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DAFTAR PUSTAKA

Abdullah, Z.W. dan Dong, Y., 2019, Biodegradable and Water Resistant Poly(vinyl) Alcohol (PVA)/Starch (ST)/Glycerol (GL)/Halloysite Nanotube (HNT) Nanocomposite Films for Sustainable Food Packaging, *Frontiers in Materials*, 6, 58, 1–17.

Alonso-González, M., Felix, M., Romero, A., dan Pollet, E., 2025, Combining extrusion and hot compression molding for the development of bioplastics and nano-biocomposites based on rice bran, *Journal of Food Engineering*, 396, 112559.

Aranaz, I., Alcántara, A.R., Civera, M.C., Arias, C., Elorza, B., Cabalerro, A.H., dan Acosta, N., 2021, Chitosan: An Overview of Its Properties and Applications, *Polymers*, 13, 19, 3256.

Ardisasmita, M.S., 1996, Analisis Profil Permukaan Menggunakan Metoda Spektoskopi Inframerah Dengan Transformasi Fourier, *Prosiding Pertemuan dan Presentasi Ilmiah PPNY-BATAN: Book II. Nuclear Chemistry, Process Technology, and Radioactive Waste Processing and Environment*. *Pertemuan dan Presentasi llmiah PPNY-BATAN*, Yogyakarta, 110–116.

Aslam, M., Kalyar, M.A., dan Raza, Z.A., 2018, Polyvinyl alcohol: A review of research status and use of polyvinyl alcohol based nanocomposites, *Polymer Engineering & Science*, 58, 12, 2119–2132.

Balla, E., Daniilidis, V., Karlioti, G., dan Kalama, 2021, Poly(lactic Acid): A Versatile Biobased Polymer for the Future with Multifunctional Properties—From Monomer Synthesis, Polymerization Techniques and Molecular Weight Increase to PLA Applications, *Polymers*, 13, 11, 1822.

Belletti, G., Ronconi, G., Mazzanti, V., Buratti, E., Marchi, L., Sotgiu, G., Calosi, M., Mollica, F., dan Bertoldo, M., 2024, Morphology and Mechanical Properties of Poly(vinyl alcohol)/Poly(lactic acid) Blend Films Prepared from Aqueous Dispersions, *Macromolecular Materials and Engineering*, 309, 1, 2300237.

Ben, Z.Y., Samsudin, H. dan Yhaya, M.F., 2022, Glycerol: Its properties, polymer synthesis, and applications in starch based films, *European Polymer Journal*, 175, 111377.

Berthomieu, C. and Hienerwadel, R., 2009, Fourier transform infrared (FTIR) spectroscopy, *Photosynthesis Research*, 101, 2–3, 157–170.

Boldin, P., 2010, *Electric field measurements using scanning electron microscope*, Lappeenranta University of Technology, Finland.

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Bonilla, J., Fortunati, E., Vargas, M., Chiralt, A., dan Kenny, J.M., 2013, Effects of chitosan on the physicochemical and antimicrobial properties of PLA films, *Journal of Food Engineering*, 119, 2, 236–243.

Bonilla, J., Fortunati, E., Atarés, L., Chiralt, A., dan Kenny, J.M., 2014, Physical, structural and antimicrobial properties of poly vinyl alcohol–chitosan biodegradable films, *Food Hydrocolloids*, 35, 463–470.

Chandran, M., Tamilkolundu, S. dan Murugesan, C., 2020, Conversion of plastic waste to fuel, *Plastic Waste and Recycling*, Elsevier, 385–399.

Chang, C.P., Wang, I.C., dan Perng, Y.S., 2013, Enhanced Thermal Behavior, Mechanical Properties And UV Shielding Of Polylactic Acid (PLA) Composites Reinforced With Nanocrystalline Cellulose And Filled With Nanosericite, 47, 1–2, 111–123.

Chuaponpat, N., Ueda, T., Ishigami, A., Kurose, T., dan Ito, H., 2020, Morphology, Thermal and Mechanical Properties of Co-Continuous Porous Structure of PLA/PVA Blends by Phase Separation, *Polymers*, 12, 5, 1083.

Dewi, P.P.I.P., Widhiantara, I.G., dan Sandhika, I.M.G.S., 2023, Polimer Alam Sebagai Bahan Plastik Ramah Lingkungan: Kajian Pustaka, *Jurnal Kesehatan Terpadu*, 7, 2, 58–63.

Eslamian, M. dan Soltani-Kordshuli, F., 2018, Development of multiple-droplet drop-casting method for the fabrication of coatings and thin solid films, *Journal of Coatings Technology and Research*, 15, 2, 271–280.

Friedrich, D., 2022, Post-process hot-pressing of wood-polymer composites: Effects on physical properties, *Journal of Building Engineering*, 46, 103818.

Gaaz, T.S., Sulong, A.B., Akhtar, M.N., Kadhum, A.A.H., Mohamad, A.B., dan Al-Amiery, A.A., 2015, Properties and Applications of Polyvinyl Alcohol, Halloysite Nanotubes and Their Nanocomposites, *Molecules*, 20, 12, 22833–22847.

Garlotta, D., 2001, A Literature Review of Poly(Lactic Acid), *Journal of Polymers and the Environment*, 9, 2, 63–84.

Good, R.J., 1992, Contact angle, wetting, and adhesion: a critical review, *Journal of Adhesion Science and Technology*, 6, 12, 1269–1302.

Goy, R.C., Britto, D.D., dan Assis, O.B.G., 2009, A review of the antimicrobial activity of chitosan, *Polímeros*, 19, 3, 241–247.

Guzman-Puyol, S., Benítez, J.J., dan Heredia-Guerrero, J.A., 2022, Transparency of polymeric food packaging materials, *Food Research International*, 161, 111792.

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Hosseinnejad, M. dan Jafari, S.M., 2016, Evaluation of different factors affecting antimicrobial properties of chitosan, *International Journal of Biological Macromolecules*, 85, 467–475.

Imaduddin, F., Sastra, P., Raharjo, W.W., Wullandari, P., dan Ridwan, R., 2022 Effect of Holding Time and Temperature of Hot Pressing on Tensile Strength of Biodegradable Plastic Made of Carrageenan, *Mekanika: Majalah Ilmiah Mekanika*, 21, 2, 75.

Jamshidian, M., Tehrany, E.A., Imran, M., Jacquot, M., dan Desobry, S., 2010, Poly-Lactic Acid: Production, Applications, Nanocomposites, and Release Studies, *Comprehensive Reviews in Food Science and Food Safety*, 9, 5, 552–571.

Kaliyaraj Selva Kumar, A., Zhang, Y., Li, D., dan Compton, R.G., 2020, A mini-review: How reliable is the drop casting technique?, *Electrochemistry Communications*, 121, 106867.

Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia, 2024, SIPSN - Sistem Informasi Pengelolaan Sampah Nasional. *https://sipsn.kemenlh.go.id/sipsn/*, diakses 15 Desember 2025.

Khanifah, S., Legowo, A.D.K., Sholihun, S., dan Nugraheni, A.D., 2023, Physical Properties of Polyvinyl Alcohol/Chitosan Films with the Addition of Anthocyanin Extract from Butterfly Pea for Food Packaging Applications, *Indonesian Journal of Chemistry*, 23, 4, 1021.

Kim, H.H., Lee, M.S., dan Kang, C.G., 2013, The Fabrication of a Hybrid Material Using the Technique of Hot-Press Molding,"*Materials and Manufacturing Processes*, 28, 8, 892–898.

Kombongkila, O., Taunaumang, H., dan Tumimomor, F.R., 2024, Analisis Struktur Film Tipis Disperse Orange-3 Hasil FTIR, *Jurnal FisTa : Fisika dan Terapannya*, 5, 1, 45–50.

Kou, S., Peters, L.M., dan Mucalo, M.R., 2021, Chitosan: A review of sources and preparation methods, *International Journal of Biological Macromolecules*, 169, 85–94.

Leceta, I., Guerrero, P., dan De La Caba, K., 2013, Functional properties of chitosan-based films, *Carbohydrate Polymers*, 93, 1, 339–346.

Li, H. dan Huneault, M.A., 2011, Comparison of sorbitol and glycerol as plasticizers for thermoplastic starch in TPS/PLA blends, *Journal of Applied Polymer Science*, 119, 4, 2439–2448.

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Li, J. dan Zhuang, S., 2020, Antibacterial activity of chitosan and its derivatives and their interaction mechanism with bacteria: Current state and perspectives, *European Polymer Journal*, 138, 109984.

Li, Y., Liu, X., Lv, D., Hou, S., Yu, X., dan Han, Y., 2026, Formation of uniform large-area poly(vinyl alcohol) films by suppressing the coffee ring effect through slowing down the evaporation rate at the edges, *Polymer*, 343, 129375.

Lv, S., Liu, X., Gu, J., Jiang, Y., Tan, H., dan Zhang, Y., 2017 Effect of glycerol introduced into PLA based composites on the UV weathering behavior, *Construction and Building Materials*, 144, 525–531.

Nampoothiri, K. M., Nair, N.R., dan John, R.P., 2010, An overview of the recent developments in polylactide (PLA) research, *Bioresource Technology*, 101, 22, 8493–8501.

Mandru, A., Mane, J., dan Mandapati, R., 2023, A Review on UV-visible spectroscopy," *Journal Of Pharma Insights And Research*, 1, 2, 91–96.

Meng, X., Qiu, J., Zhang, B., Sakai, E., Zhang, L., Feng, H., dan Tang, H., 2025 Thermal properties, mechanical performance, and environmental degradation behavior of polylactic acid and polyvinyl alcohol blends, *Polymer Bulletin*, 82, 9, 3417–3437.

Nagarajan, V., Mohanty, A.K., dan Misra, M., 2016, Perspective on Polylactic Acid (PLA) based Sustainable Materials for Durable Applications: Focus on Toughness and Heat Resistance, *ACS Sustainable Chemistry & Engineering*, 4, 6, 2899–2916.

Nagarkar, R. dan Patel, J., 2019, Polyvinyl Alcohol: A Comprehensive Study, *Acta Scientific Pharmaceutical Sciences*, 3, 4, 34–44.

Ojeda, J.J. dan Dittrich, M., 2012, Fourier Transform Infrared Spectroscopy for Molecular Analysis of Microbial Cells, *Microbial Systems Biology: Methods and Protocols*. Totowa, NJ: Humana Press, 187–211.

Pagliaro, M., 2017, *Glycerol: The Renewable Platform Chemical*, Elsevier.

Picollo, M., Aceto, M., dan Vitorino, T., 2019, UV-Vis spectroscopy, *Physical Sciences Reviews*, 4, 4, 20180008.

Pudjiastuti, W., Listyarini, A., Arianita, A., dan Supeni, G., 2016, Sifat Mekanik Dan Sifat Barrier Campuran Polivinil Alkohol Dan Kitosan, *Jurnal Sains Materi Indonesia*, 17, 3, 97–101.

Rasitha, T.P., Krishna, N.G., Anandkumar, B., Vanithakumari, S.C., dan Philip, J., 2024, A comprehensive review on anticorrosive/antifouling

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superhydrophobic coatings: Fabrication, assessment, applications, challenges and future perspectives, *Advances in Colloid and Interface Science*, 324, 103090.

Rodrigues, M.O., Abrantes, N., Gonçalves, F.J.M., Nogueira, H., Marques, J.C., dan Gonçalves, A.M.M., 2019, Impacts of plastic products used in daily life on the environment and human health: What is known?, *Environmental Toxicology and Pharmacology*, 72, 103239.

Saini, T., Meena, J., Verma, V., Saini, S., dan Malik, R., 2025, Polyvinyl Alcohol: Recent Advances and Applications in Sustainable Materials, *Polymer-Plastics Technology and Materials*, 64, 6, 794–825.

Siracusa, V., Rocculi, P., Romani, S., dan Rosa, M.D., 2008, Biodegradable polymers for food packaging: a review, *Trends in Food Science & Technology*, 19, 12, 634–643.

Siriprom, W., Sangwaranatee, N., Herman, Chantarasunthon, K., Teanchai, K., dan Chamchoi, N., 2018, Characterization and analyzation of the poly (L-lactic acid) (PLA) films, *Materials Today: Proceedings*, 5, 7, 14803–14806.

Stuart, B.H., 2004, *Infrared Spectroscopy: Fundamentals and Applications*, Edisi ke-1, Wiley, Chichester, UK.

Zhang, H. dan Grinstaff, M.W., 2014, Recent Advances in Glycerol Polymers: Chemistry and Biomedical Applications, *Macromolecular Rapid Communications*, 35, 22, 1906–1924.

Zhao, T. dan Jiang, L., 2018, Contact angle measurement of natural materials, *Colloids and Surfaces B: Biointerfaces*, 161, 324–330.

Zhou, W., Apkarian, R.P., Wang, Z.L., dan Joy, D., 2007, Fundamentals of Scanning Electron Microscopy, *Scanning microscopy for nanotechnology: techniques and applications*, Springer, New York, 1–40.