

Introduction

Plastics have brought a lot of conveniences to our lives, which are widely used in packaging, electronics, agricultural equipment, industrial production, daily necessities, and other fields.^{1–3} In recent years, the overall production of plastics in the world has reached over 400 million tons per year (Mt year^{-1}) and the total plastic production in human history may exceed 30,000 Mt after approximately 25 years.^{4, 5} Unfortunately, due to improper disposal of discarded plastics, a large amount of plastic wastes has already entered the natural environment, causing serious negative impacts on both ecosystems and human health.^{6–8} And in the worst-case scenario, the cumulative plastic waste in the environment by 2060 could exceed 260 Mt year^{-1} .⁹ Therefore, it is extremely urgent to find rational methods to deal with plastic waste. Notably, as shown in Figure 1.1a, polyethylene terephthalate (PET) is an important type of plastics possessing versatile applicability, and it accounts for 8% of the world's plastic production.¹⁰ And its wide application will lead to a large amount of waste PET. Besides, according to the life cycle assessment of producing plastics numbered 1–6 presented in Figure 1.1b, products made from PET plastic have the highest carbon footprint. And over half of greenhouse gas (GHG) emission comes from the use of processing fuel, which could be decreased through using feedstocks from waste PET. As a result, it's necessary to properly handle waste PET products not only for reducing the impact of PET waste on the environment but also to make full use of the carbon resources hidden in discarded PET.

At present, the most used methods for dealing with waste PET are organized landfill and incineration (INC).^{11, 12} As shown in Figure 1.1c, approximately 75% of PET ends up in landfill (LF) and INC. Although LF and INC are the straightforward ways to deal with waste PET and the impact on the environment can be minimized as far as possible through proper planning and design, soil pollution caused by LF and carbon dioxide released by INC are unavoidable.¹³ Moreover, the residue 25% of discarded PET can be reprocessed into renewable PET (rPET) for further recycling and using. Notably, the vast majority of recovered PET is realized through mechanical recycling.¹⁴ Mechanical recycling can achieve “polymer-to-polymer” transformation, a process that typically involves sorting, cleaning, shredding, melting, and pelletizing.^{15, 16} Unfortunately, rPET generated from mechanical recycling often faces issues such as reduced thermal stability and loss of mechanical properties.^{17, 18}

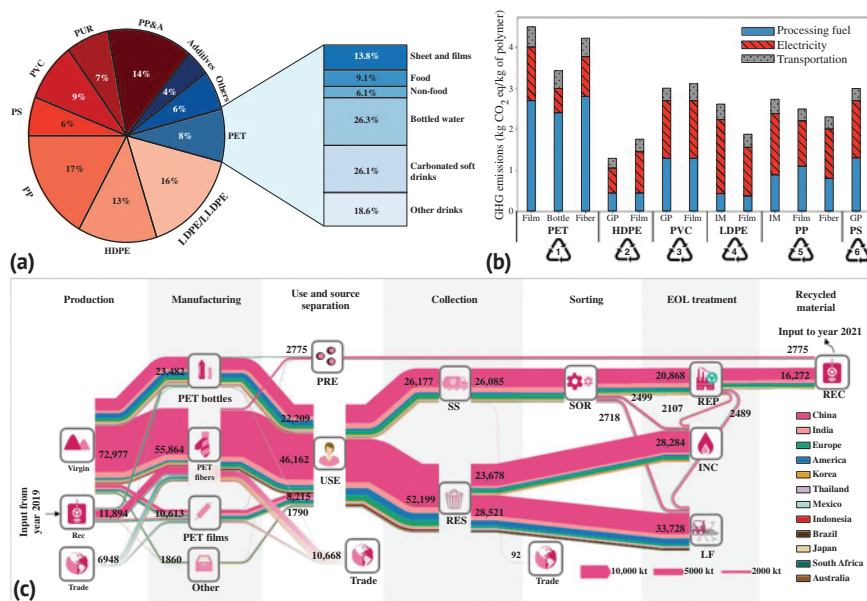


Figure 1.1 (a) The production share of different types of plastics worldwide and the share of PET in various application fields. Adapted from [10]. (b) Greenhouse gas (GHG) emission of producing different plastics. [4]/Royal Society of Chemistry/CC BY 3.0. (c) Life cycle of PET. [11]/MDPI/CC BY 4.0.

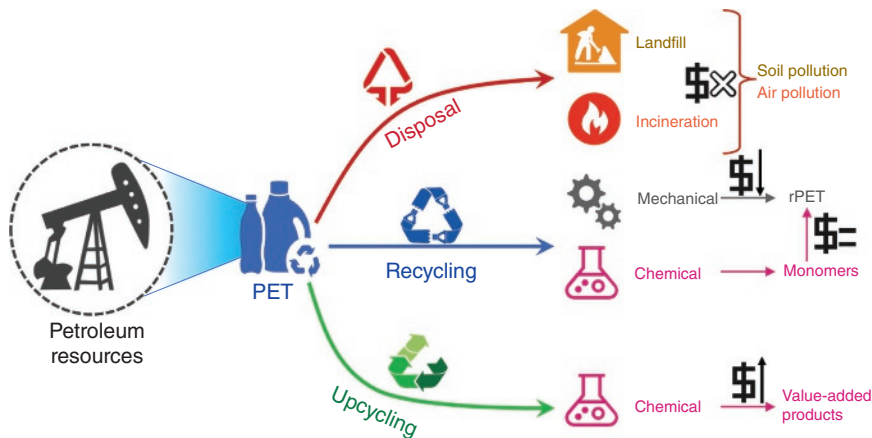


Figure 1.2 Methods for dealing with waste PET.

Notably, as shown in Figure 1.2, compared with landfill and INC unavoidably leading to pollutions as well as mechanical recycling producing rPET with lower value than the original, chemical reforming holds promise not only for producing rPET without depreciation, but also for upcycling waste PET into a variety of high-value products. In detail, in the recycling path, chemical reforming can convert waste PET into monomers, which are then polymerized to generate rPET, thereby preserving the original properties of PET as much as possible.¹⁹ Thermal catalytic reforming,

as a method of chemical reforming, can achieve this goal and depending on the different nucleophiles used, it can be further divided into processes such as glycolysis, methanolysis, and hydrolysis.²⁰ As shown in Figure 2.1, these processes can reform PET into monomers such as bis(2-hydroxyethyl) terephthalate (BHET), dimethyl terephthalate (DMT), and terephthalic acid (TPA). On the other hand, in the upcycling path, chemical reforming can reform PET into various valuable chemicals. For example, electrocatalytic reforming and photocatalytic reforming have been used to upcycle PET and PET-derived products into different chemicals.²¹ Besides, ammonolysis, aminolysis and hydrogenolysis as thermal catalytic reforming strategies can also reform PET into a variety of products.²² In addition to chemical reforming methods based on thermal catalysis, electrocatalysis, and photocatalysis, photothermal reforming and photo-electrocatalytic reforming, as emerging chemical reforming strategies, can also be used to convert PET into monomers or value-added chemicals.^{23, 24} This book will provide a detailed introduction to the above chemical reforming methods and the application of different catalysts in them.

Before introducing the chemical reforming of PET in detail, a preliminary understanding of its development in recent years can provide a basic framework, therefore facilitating a better understanding of the subsequent content. A development timeline of chemical reforming PET could be seen in Figure 1.3. Firstly, in 2013, Zhang et al.²⁵ developed $[(\text{CH}_3)_3\text{N}(\text{C}_{16}\text{H}_{33})]_3[\text{PW}_{12}\text{O}_{40}]$ as a phase transfer catalyst for promoting neutral hydrolysis of PET through improving the reaction interface. Moreover, in recent years, phase transfer catalysts have still played a significant role in the hydrolysis of PET, and many studies are still exploring the application of phase transfer catalysts in hydrolysis in recent years.^{26, 27} In 2014, Li et al.²⁸ utilized sulfated TiO_2 as the solid acid catalyst in hydrolysis of PET and introduced super critical CO_2 (SCCO_2) as the assistant. SCCO_2 serves like a cosolvent to roughen the surface of PET and realize depolymerization simultaneously happening in surface and bulk phase. SCCO_2 has been used in many studies and other cosolvents also have similar properties.^{29, 30} In 2018, Reisner and coworkers³¹ successfully realized simultaneously photoreforming alkali-pretreated PET and producing green hydrogen from water. Unfortunately, in this study, PET was mainly reformed into CO_2 as a low-value product. To solve this problem, many photocatalysts and photoreforming strategies have been put forward in recent years.³² In 2020, Jing et al.³³ developed $\text{Ru}/\text{Nb}_2\text{O}_5$ catalyst to selectively reform PET into aromatic products through hydrogenolysis. Although similar strategies are still far from practical application, they have attracted a great deal of attention from researchers in recent years.³⁴ In 2021, Chen et al.³⁵ utilized Pd/NF electrocatalyst as the anode and Ni foam (NF) as the cathode for simultaneously electro-reforming PET and generating hydrogen. Unfortunately, a large amount of organic products are over-oxidized into carbonates. In recent years, many studies have successfully achieved the selective electrocatalytic reforming of PET into various value-added products.³⁶ In 2022, Ma and coworkers³⁷ realized co-reforming CO_2 and PET through $\text{Cu}_4\text{Fe}_1\text{Cr}_1$ as a multifunctional catalyst. The proposal of this multi-waste management system has injected new vitality into the thermal catalytic reforming of PET. In the same year, Liu et al.³⁸ put forward a novel strategy for thermal catalytic reforming PET. They introduced light absorber to achieve photothermal conversion. This study accomplished

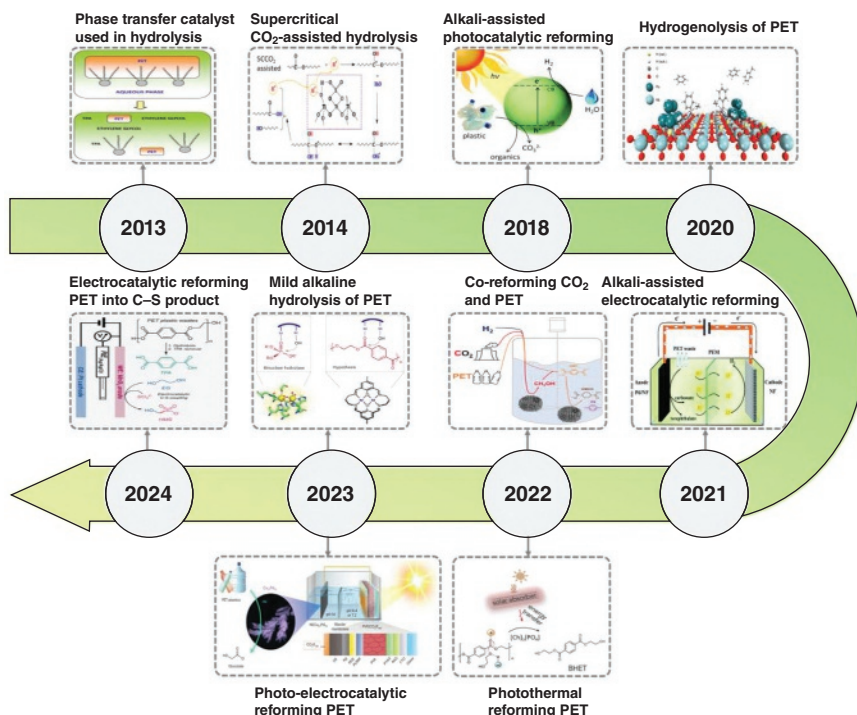


Figure 1.3 Development timeline of chemical reforming PET. [25]/with permission of John Wiley & Sons. [28]/with permission of John Wiley & Sons. [31]/with permission of the Royal Society of Chemistry. [33]/with permission of John Wiley & Sons. [35]/with permission of the Royal Society of Chemistry. [37]/with permission of John Wiley & Sons. [40]/with permission of Elsevier. [42]/with permission of the American Chemical Society. [41]/with permission of Springer Nature. [42]/with permission of the American Chemical Society.

thermal catalytic reforming of PET using the heat provided by sunlight. And as a green and environmentally friendly process, similar strategy has been a hot topic in the recent recycling of PET.³⁹ In 2023, Zhang et al.⁴⁰ constructed a catalyst to mimic the function of an enzyme to achieve alkaline hydrolysis of PET under mild conditions. This strategy enables the hydrolysis process of PET at low temperature and with low alkali content. In the same year, Reisner and coworkers⁴¹ constructed a photo-electrocatalytic reforming system that could simultaneously reform PET and CO₂ into valuable chemicals under the illumination of light and without extra bias. This system combines the advantages of photocatalytic reforming and electrocatalytic reforming. In 2024, Kang et al.⁴² proposed a brand-new strategy for electrocatalytic reforming of PET. They introduced heteroatom during the oxidation of PET hydrolysate and obtained products containing C–S bond. Compared with the traditional electrocatalytic reforming process that generates C1 (formic acid) and C2 (glycolic acid) products, this study broadens the product range and shows entirely new possibilities.

In recent years, many outstanding reviews about recovering PET have been reported. On the one hand, many scholars have introduced the chemical reforming

process of PET focusing on one of the processes in thermal catalysis, electrocatalysis, or photocatalysis. Firstly, toward the thermal reforming process, Kim et al.⁴³ and Umdagas et al.⁴⁴ separately provided a detailed introduction of the glycolysis process and hydrolysis process of PET and the application of related catalysts. In addition to separately introducing a certain process in thermal catalytic reforming, Mittal et al.⁴⁵ provided a detailed introduction of different processes in thermal catalytic reforming and also introduced the applications of products obtained from different processes. Besides, Perli et al.⁴⁶ elaborated on the application of heterogeneous catalysts in the thermal catalytic reforming process of plastics such as PET. Toward other chemical reforming processes, Li et al.⁴⁷ introduced electro-reforming of PET while Kang et al.⁴⁸ introduced photoreforming and photoelectrochemical reforming of PET. On the other hand, to provide readers with a more comprehensive understanding of the current development of PET recycling/upcycling, many scholars have chosen to briefly introduce different reforming methods. For instance, Yang et al.⁴⁹ introduced bio-reforming and chemical reforming, and in the context of chemical reforming, they also covered multiple aspects including thermal catalysis, photocatalysis, electrocatalysis, and photoelectrochemical catalysis. What's more, Bharadwaj et al.⁵⁰ primarily introduced recovering PET from several aspects including mechanical reforming, chemical reforming, and bio-reforming, and the thermal catalysis process was mainly focused on in chemical reforming part. Compared to the performance and application limitations of products in mechanical reforming and the high cost of enzymes, chemical reforming is a promising PET reforming process. Therefore, this chapter chooses to introduce the chemical reforming of PET. To help readers quickly grasp the progress of PET chemical reforming, this book will provide an introduction from multiple perspectives, including thermal catalytic reforming, electrocatalytic reforming, and photocatalytic reforming. Notably, the thermal catalytic reforming section in the above reviews do not provide a comprehensive introduction to current research directions. In this book, we further introduce acidolysis and hydrogenolysis as emerging methods proposed in recent years. Moreover, unlike the above reviews, considering that current electrocatalytic and photocatalytic reforming processes are mostly based on hydrolysis pretreated PET, this book provides a detailed introduction to the thermal catalytic processes of PET such as hydrolysis, along with catalysts and cosolvents that can facilitate these processes. This is presented before discussing the electrocatalytic and photocatalytic processes, aiming to help readers understand the pretreatment steps and inspire them to design more efficient and milder pretreatment process. Furthermore, after introducing the PET chemical reforming based on thermal, electrical, and solar energy sources, we also summarize the advanced photo-driven/assisted reforming systems proposed in recent years. In this section, the reforming processes based on the above three energy sources may play a dominant role, an auxiliary role, or work synergistically. Besides, to help readers to fully understand the advantages of photo-driven/assisted reforming systems, we compare them with traditional thermal catalytic, electrocatalytic, and photocatalytic processes, which is rarely covered in reviews about PET recycling.

References

- 1 Soong, Y.-H. V.; Sobkowicz, M. J.; Xie, D., Recent advances in biological recycling of polyethylene terephthalate (PET) plastic wastes. *Bioengineering* **2022**, 9 (3), 98.
- 2 Klemeš, J. J.; Van, F. Y.; Jiang, P., Plastics: friends or foes? The circularity and plastic waste footprint. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* **2021**, 43 (13), 1549–1565.
- 3 Muringayil Joseph, T.; Azat, S.; Ahmadi, Z.; Moini Jazani, O.; Esmaeili, A.; Kianfar, E.; Haponiuk, J.; Thomas, S., Polyethylene terephthalate (PET) recycling: a review. *Case Studies in Chemical and Environmental Engineering* **2024**, 9, 100673.
- 4 Li, H.; Aguirre-Villegas, H. A.; Allen, R. D.; Bai, X.; Benson, C. H.; Beckham, G. T.; Bradshaw, S. L.; Brown, J. L.; Brown, R. C.; Cecon, V. S.; Curley, J. B.; Curtzwiler, G. W.; Dong, S.; Gaddameedi, S.; García, J. E.; Hermans, I.; Kim, M. S.; Ma, J.; Mark, L. O.; Mavrikakis, M.; Olafasakin, O. O.; Osswald, T. A.; Papanikolaou, K. G.; Radhakrishnan, H.; Sanchez Castillo, M. A.; Sánchez-Rivera, K. L.; Tumu, K. N.; Van Lehn, R. C.; Vorst, K. L.; Wright, M. M.; Wu, J.; Zavala, V. M.; Zhou, P.; Huber, G. W., Expanding plastics recycling technologies: chemical aspects, technology status and challenges. *Green Chemistry* **2022**, 24 (23), 8899–9002.
- 5 Bohre, A.; Jadhao, P. R.; Tripathi, K.; Pant, K. K.; Likozar, B.; Saha, B., Chemical recycling processes of waste polyethylene terephthalate using solid catalysts. *ChemSusChem* **2023**, 16 (14), e202300142.
- 6 Geyer, R.; Jambeck, J. R.; Law, K. L., Production, use, and fate of all plastics ever made. *Science Advances* **2017**, 3 (7), e1700782.
- 7 Bergmann, M.; Collard, F.; Fabres, J.; Gabrielsen, G. W.; Provencher, J. F.; Rochman, C. M.; van Sebille, E.; Tekman, M. B., Plastic pollution in the Arctic. *Nature Reviews Earth & Environment* **2022**, 3 (5), 323–337.
- 8 Thompson, R. C.; Courtene-Jones, W.; Boucher, J.; Pahl, S.; Raubenheimer, K.; Koelmans, A. A., Twenty years of microplastic pollution research—what have we learned? *Science* **2024**, 386 (6720), ead12746.
- 9 Lebreton, L.; Andrady, A., Future scenarios of global plastic waste generation and disposal. *Palgrave Communications* **2019**, 5 (1), 6.
- 10 Barnard, E.; Rubio Arias, J. J.; Thielemans, W., Chemolytic depolymerisation of PET: a review. *Green Chemistry* **2021**, 23 (11), 3765–3789.
- 11 Duan, C.; Wang, Z.; Zhou, B.; Yao, X., Global polyethylene terephthalate (PET) plastic supply chain resource metabolism efficiency and carbon emissions co-reduction strategies. *Sustainability* **2024**, 16 (10), 3926.
- 12 Martín, A. J.; Mondelli, C.; Jaydev, S. D.; Pérez-Ramírez, J., Catalytic processing of plastic waste on the rise. *Chem* **2021**, 7 (6), 1487–1533.
- 13 Weckhuysen, B. M., Creating value from plastic waste. *Science* **2020**, 370 (6515), 400–401.
- 14 Ellis, L. D.; Rorrer, N. A.; Sullivan, K. P.; Otto, M.; McGeehan, J. E.; Román-Leshkov, Y.; Wierckx, N.; Beckham, G. T., Chemical and biological catalysis for plastics recycling and upcycling. *Nature Catalysis* **2021**, 4 (7), 539–556.

- 15 Wei, R.; Weber, G.; Blank, L. M.; Bornscheuer, U. T., Process insights for harnessing biotechnology for plastic depolymerization. *Nature Chemical Engineering* **2025**, 2 (2), 110–117.
- 16 Ragaert, K.; Delva, L.; Van Geem, K., Mechanical and chemical recycling of solid plastic waste. *Waste Management* **2017**, 69, 24–58.
- 17 Rahimi, A.; García, J. M., Chemical recycling of waste plastics for new materials production. *Nature Reviews Chemistry* **2017**, 1 (6), 0046.
- 18 Sylvestre, N.; Bouvard, J.-L.; Derrien, M.; Monnier, X.; Combeaud, C., Effects of mechanical recycling on PET stretchability. *Polymer* **2024**, 307, 127256.
- 19 Wimberger, L.; Ng, G.; Boyer, C., Light-driven polymer recycling to monomers and small molecules. *Nature Communications* **2024**, 15 (1), 2510.
- 20 Jia, Z.; Gao, L.; Qin, L.; Yin, J., Chemical recycling of PET to value-added products. *RSC Sustainability* **2023**, 1 (9), 2135–2147.
- 21 Sajwan, D.; Sharma, A.; Sharma, M.; Krishnan, V., Upcycling of plastic waste using photo-, electro-, and photoelectrocatalytic approaches: a way toward circular economy. *ACS Catalysis* **2024**, 14 (7), 4865–4926.
- 22 Zhao, H.; Ye, Y.; Zhang, Y.; Yang, L.; Du, W.; Wang, S.; Hou, Z., Upcycling of waste polyesters for the development of a circular economy. *Chemical Communications* **2024**, 60 (94), 13832–13857.
- 23 He, D.; Huang, G.; Zhou, Z.; Hu, Q.; Ding, J.; Wu, J.; Li, M.; Ruan, X.; Jiao, X.; Xie, Y., Recent progress for designing of catalysts for photothermal conversion of plastic wastes. *Advanced Functional Materials* **2026**, 36 (6), 2419801.
- 24 Kim, S.; Kong, D.; Zheng, X.; Park, J. H., Upcycling plastic wastes into value-added products via electrocatalysis and photoelectrocatalysis. *Journal of Energy Chemistry* **2024**, 91, 522–541.
- 25 Zhang, L.; Gao, J.; Zou, J.; Yi, F., Hydrolysis of poly(ethylene terephthalate) waste bottles in the presence of dual functional phase transfer catalysts. *Journal of Applied Polymer Science* **2013**, 130 (4), 2790–2795.
- 26 Sabde, S.; Yadav, G. D.; Narayan, R., Conversion of waste into wealth in chemical recycling of polymers: hydrolytic depolymerization of polyethylene terephthalate into terephthalic acid and ethylene glycol using phase transfer catalysis. *Journal of Cleaner Production* **2023**, 420, 138312.
- 27 Wang, Y.; Wang, H.; Chen, H.; Liu, H., Towards recycling purpose: converting PET plastic waste back to terephthalic acid using pH-responsive phase transfer catalyst. *Chinese Journal of Chemical Engineering* **2022**, 51, 53–60.
- 28 Li, X.-K.; Lu, H.; Guo, W.-Z.; Cao, G.-P.; Liu, H.-L.; Shi, Y.-H., Reaction kinetics and mechanism of catalyzed hydrolysis of waste PET using solid acid catalyst in supercritical CO₂. *AIChE Journal* **2015**, 61 (1), 200–214.
- 29 Gao, P.; Lv, H.; Qian, S.-K.; Qiao, W.-H.; Hu, Z.-Y.; Cao, G.-P., One-step synthesized solid acid catalyst with high Zr content for efficient and green PET degradation in supercritical CO₂. *Industrial & Engineering Chemistry Research* **2024**, 63 (17), 7593–7604.
- 30 Le, N. H.; Ngoc Van, T. T.; Shong, B.; Cho, J., Low-temperature glycolysis of polyethylene terephthalate. *ACS Sustainable Chemistry & Engineering* **2022**, 10 (51), 17261–17273.

- 31 Uekert, T.; Kuehnel, M. F.; Wakerley, D. W.; Reisner, E., Plastic waste as a feedstock for solar-driven H₂ generation. *Energy & Environmental Science* **2018**, *11* (10), 2853–2857.
- 32 Ya, Z.; Zhang, S.; Xu, D.; Wang, H.; Li, M., Coupling plastic upgrading and photocatalysis: catalytic mechanisms and design principles. *ACS Catalysis* **2025**, *15* (7), 5339–5369.
- 33 Jing, Y.; Wang, Y.; Furukawa, S.; Xia, J.; Sun, C.; Hülsey, M. J.; Wang, H.; Guo, Y.; Liu, X.; Yan, N., Towards the circular economy: converting aromatic plastic waste back to arenes over a Ru/Nb₂O₅ catalyst. *Angewandte Chemie International Edition* **2021**, *60* (10), 5527–5535.
- 34 Murali, V.; Kim, H.; Kim, H. U.; Kim, J. R.; Son, S. H.; Park, Y.-K.; Ha, J.-M.; Jae, J., Selective one-pot chemical recycling of PET waste to xylene monomers: insights into a Ru/TiO₂ catalyst design and interfacial dynamics in a biphasic system. *Green Chemistry* **2025**, *27* (8), 2203–2219.
- 35 Shi, R.; Liu, K.-S.; Liu, F.; Yang, X.; Hou, C.-C.; Chen, Y., Electrocatalytic reforming of waste plastics into high value-added chemicals and hydrogen fuel. *Chemical Communications* **2021**, *57* (94), 12595–12598.
- 36 Han, S.; Sun, L.; Fan, D.; Liu, B., Pulsed electrosynthesis of glycolic acid through polyethylene terephthalate upcycling over a mesoporous PdCu catalyst. *Nature Communications* **2025**, *16* (1), 3426.
- 37 Li, Y.; Wang, M.; Liu, X.; Hu, C.; Xiao, D.; Ma, D., Catalytic transformation of PET and CO₂ into high-value chemicals. *Angewandte Chemie International Edition* **2022**, *61* (10), e202117205.
- 38 Liu, Y.; Zhong, Q.; Xu, P.; Huang, H.; Yang, F.; Cao, M.; He, L.; Zhang, Q.; Chen, J., Solar thermal catalysis for sustainable and efficient polyester upcycling. *Matter* **2022**, *5* (4), 1305–1317.
- 39 Liu, Y.; Yan, P.; Li, X.; Li, Q.; Li, S.; Han, H.; Chu, M.; Fu, J.; Cao, M.; Xu, P.; Zhang, Q.; He, L.; Chen, J., Selective recycling of mixed polyesters via heterogeneous photothermal catalysis. *Advanced Materials* **2025**, *37* (7), 2412740.
- 40 Zhang, S.; Hu, Q.; Zhang, Y.-X.; Guo, H.; Wu, Y.; Sun, M.; Zhu, X.; Zhang, J.; Gong, S.; Liu, P.; Niu, Z., Depolymerization of polyesters by a binuclear catalyst for plastic recycling. *Nature Sustainability* **2023**, *6* (8), 965–973.
- 41 Bhattacharjee, S.; Rahaman, M.; Andrei, V.; Miller, M.; Rodríguez-Jiménez, S.; Lam, E.; Pornrungroj, C.; Reisner, E., Photoelectrochemical CO₂-to-fuel conversion with simultaneous plastic reforming. *Nature Synthesis* **2023**, *2* (2), 182–192.
- 42 Kang, H.; He, D.; Turchiano, C.; Yan, X.; Chai, J.; Weed, M.; Elliott, G. I.; Onofrei, D.; Pan, X.; Xiao, X.; Gu, J., Mining the carbon intermediates in plastic waste upcycling for constructing C–S bond. *Journal of the American Chemical Society* **2024**, *146* (27), 18639–18649.
- 43 Kim, Y.; Jang, T.; Hwang, H.; Sung, Y.; Kim, B. H., Development of glycolysis catalysts for PET wastes including polyester textiles. *Fibers and Polymers* **2025**, *26* (1), 1–17.

- 44 Umdagas, L.; Orozco, R.; Heeley, K.; Thom, W.; Al-Duri, B., Advances in chemical recycling of polyethylene terephthalate (PET) via hydrolysis: a comprehensive review. *Polymer Degradation and Stability* **2025**, *234*, 111246.
- 45 Mittal, N.; Soni, R. K.; Teotia, M., Innovative approaches to chemical recycling of polyethylene terephthalate waste: investigating key components and their emerging applications. *Journal of Environmental Management* **2025**, *373*, 123595.
- 46 Perli, G.; Olazabal, I.; Breloy, L.; Vollmer, I.; López-Gallego, F.; Sardon, H., Toward a circular economy of heteroatom containing plastics: a focus on heterogeneous catalysis in recycling. *Langmuir* **2025**, *41* (10), 6429–6456.
- 47 Li, X.; Jiang, Z.; Kou, Z.; Wang, J.; Zheng, S., Cascade degradation and electrocatalytic upcycling of waste poly(ethylene terephthalate) to valued products. *Nano Research* **2025**, *18* (1), 94907101.
- 48 Kang, S.; Yuan, W.; Chen, W.; Du, M.; Zhang, Y.; Qiu, B., Recent advances on solar-driven valorization of polyethylene terephthalate plastics into value-added chemicals. *Nanotechnology* **2023**, *34* (46), 462001.
- 49 Yang, J.; Li, Z.; Xu, Q.; Liu, W.; Gao, S.; Qin, P.; Chen, Z.; Wang, A., Towards carbon neutrality: sustainable recycling and upcycling strategies and mechanisms for polyethylene terephthalate via biotic/abiotic pathways. *Eco-Environment & Health* **2024**, *3* (2), 117–130.
- 50 Bharadwaj, C.; Purbey, R.; Bora, D.; Chetia, P.; Maheswari R, U.; Duarah, R.; Dutta, K.; Sadiku, E. R.; Varaprasad, K.; Jayaramudu, J., A review on sustainable PET recycling: strategies and trends. *Materials Today Sustainability* **2024**, *27*, 100936.

