

Daftar Pustaka

- Alfarraj, A., & Bruce Nauman, E. (2004). Super HIPS: Improved high impact polystyrene with two sources of rubber particles. *Polymer*, 45(25), 8435–8442. <https://doi.org/10.1016/j.polymer.2004.10.005>
- Alsabri, A., Tahir, F., & Al-Ghamdi, S. G. (2022). Environmental impacts of polypropylene (PP) production and prospects of its recycling in the GCC region. *Materials Today: Proceedings*, 56, 2245–2251. <https://doi.org/10.1016/j.matpr.2021.11.574>
- Arefin, A. M. E., Khatri, N. R., Kulkarni, N., & Egan, P. F. (2021). Polymer 3D Printing Review: Materials, Process, and Design Strategies for Medical Applications. *Polymers*, 13(9), 1499. <https://doi.org/10.3390/polym13091499>
- Arifvianto, B., Putra, A. T., Prayoga, B. T., Mahardika, M., & Suyitno. (2019). Characterization of The Wear Resistance of 3D Printed Polylactic-Acid (PLA) in Water and Bovine Serum. *IOP Conference Series: Materials Science and Engineering*, 547(1), 012011. <https://doi.org/10.1088/1757-899X/547/1/012011>
- Arifvianto, B., Satiti, B. E., Salim, U. A., Suyitno, Nuryanti, A., & Mahardika, M. (2022). Mechanical properties of the FFF sandwich-structured parts made of PLA/TPU multi-material. *Progress in Additive Manufacturing*, 7(6), 1213–1223. <https://doi.org/10.1007/s40964-022-00295-6>
- Arifvianto, B., Wirawan, Y. B., Salim, U. A., Suyitno, S., & Mahardika, M. (2021). Effects of extruder temperatures and raster orientations on mechanical properties of the FFF-processed polylactic-acid (PLA) material. *Rapid Prototyping Journal*, 27(10), 1761–1775. <https://doi.org/10.1108/RPJ-10-2019-0270>
- Balla, E., Daniilidis, V., Karlioti, G., Kalamas, T., Stefanidou, M., Bikiaris, N. D., Vlachopoulos, A., Koumentakou, I., & Bikiaris, D. N. (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.
<https://doi.org/10.3390/polym13111822>

Beşliu-Băncescu, I., Tamaşag, I., & Slătineanu, L. (2023). Influence of 3D Printing
Conditions on Some Physical–Mechanical and Technological Properties of PCL
Wood-Based Polymer Parts Manufactured by FDM. *Polymers*, 15(10), 2305.
<https://doi.org/10.3390/polym15102305>

Bhosale, K. K. (n.d.). *Mechanical Properties Evaluation of 3D Printed PETG and PCTG*
Polymers.

Bhushan, B., & Caspers, M. (2017). An overview of additive manufacturing (3D printing)
for microfabrication. *Microsystem Technologies*, 23(4), 1117–1124.
<https://doi.org/10.1007/s00542-017-3342-8>

Braniewicz-Steinmetz, E., Sawicki, J., & Byczkowska, P. (2021). The Influence of 3D
Printing Parameters on Adhesion between Polylactic Acid (PLA) and
Thermoplastic Polyurethane (TPU). *Materials*, 14(21), 6464.
<https://doi.org/10.3390/ma14216464>

Braniewicz-Steinmetz, E., Vergara, R. D. V., Buzalski, V. H., & Sawicki, J. (2022). Study
of the adhesion between TPU and PLA in multi-material 3D printing. *Journal of*
Achievements in Materials and Manufacturing Engineering, 115(2).
<https://doi.org/10.5604/01.3001.0016.2672>

Brion, D. A. J., Shen, M., & Pattinson, S. W. (2022). Automated recognition and correction
of warp deformation in extrusion additive manufacturing. *Additive Manufacturing*,
56, 102838. <https://doi.org/10.1016/j.addma.2022.102838>

- Capricho, J. C., Prasad, K., Hameed, N., Nikzad, M., & Salim, N. (2022). Upcycling Polystyrene. *Polymers*, *14*(22), 5010. <https://doi.org/10.3390/polym14225010>
- Chohan, J. S., Singh, R., Boparai, K. S., Penna, R., & Fraternali, F. (2017). Dimensional accuracy analysis of coupled fused deposition modeling and vapour smoothing operations for biomedical applications. *Composites Part B: Engineering*, *117*, 138–149. <https://doi.org/10.1016/j.compositesb.2017.02.045>
- Dey, A., Roan Eagle, I. N., & Yodo, N. (2021). A Review on Filament Materials for Fused Filament Fabrication. *Journal of Manufacturing and Materials Processing*, *5*(3), 69. <https://doi.org/10.3390/jmmp5030069>
- Dhagat, V. M., & Thamma, R. (n.d.). Optimizing Thermoforming of High Impact Polystyrene (HIPS) Trays by Design of Experiments (DOE) Methodologies. *International Journal of Engineering Research*, *6*(04).
- Fang, L., Yan, Y., Agarwal, O., Yao, S., Seppala, J. E., & Kang, S. H. (2020). Effects of Environmental Temperature and Humidity on the Geometry and Strength of Polycarbonate Specimens Prepared by Fused Filament Fabrication. *Materials*, *13*(19), 4414. <https://doi.org/10.3390/ma13194414>
- Fico, D., Rizzo, D., Casciaro, R., & Corcione, C. E. (2022). A Review of Polymer-Based Materials for Fused Filament Fabrication (FFF): Focus on Sustainability and Recycled Materials. In *Polymers* (Vol. 14, Issue 3). <https://doi.org/10.3390/polym14030465>
- Fico, D., Rizzo, D., Casciaro, R., & Esposito Corcione, C. (2022). A Review of Polymer-Based Materials for Fused Filament Fabrication (FFF): Focus on Sustainability and Recycled Materials. *Polymers*, *14*(3), 465. <https://doi.org/10.3390/polym14030465>

- Folino, A., Karageorgiou, A., Calabrò, P. S., & Komilis, D. (2020). Biodegradation of Wasted Bioplastics in Natural and Industrial Environments: A Review. *Sustainability*, *12*(15), 6030. <https://doi.org/10.3390/su12156030>
- Gade, S., Vagge, S., & Rathod, M. (2023). A Review on Additive Manufacturing – Methods, Materials, and its Associated Failures. *Advances in Science and Technology Research Journal*, *17*(3), Article 3. <https://doi.org/10.12913/22998624/163001>
- Gao, X., Qi, S., Kuang, X., Su, Y., Li, J., & Wang, D. (2021). Fused filament fabrication of polymer materials: A review of interlayer bond. *Additive Manufacturing*, *37*, 101658. <https://doi.org/10.1016/j.addma.2020.101658>
- Gardan, J. (2016). Additive manufacturing technologies: State of the art and trends. *International Journal of Production Research*, *54*(10), 3118–3132. <https://doi.org/10.1080/00207543.2015.1115909>
- Gholamipour-Shirazi, A., Kamlow, M.-A., T. Norton, I., & Mills, T. (2020). How to Formulate for Structure and Texture via Medium of Additive Manufacturing-A Review. *Foods*, *9*(4), 497. <https://doi.org/10.3390/foods9040497>
- Golhin, A. P., Tonello, R., Frisvad, J. R., Grammatikos, S., & Strandlie, A. (2023). Surface roughness of as-printed polymers: A comprehensive review. *The International Journal of Advanced Manufacturing Technology*, *127*(3–4), 987–1043. <https://doi.org/10.1007/s00170-023-11566-z>
- Han, S., Park, J., & Kim, J. (2023). Build Plate Heating and Cooling Technique Using Peltier Element for Fused Filament Fabrication. *Electronics*, *12*(8), 1918. <https://doi.org/10.3390/electronics12081918>

- Hao, B., & Lin, G. (2020). 3D Printing Technology and Its Application in Industrial Manufacturing. *IOP Conference Series: Materials Science and Engineering*, 782(2), 022065. <https://doi.org/10.1088/1757-899X/782/2/022065>
- Holcomb, G., Caldona, E. B., Cheng, X., & Advincula, R. C. (2022). On the optimized 3D printing and post-processing of PETG materials. *MRS Communications*, 12(3), 381–387. <https://doi.org/10.1557/s43579-022-00188-3>
- Iftekar, S. F., Aabid, A., Amir, A., & Baig, M. (2023). Advancements and Limitations in 3D Printing Materials and Technologies: A Critical Review. *Polymers*, 15(11), 2519. <https://doi.org/10.3390/polym15112519>
- Javaid, M., Haleem, A., Singh, R. P., Suman, R., & Gonzalez, E. S. (2022). Understanding the adoption of Industry 4.0 technologies in improving environmental sustainability. *Sustainable Operations and Computers*, 3, 203–217. <https://doi.org/10.1016/j.susoc.2022.01.008>
- Jayswal, A., & Adanur, S. (2022). An overview of additive manufacturing methods, materials, and applications for flexible structures. *Journal of Industrial Textiles*, 52, 152808372211146. <https://doi.org/10.1177/15280837221114638>
- Joseph, T. M., Kallingal, A., Suresh, A. M., Mahapatra, D. K., Hasanin, M. S., Haponiuk, J., & Thomas, S. (2023). 3D printing of polylactic acid: Recent advances and opportunities. *The International Journal of Advanced Manufacturing Technology*, 125(3–4), 1015–1035. <https://doi.org/10.1007/s00170-022-10795-y>
- Kamat, A. M., & Pei, Y. (2019). An analytical method to predict and compensate for residual stress-induced deformation in overhanging regions of internal channels fabricated using powder bed fusion. *Additive Manufacturing*, 29, 100796. <https://doi.org/10.1016/j.addma.2019.100796>

- Khaliq, J., Gurrapu, D. R., & Elfakhri, F. (2023). Effects of Infill Line Multiplier and Patterns on Mechanical Properties of Lightweight and Resilient Hollow Section Products Manufactured Using Fused Filament Fabrication. *Polymers*, 15(12), 2585. <https://doi.org/10.3390/polym15122585>
- Kujawa, M. (n.d.). *The influence of first layer parameters on adhesion between the 3D printer's glass bed and ABS.*
- Kumar, R., Sadeghi, K., Jang, J., & Seo, J. (2023). Mechanical, chemical, and bio-recycling of biodegradable plastics: A review. *Science of The Total Environment*, 882, 163446. <https://doi.org/10.1016/j.scitotenv.2023.163446>
- Lin, T. A., Lin, J.-H., & Bao, L. (2021). A study of reusability assessment and thermal behaviors for thermoplastic composite materials after melting process: Polypropylene/ thermoplastic polyurethane blends. *Journal of Cleaner Production*, 279, 123473. <https://doi.org/10.1016/j.jclepro.2020.123473>
- Loskot, J., Jezbera, D., Loskot, R., Bušovský, D., Barylski, A., Glowka, K., Duda, P., Aniołek, K., Voglová, K., & Zubko, M. (2023). Influence of print speed on the microstructure, morphology, and mechanical properties of 3D-printed PETG products. *Polymer Testing*, 123, 108055. <https://doi.org/10.1016/j.polymeresting.2023.108055>
- Luna, C. B. B., Araújo, E. M., Siqueira, D. D., Morais, D. D. D. S., Filho, E. A. D. S., & Fook, M. V. L. (2020). Incorporation of a recycled rubber compound from the shoe industry in polystyrene: Effect of SBS compatibilizer content. *Journal of Elastomers & Plastics*, 52(1), 3–28. <https://doi.org/10.1177/0095244318819213>
- Messimer, S. L., Patterson, A. E., Muna, N., Deshpande, A. P., & Rocha Pereira, T. (2018). Characterization and Processing Behavior of Heated Aluminum-Polycarbonate Composite Build Plates for the FDM Additive Manufacturing Process. *Journal of*

Manufacturing and Materials Processing, 2(1), 12.

<https://doi.org/10.3390/jmmp2010012>

Mikula, K., Skrzypczak, D., Izydorczyk, G., Warchoń, J., Moustakas, K., Chojnacka, K., & Witek-Krowiak, A. (2021). 3D printing filament as a second life of waste plastics—A review. *Environmental Science and Pollution Research*, 28(10), 12321–12333. <https://doi.org/10.1007/s11356-020-10657-8>

Mohamed, O. A., Masood, S. H., & Bhowmik, J. L. (2015). Optimization of fused deposition modeling process parameters: A review of current research and future prospects. *Advances in Manufacturing*, 3(1), 42–53.

<https://doi.org/10.1007/s40436-014-0097-7>

Moshood, T. D., Nawanir, G., Mahmud, F., Mohamad, F., Ahmad, M. H., & AbdulGhani, A. (2022). Biodegradable plastic applications towards sustainability: A recent innovations in the green product. *Cleaner Engineering and Technology*, 6, 100404.

<https://doi.org/10.1016/j.clet.2022.100404>

Nazan, M. A., Ramli, F. R., Alkahari, M. R., Abdullah, M. A., & Sudin, M. N. (2017). An exploration of polymer adhesion on 3D printer bed. *IOP Conference Series: Materials Science and Engineering*, 210, 012062. <https://doi.org/10.1088/1757-899X/210/1/012062>

Ngo, T. D., Kashani, A., Imbalzano, G., Nguyen, K. T. Q., & Hui, D. (2018). Additive manufacturing (3D printing): A review of materials, methods, applications and challenges. *Composites Part B: Engineering*, 143, 172–196.

<https://doi.org/10.1016/j.compositesb.2018.02.012>

Nuraiti Tengku Izhar, T., & Voon May, Y. (2020). Life Cycle Analysis of Plastic Packaging. *IOP Conference Series: Earth and Environmental Science*, 616(1), 012036.

<https://doi.org/10.1088/1755-1315/616/1/012036>

- Pal, A. K., Mohanty, A. K., & Misra, M. (2021). Additive manufacturing technology of polymeric materials for customized products: Recent developments and future prospective. *RSC Advances*, *11*(58), 36398–36438. <https://doi.org/10.1039/D1RA04060J>
- Pandzic, A., & Hodzic, D. (2022). Tensile Mechanical Properties Comparison of PETG, ASA and PLA-Strongman FDM Printed Materials With and Without Infill Structure. In B. Katalinic (Ed.), *DAAAM Proceedings* (1st ed., Vol. 1, pp. 0221–0230). DAAAM International Vienna. <https://doi.org/10.2507/33rd.daaam.proceedings.031>
- Parandoush, P., & Lin, D. (2017). A review on additive manufacturing of polymer-fiber composites. *Composite Structures*, *182*, 36–53. <https://doi.org/10.1016/j.compstruct.2017.08.088>
- Patel, K. S., Shah, D. B., Joshi, S. J., & Patel, K. M. (2023). Developments in 3D printing of carbon fiber reinforced polymer containing recycled plastic waste: A review. *Cleaner Materials*, *9*, 100207. <https://doi.org/10.1016/j.clema.2023.100207>
- Peterson, A. M. (2019). Review of acrylonitrile butadiene styrene in fused filament fabrication: A plastics engineering-focused perspective. *Additive Manufacturing*, *27*, 363–371. <https://doi.org/10.1016/j.addma.2019.03.030>
- Płaczek, D. (2019a). Adhesion between the bed and component manufactured in FDM technology using selected types of intermediary materials. *MATEC Web of Conferences*, *290*, 01012. <https://doi.org/10.1051/mateconf/201929001012>
- Płaczek, D. (2019b). Adhesion between the bed and component manufactured in FDM technology using selected types of intermediary materials. *MATEC Web of Conferences*, *290*, 01012. <https://doi.org/10.1051/mateconf/201929001012>

- Pratama, J., Cahyono, S. I., Suyitno, S., Muflikhun, M. A., Salim, U. A., Mahardika, M., & Arifvianto, B. (2021). A Review on Reinforcement Methods for Polymeric Materials Processed Using Fused Filament Fabrication (FFF). *Polymers*, *13*(22), 4022. <https://doi.org/10.3390/polym13224022>
- Puspitasari, E., Hadi, S., & Hartono, Moh. (2021). Effect of Material Type, Temperature, and Layer Thickness on PLA and PETG from 3D Printer Products by Tensile Test: *Proceedings of the 4th International Conference on Applied Science and Technology on Engineering Science*, 572–580. <https://doi.org/10.5220/0010949300003260>
- Rayna, T., & Striukova, L. (2016). From rapid prototyping to home fabrication: How 3D printing is changing business model innovation. *Technological Forecasting and Social Change*, *102*, 214–224. <https://doi.org/10.1016/j.techfore.2015.07.023>
- Ribba, L., Lopretti, M., Montes De Oca-Vásquez, G., Batista, D., Goyanes, S., & Vega-Baudrit, J. R. (2022). Biodegradable plastics in aquatic ecosystems: Latest findings, research gaps, and recommendations. *Environmental Research Letters*, *17*(3), 033003. <https://doi.org/10.1088/1748-9326/ac548d>
- Roschli, A., Post, B. K., Atkins, C., Stevens, A. G., Chesser, P., & Zaloudek, K. (n.d.). *Build Plate Design for Extrusion-Based Additive Manufacturing*.
- Rouf, S., Malik, A., Singh, N., Raina, A., Naveed, N., Siddiqui, M. I. H., & Haq, M. I. U. (2022). Additive manufacturing technologies: Industrial and medical applications. *Sustainable Operations and Computers*, *3*, 258–274. <https://doi.org/10.1016/j.susoc.2022.05.001>
- Samir, A., Ashour, F. H., Hakim, A. A. A., & Bassyouni, M. (2022). Recent advances in biodegradable polymers for sustainable applications. *Npj Materials Degradation*, *6*(1), 68. <https://doi.org/10.1038/s41529-022-00277-7>

- Santana, R. M. C., & Manrich, S. (2003). Studies on morphology and mechanical properties of PP/HIPS blends from postconsumer plastic waste. *Journal of Applied Polymer Science*, 87(5), 747–751. <https://doi.org/10.1002/app.11404>
- Santoso, B. W. B., Sugijopranto, A., Arifvianto, B., & Mahardika, M. (n.d.). *Effect of Build-plate Temperature on the Layer Adhesion Strength of Polypropylene Prepared by Using Fused Filament Fabrication*.
- Sava, Ștefan-D., Lohan, N.-M., Pricop, B., Popa, M., Cimpoșu, N., Comăneci, R.-I., & Bujoreanu, L.-G. (2023). On the Thermomechanical Behavior of 3D-Printed Specimens of Shape Memory R-PETG. *Polymers*, 15(10), 2378. <https://doi.org/10.3390/polym15102378>
- Sepahi, M. T., Abusalma, H., Jovanovic, V., & Eisazadeh, H. (2021). Mechanical Properties of 3D-Printed Parts Made of Polyethylene Terephthalate Glycol. *Journal of Materials Engineering and Performance*, 30(9), 6851–6861. <https://doi.org/10.1007/s11665-021-06032-4>
- Silva, R. R. A., Marques, C. S., Arruda, T. R., Teixeira, S. C., & De Oliveira, T. V. (2023). Biodegradation of Polymers: Stages, Measurement, Standards and Prospects. *Macromol*, 3(2), 371–399. <https://doi.org/10.3390/macromol3020023>
- Siracusa, V., & Blanco, I. (2020). Bio-Polyethylene (Bio-PE), Bio-Polypropylene (Bio-PP) and Bio-Poly(ethylene terephthalate) (Bio-PET): Recent Developments in Bio-Based Polymers Analogous to Petroleum-Derived Ones for Packaging and Engineering Applications. *Polymers*, 12(8), 1641. <https://doi.org/10.3390/polym12081641>
- Spoerk, M., Gonzalez-Gutierrez, J., Lichal, C., Cajner, H., Berger, G. R., Schuschnigg, S., Cardon, L., & Holzer, C. (2018). Optimisation of the adhesion of polypropylene-

based materials during extrusion-based additive manufacturing. *Polymers*, 10(5).

<https://doi.org/10.3390/polym10050490>

Thakur, S., & Hu, J. (2017). Polyurethane: A Shape Memory Polymer (SMP). In F. Yilmaz (Ed.), *Aspects of Polyurethanes*. InTech. <https://doi.org/10.5772/intechopen.69992>

Vaes, D., & Van Puyvelde, P. (2021). Semi-crystalline feedstock for filament-based 3D printing of polymers. *Progress in Polymer Science*, 118, 101411. <https://doi.org/10.1016/j.progpolymsci.2021.101411>

Wong, K. V., & Hernandez, A. (2012). A Review of Additive Manufacturing. *ISRN Mechanical Engineering*, 2012, 1–10. <https://doi.org/10.5402/2012/208760>

Zarna, C., Chinga-Carrasco, G., & Echtermeyer, A. T. (2023). Bending properties and numerical modelling of cellular panels manufactured from wood fibre/PLA biocomposite by 3D printing. *Composites Part A: Applied Science and Manufacturing*, 165, 107368. <https://doi.org/10.1016/j.compositesa.2022.107368>