koca, Y., 2009. Double Step Stirring: A Novel Method for Precipitation on Nano-sized Hydroxyapatite Powder. *Dig. J. Nanomater. Biostructures DJNB* 4.
- Zhang, S., 2016. *Biological and Biomedical Coatings Handbook: Applications*. CRC Press.
- Zhang, S., 2013. *Hydroxyapatite coatings for biomedical applications*. CRC press.
- Zhitomirsky, I., Gal-Or, L., 1997. Electrophoretic deposition of hydroxyapatite. *J. Mater. Sci. Mater. Med.* 8, 213–219.
- Zhu, X., Chen, J., Scheideler, L., Altebaeumer, T., Geis-Gerstorfer, J., Kern, D., 2004. Cellular reactions of osteoblasts to micron-and submicron-scale porous structures of titanium surfaces. *Cells Tissues Organs* 178, 13–22.