

DAFTAR PUSTAKA

- [1] A. Boschi *dkk.*, “Beyond Microbial Biodegradation: Plastic Degradation by *Galleria mellonella*,” *J Polym Environ*, vol. 32, no. 5, hlm. 2158–2177, Mei 2024, doi: 10.1007/s10924-023-03084-6.
- [2] S. S. Ali *dkk.*, “Degradation of Conventional Plastic Wastes in The Environment: A Review on Current Status of Knowledge and Future Perspectives of Disposal,” 1 Juni 2021, *Elsevier B.V.* doi: 10.1016/j.scitotenv.2020.144719.
- [3] Plastics Europe, “Plastics – The Fast Facts 2024.” Diakses: 20 Juni 2025. [Daring]. Tersedia pada: <https://plasticseurope.org/knowledge-hub/plastics-the-fast-facts-2024/>
- [4] S. Banerjee, P. Singh, V. P. Singh, dan S. Samanta, “Influence of the Reprocessing Cycles on the Properties of Polypropylene,” 2023. [Daring]. Tersedia pada: www.ijst.com
- [5] P. Gijsman dan R. Fiorio, “Long term thermo-oxidative degradation and stabilization of polypropylene (PP) and the implications for its recyclability,” 1 Februari 2023, *Elsevier Ltd.* doi: 10.1016/j.polymdegradstab.2023.110260.
- [6] N. S. Allen dan M. Edge, “Perspectives on additives for polymers. 1. Aspects of stabilization,” *Journal of Vinyl and Additive Technology*, vol. 27, no. 1, hlm. 5–27, Feb 2021, doi: 10.1002/vnl.21807.
- [7] H. Xia *dkk.*, “Natural Antioxidant from Bamboo Leaves for the Processing Stability of Polypropylene,” *J Therm Anal Calorim*, vol. 146, no. 4, hlm. 1657–1665, Nov 2020, doi: 10.1007/s10973-020-10115-0.
- [8] J. Qi *dkk.*, “Nanjing Advanced Thermoplastic Composites Co, Ltd, Nanjing 210034 ; 3,” vol. 36, no. 1, 2022.
- [9] E. Blázquez-Blázquez, R. Barranco-García, T. M. Díez-Rodríguez, P. Posadas, E. Pérez, dan M. L. Cerrada, “Improvement of Thermal Protection in Recycled Polyolefins Through Hybrid Mesoporous Silica–Antioxidant Particles,” *Recycling*, vol. 9, no. 1, Feb 2024, doi: 10.3390/recycling9010003.
- [10] N. Meides *dkk.*, “Quantifying the fragmentation of polypropylene upon exposure to accelerated weathering,” *Microplastics and Nanoplastics*, vol. 2, no. 1, Sep 2022, doi: 10.1186/s43591-022-00042-2.

- [11] A. P. Sari, “Semua Tentang Polypropylene (PP) Terlengkap 2022,” smpl.co.id. Diakses: 27 Desember 2023. [Daring]. Tersedia pada: <https://smpl.co.id/semua-tentang-polypropylene/>
- [12] M. Gahleitner dan C. Paulik, “Polypropylene and Other Polyolefins,” dalam *Brydson’s Plastics Materials: Eighth Edition*, Elsevier Inc., 2017, hlm. 279–309. doi: 10.1016/B978-0-323-35824-8.00011-6.
- [13] G. Wypych, *Handbook of Polymers 2nd Edition*. Chem Tec Publishing, 2016.
- [14] M. Chanda, *Plastics Technology Handbook Fifth Edition*, 5 ed. Boca Raton: CRC Press, 2018.
- [15] M. T. Hossain *dkk.*, “Research and application of polypropylene: a review,” 1 Desember 2024, *Springer*. doi: 10.1186/s11671-023-03952-z.
- [16] K. Ragaert, L. Delva, dan K. Van Geem, “Mechanical and Chemical Recycling of Solid Plastic Waste,” 1 November 2017, *Elsevier Ltd*. doi: 10.1016/j.wasman.2017.07.044.
- [17] E. Yousif dan R. Haddad, “Photodegradation and Photostabilization of Polymers, Especially Polystyrene: Review,” 2013. [Daring]. Tersedia pada: <http://www.springerplus.com/content/2/1/398>
- [18] G. Zhang, C. Nam, dan T. Chung, “Developing Polypropylene Bonded Hindered Phenol Antioxidants for Expanding Polypropylene Applications in High Temperature Conditions,” *Journal of Material Science & Engineering*, vol. 06, no. 06, 2017, doi: 10.4172/2169-0022.1000393.
- [19] J. Murphy, “Additives for Plastics Handbook 2nd Edition,” 2003.
- [20] M. V. Basaglia, J. C. F. Gimenez, M. G. P. Homem, S. A. Cruz, L. H. Staffa, dan S. H. P. Bettini, “Improving UV-C Stability in Polypropylene Through Synergistic Phenolic or Hydroxylamine-Based Additives with UV Absorbers,” *Express Polym Lett*, vol. 19, no. 2, hlm. 124–139, Feb 2025, doi: 10.3144/expresspolymlett.2025.10.
- [21] R. Gadioli, W. R. Waldman, dan M. A. De Paoli, “Lignin as a green primary antioxidant for polypropylene,” *J Appl Polym Sci*, vol. 133, no. 45, Des 2016, doi: 10.1002/app.43558.
- [22] L. Hermabessiere *dkk.*, “An Irgafos® 168 story: When the Ubiquity of an Additive Prevents Studying its Leaching from Plastics,” *Science of the Total Environment*, vol. 749, Des 2020, doi: 10.1016/j.scitotenv.2020.141651.
- [23] D. Musajan, M. Mamatjan, R. Beken, dan M. Yimit, “Impact of Natural Antioxidant Systems on the Oxidation Resistance and Mechanical

- Properties of Polypropylene,” *Polish Journal of Chemical Technology*, vol. 22, no. 1, hlm. 68–74, Mar 2020, doi: 10.2478/pjct-2020-0010.
- [24] “eCFR :: 21 CFR 178.2010 -- Antioxidants and/or tabilizers for Polymers.” Diakses: 16 Juni 2025. [Daring]. Tersedia pada: <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-178/subpart-C/section-178.2010>
- [25] E. Esmizadeh, C. Tzoganakis, dan T. H. Mekonnen, “Degradation behavior of polypropylene during reprocessing and its biocomposites: Thermal and oxidative degradation kinetics,” *Polymers (Basel)*, vol. 12, no. 8, 2020, doi: 10.3390/POLYM12081627.
- [26] J. Escalante *dkk.*, “Pyrolysis of lignocellulosic, algal, plastic, and other biomass wastes for biofuel production and circular bioeconomy: A review of thermogravimetric analysis (TGA) approach,” *Renewable and Sustainable Energy Reviews*, vol. 169, Nov 2022, doi: 10.1016/j.rser.2022.112914.
- [27] L. Contat-Rodrigo, “Thermal Characterization of The Oxo-Degradation of Polypropylene Containing a Pro-Oxidant/Pro-Degradant Additive,” *Polym Degrad Stab*, vol. 98, no. 11, hlm. 2117–2124, Jul 2013, doi: 10.1016/j.polymdegradstab.2013.09.011.
- [28] E. Blázquez-Blázquez, T. M. Díez-Rodríguez, E. Pérez, dan M. L. Cerrada, “Recycling of metallocene isotactic polypropylene: importance of antioxidants,” *J Therm Anal Calorim*, vol. 147, no. 23, hlm. 13363–13374, Des 2022, doi: 10.1007/s10973-022-11505-2.
- [29] R. Nasrin, M. A. Gafur, dan A. H. Bhuiyan, “Characterization of Isotactic Polypropylene/Talc Composites Prepared by Extrusion Cum Compression Molding Technique,” *Materials Sciences and Applications*, vol. 06, no. 11, hlm. 925–934, 2015, doi: 10.4236/msa.2015.611093.
- [30] ASTM E313, “Practice for Calculating Yellowness and Whiteness Indices from Instrumentally Measured Color Coordinates,” 2020, *ASTM International, West Conshohocken, PA*. doi: 10.1520/E0313.
- [31] A. Chamas *dkk.*, “Degradation Rates of Plastics in the Environment,” *ACS Sustain Chem Eng*, vol. 8, no. 9, hlm. 3494–3511, Mar 2020, doi: 10.1021/acssuschemeng.9b06635.
- [32] B. Abaroa-Pérez, S. Ortiz-Montosa, J. J. Hernández-Brito, dan D. Vega-Moreno, “Yellowing, Weathering and Degradation of Marine Pellets and Their Influence on the Adsorption of Chemical Pollutants,” *Polymers (Basel)*, vol. 14, no. 7, Apr 2022, doi: 10.3390/polym14071305.

- [33] D. Dileep dan Renjini A, "SPECTROPHOTOMETRY AND SPECTROMETRY-CONCEPT AND APPLICATIONS," 2017. [Daring]. Tersedia pada: www.ijariie.com
- [34] A. S. Sinaga, "SEGMENTASI RUANG WARNA L*a*b," *Jurnal Mantik Penusa*, vol. 3, no. 1, hlm. 43–46, 2019.
- [35] CIE 15, *Colorimetry*. Commission Internationale de L'Eclairage, 2004.
- [36] R. Jahanmardi dan M. Farivarzadeh, "Frontiers in Chemical Research Preparation of a new polymeric antioxidant for polypropylene based on phenylmalonic acid," *Frontiers in chemical research*, vol. 2, no. 1, hlm. 2020–2024, 2019, doi: 10.22034/FCR.2020.119937.1016.
- [37] H. Xia *dkk.*, "Natural antioxidant from bamboo leaves for the processing stability of polypropylene," *J Therm Anal Calorim*, vol. 146, no. 4, hlm. 1657–1665, Nov 2021, doi: 10.1007/s10973-020-10115-0.
- [38] J. Hernández-Fernández, E. Rayón, J. López, dan M. P. Arrieta, "Enhancing the Thermal Stability of Polypropylene by Blending with Low Amounts of Natural Antioxidants," *Macromol Mater Eng*, vol. 304, no. 11, Nov 2019, doi: 10.1002/mame.201900379.
- [39] S. K. Samal, S. Mohanty, dan S. K. Nayak, "Polypropylene Bamboo Glass Fiber Hybrid Composites: Fabrication and Analysis of Mechanical, Morphological, Thermal, and Dynamic Mechanical Behavior," *Journal of Reinforced Plastics and Composites*, vol. 28, no. 22, hlm. 2729–2747, Nov 2009, doi: 10.1177/0731684408093451.
- [40] Datacolor, "Datacolor 200 Datacolor 200R Datacolor 200M User Guide," 2017, Diakses: 30 Juni 2025. [Daring]. Tersedia pada: www.datacolor.com.