

DAFTAR PUSTAKA

- [1] T. Allami, A. Alamiery, M. H. Nassir, and A. H. Kadhum, "Investigating physio-thermo-mechanical properties of polyurethane and thermoplastics nanocomposite in various applications," *Polymers (Basel)*., vol. 13, no. 15, pp. 1–24, 2021, doi: 10.3390/polym13152467.
- [2] J. Huang, X. Lu, G. Zhang, and J. Qu, "Study on the rheological, thermal and mechanical properties of thermoplastic polyurethane/poly (butylene terephthalate) blends," *Polym. Test.*, vol. 36, pp. 69–74, 2014, doi: 10.1016/j.polymertesting.2014.03.006.
- [3] V. Betingyte, K. Žukienė, V. Jankauskaite, D. Milašienė, K. V. Mickus, and A. Gulbinienė, "Influence of calcium carbonate fillers on the properties of recycled poly(ε-caprolactone) based thermoplastic polyurethane," *Medžiagotyra*, vol. 18, no. 3, pp. 243–249, 2012, doi: 10.5755/j01.ms.18.3.2433.
- [4] P. D. and P. P. Khansinee Longkaew, Alain Gibaud, Wasan Tissanan, "Spherical CaCO₃: Synthesis, Characterization, Surface Modification and Efficacy as a Reinforcing Filler in Natural Rubber Composites," 2023.
- [5] A. Pradittham, N. Charitngam, S. Puttajan, D. Atong, and C. Pechyen, "Surface modified CaCO₃ by palmitic acid as nucleating agents for polypropylene film: Mechanical, thermal and physical properties," *Energy Procedia*, vol. 56, no. C, pp. 264–273, 2014, doi: 10.1016/j.egypro.2014.07.157.
- [6] L. Diana, A. G. Safitra, and M. N. Ariansyah, "Analisis Kekuatan Tarik pada Material Komposit dengan Serat Penguat Polimer," *J. Engine Energi, Manufaktur dan Mater.*, vol. 4, no. 2, pp. 59–67, 2020.
- [7] S. Puspitasari, M. Chalid, A. Ferdian Falaah, and A. Cifriadi, "Karet Alam Hidrogenasi Sebagai Matriks Polimer Alternatif Pada Komposit Elastomer Bantalan Jembatan," *J. Penelit. Karet*, vol. 41, no. 2, pp. 139–152, 2023, doi: 10.22302/ppk.jpk.v41i2.872.
- [8] C. P. Buckley, C. Prisacariu, and C. Martin, "Elasticity and inelasticity of thermoplastic polyurethane elastomers: Sensitivity to chemical and physical structure," *Polymer (Guildf)*., vol. 51, no. 14, pp. 3213–3224, 2010, doi: 10.1016/j.polymer.2010.04.069.
- [9] T. A. Lin, J. H. Lin, and L. Bao, "Polypropylene/thermoplastic polyurethane blends: Mechanical characterizations, recyclability and sustainable development of thermoplastic materials," *J. Mater. Res. Technol.*, vol. 9, no. 3, pp. 5304–5312, 2020, doi: 10.1016/j.jmrt.2020.03.056.

- [10] M. Takano, K. Takamatsu, and H. Saito, “High-Strength Heat-Elongated Thermoplastic Polyurethane Elastomer Consisting of a Stacked Domain Structure,” *Polymers (Basel)*, vol. 14, no. 7, 2022, doi: 10.3390/polym14071470.
- [11] D. Mardiyana, D. I. Sumarno, M. A. S. Yudono, and L. A. Islami, “Kajian Kelayakan Sifat Mekanik Produk 3D Printing FDM Berfilamen eFlex TPU-95A untuk Aplikasi Polisi Tidur,” *J. Rekayasa Mesin*, vol. 19, no. 3, pp. 457–468, 2024, doi: 10.32497/jrm.v19i3.5966.
- [12] A. Haryono, E. Triwulandari, D. Sondari, A. Randy, and A. M. Ridwanuloh, “Control of Biodegradability of Polyurethane Foam Based on Palm Oil by Ratio of Soft Segment on the Polymer Backbone,” *J. Biotek*, pp. 11–17, 2005.
- [13] Y. Peng, M. Musah, B. Via, and X. Wang, “Calcium Carbonate Particles Filled Homopolymer Polypropylene at Different Loading Levels : Mechanical Properties Characterization and Materials Failure Analysis,” 2021.
- [14] C. Webb, K. Qi, L. Anguilano, and X. Schmidt, “Results in Materials Mechanical and environmental evaluation of ground calcium carbonate (CaCO_3) filled polypropylene composites as a sustainable alternative to virgin polypropylene,” *Results Mater.*, vol. 22, no. February, p. 100562, 2024, doi: 10.1016/j.rinma.2024.100562.
- [15] P. M. A. Noah, F. B. Ebanda, L.-M. A. Ohandja, and A. Atangana, “Study of the Relative Variations of the Thermal Properties and Crystallinity of Blends (PP/EPR)/Calcium Carbonate,” *Model. Numer. Simul. Mater. Sci.*, vol. 11, no. 01, pp. 19–33, 2021, doi: 10.4236/mnsms.2021.111002.
- [16] A. H. Laksana and M. B. Waluyo, “Terhadap Kekuatan Tekuk Dan Water Absorption Komposit Hybrid -Poliester,” *Indones. J. Mech. Eng. Vocat.*, vol. 1, no. 2, 2021.
- [17] G. Mobley, “Effect of Calciu Carbonate on the Abrasive Wear of Melt Processing Equipment in Filled system,” vol. 8, no. 4, pp. 1350–1356, 2002.
- [18] G. D. Ribeiro *et al.*, “Physical-Mechanical Properties of Chartwell® Coupling Agent-Treated Calcium Carbonate and Silica-Reinforced Hybrid Natural Rubber Composites,” *Crystals*, vol. 12, no. 11, 2022, doi: 10.3390/cryst12111552.
- [19] Y. W. Leong, M. B. A. Bakar, Z. A. M. Ishak, A. Ariffin, and B. Pukanszky, “Leong_et_al-2004-Journal_of_Applied_Polymer_Science,” 2003.
- [20] N. A. Mohamad Aini, N. Othman, M. H. Hussin, K. Sahakaro, and N. Hayeemasae, “Lignin as Alternative Reinforcing Filler in the Rubber Industry: A Review,” *Front. Mater.*, vol. 6, no. January, 2020, doi: 10.3389/fmats.2019.00329.
- [21] I. Mikulionok, O. Gavva, and L. Kryvoplias-Volodina, “Modeling of melting process in a single screw extruder for polymer processing,” *Eastern-European J. Enterp. Technol.*, vol. 2, no. 5–92, pp. 4–11, 2018, doi: 10.15587/1729-

4061.2018.127583.

- [22] Y. D. Zhu *et al.*, “Dispersion characterisation of CaCO₃ particles in PP/CaCO₃ composites,” *Compos. Part A Appl. Sci. Manuf.*, vol. 60, pp. 38–43, 2014, doi: 10.1016/j.compositesa.2014.01.012.
- [23] M. E. C. Nugroho and R. Tutuka, “Pengaruh Kecepatan Screw, Feeder, dan Temperatur Pemanas terhadap Proses Ekstrusi Biji Plastik Daur Ulang Menggunakan Mesin Extruder,” *J. Penelit. Inov.*, vol. 5, no. 2, pp. 1467–1474, 2025, doi: 10.54082/jupin.1524.
- [24] T. Zhang, S. J. Lee, Y. H. Yoo, K. H. Park, and H. J. Kang, “Compression molding of thermoplastic polyurethane foam sheets with beads expanded by supercritical co₂ foaming,” *Polymers (Basel)*, vol. 13, no. 4, pp. 1–15, 2021, doi: 10.3390/polym13040656.
- [25] F. Paundra *et al.*, “Analisis Pengaruh Temperatur Terhadap Kekuatan Tarik dan Tekuk pada Proses Hot Pressing Komposit Hybrid Serat Bambu dan Serat Daun Nanas Bermatriks HDPE,” *J-Proteksion J. Kaji. Ilm. dan Teknol. Tek. Mesin*, vol. 8, no. 2, pp. 91–99, 2024, doi: 10.32528/jp.v8i2.1123.
- [26] S. Chuayjuljit and S. Ketthongmongkol, “Properties and morphology of injection- and compression-molded thermoplastic polyurethane/polypropylene-graft-maleic anhydride/wollastonite composites,” *J. Thermoplast. Compos. Mater.*, vol. 26, no. 7, pp. 923–935, 2013, doi: 10.1177/0892705711431104.
- [27] I. A. Pahlawan, A. Hesthi, P. Ningtyas, and R. C. Muhammadin, “E-ISSN : 2746-0835 Volume 5 No 3 (2024) JUSTI (Jurnal Sistem Dan Teknik Industri) PERANCANGAN DAN PEMBANGUNAN UNIVERSAL TESTING MACHINE SKALA LABORATORIUM EKONOMIS UNTUK PENGUJIAN TARIK DAN TEKAN MATERIAL DENGAN MENGGUNAKAN METODE REVERSE ENGINEERING,” vol. 5, no. 3, pp. 291–298, 2024.
- [28] B. Robertson, I. M. Robinson, D. Stocks, and R. L. Thompson, “Shear processing maps: a new design guide for melt processors,” *Plast. Rubber Compos.*, vol. 51, no. 5, pp. 217–239, 2022, doi: 10.1080/14658011.2020.1796082.
- [29] W. Xian *et al.*, “Rheological and mechanical properties of thermoplastic polyurethane elastomer derived from CO₂ copolymer diol,” *J. Appl. Polym. Sci.*, vol. 135, no. 11, pp. 1–8, 2018, doi: 10.1002/app.45974.
- [30] I. Blanco and V. Siracusa, “The use of thermal techniques in the characterization of bio-sourced polymers,” *Materials (Basel)*, vol. 14, no. 7, 2021, doi: 10.3390/ma14071686.
- [31] Azhari, *Karakteristik atermal Material Menggunakan Differential Scanning Calorimetry (DSC)*, vol. 8, no. 5. PT Nasya Expanding Management, 2022.
- [32] M. C. Righetti, “Crystallization of polymers investigated by temperature-modulated DSC,” *Materials (Basel)*, vol. 10, no. 4, 2017, doi:

10.3390/ma10040442.

- [33] N. H. Fithriyah, "Review on Hard Segment Influences on the Physical Properties of Thermoplastic Polyurethanes," pp. 47–54, 2012.
- [34] A. D. Saputra, M. A. Marsha, and E. Kustiyah, "Pengaruh penambahan CaCO_3 terhadap mekanikal properti pada pembuatan pipa HDPE," *Dyn. Eng. Syst. Innov. Appl.*, vol. 1, no. 1, pp. 28–41, 2024, doi: 10.61511/dynames.v1i1.736.
- [35] H. Behniafar and S. Azadeh, "Transparent and flexible films of thermoplastic polyurethanes incorporated by nano- SiO_2 modified with 4,4'-methylene diphenyl diisocyanate," *Int. J. Polym. Mater. Polym. Biomater.*, vol. 64, no. 1, pp. 1–6, 2015, doi: 10.1080/00914037.2014.886237.
- [36] J.-L. Pan, "Double-Yielding Behavior in Injection-Molded Polycarbonate/High-Density Polyethylene/Ethylene-Vinyl Acetate Copolymer Blends," *J. Appl. Polym. Sci.*, vol. 116, no. 5, pp. 2658–2667, 2010, doi: DOI 10.1002/app.27569.
- [37] S. Kherici, D. Benouali, and C. Nouredine, "The Effects of Calcium Carbonate Filler on HDPE Pipe," *Adv. Sci. Technol. Res. J.*, vol. 16, no. 3, pp. 213–218, 2022, doi: 10.12913/22998624/149606.
- [38] J. L. Gadley, R. J. Andrade, and J. M. Maia, "Effect of Soft-to-Hard Segment Ratio on Viscoelastic Behavior of Model Thermoplastic Polyurethanes during Phase Transitions," *Macromol. Mater. Eng.*, vol. 301, no. 8, pp. 953–963, 2016, doi: 10.1002/mame.201500450.
- [39] M. C. G. Rocha, A. H. M. F. T. Silva, F. M. B. Coutinho, and A. L. N. Silva, "Study of composites based on polypropylene and calcium carbonate by experimental design," *Polym. Test.*, vol. 24, no. 8, pp. 1049–1053, 2005, doi: 10.1016/j.polymertesting.2005.05.008.
- [40] Sudirman, Aloma, I. Gunawan, A. Handayani, and E. Hertinvyana, "Sintesis Dan Karakterisasi Komposit Polipropilena/Serbuk Kayu Gergaji," *J. Sains Mater. Indones.*, vol. 4, no. 1, pp. 20–25, 2002.
- [41] I. Kotter, W. Grellmann, T. Koch, and S. Seidler, "Morphology-toughness correlation of polypropylene/ethylene-propylene rubber blends," *J. Appl. Polym. Sci.*, vol. 100, no. 4, pp. 3364–3371, 2006, doi: 10.1002/app.23708.
- [42] Y. H. Chang and D. C. Bonner, "Sorption of solutes by poly(ethylene oxide). II. Benzene at finite concentrations," *J. Appl. Polym. Sci.*, vol. 19, no. 9, pp. 2457–2472, 1975, doi: 10.1002/app.1975.070190909.
- [43] M. Zhai and G. B. McKenna, "Elastic modulus and surface tension of a polyurethane rubber in nanometer thick films," *Polymer (Guildf.)*, vol. 55, no. 11, pp. 2725–2733, 2014, doi: 10.1016/j.polymer.2014.04.010.