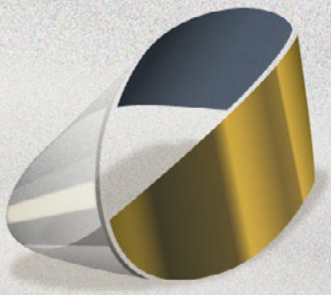
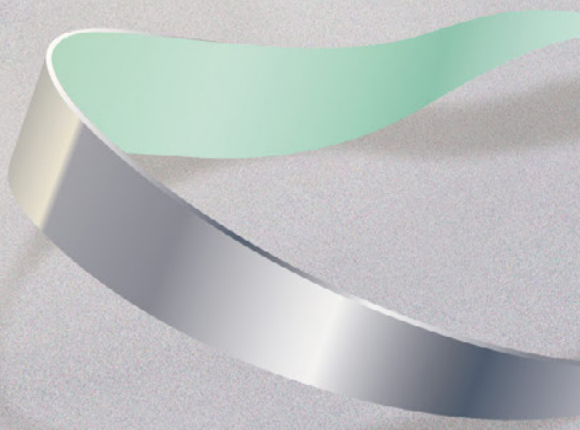
FONDAZIONE PER LO SVILUPPO SOSTENIBILE

Sustainable Development Foundation

Recycling in Italy

Summary | 2024





UNDER THE PATRONAGE OF

MINISTERO DELL'AMBIENTE E DELLA SICUREZZA ENERGETICA

ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale

Sistema Nazionale per la Protezione dell'Ambiente

RECYCLING IN ITALY | 2024 | *Summary*

Curated by di Edo Ronchi

FONDAZIONE PER LO SVILUPPO SOSTENIBILE
Sustainable Development Foundation

Working group

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The chapter "Management of used textiles and textile waste in the EU: challenges, solutions and path towards circularity" was written in collaboration with Sanna Due, European Environment Agency (EEA).

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With a contribution from

CONAI, MONTELLO, ECOPNEUS, FEDERAZIONE CARTA GRAFICA, ECOTYRE, CONOU, SEDA, HAIKI COBAT, ECOMONDO IEG, ERION, LUCART, ITELYUM, ITERCHIMICA, GRUPPO SAVIOLA, CIC, BURGO GROUP, ECOLAMP, CDCNPA, CONOE, ASSOREM, AIRA, I-FORIA.

Graphics and design: Laboratorio Linfa

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Foreword

In 2023, 20.8% of the materials used by industry came from waste recycling, almost double the European average (11.8%): this figure, also used as an index of circularity, highlights the importance achieved by waste recycling in Italy. The fact that this data has been stable for a decade indicates, on the one hand, that the recycling system in Italy is well-established and holds a good standard, among the best in Europe; on the other hand, however, it shows that no further significant progress is made, as would be possible and desirable. Italy is the leading European country with reference to the recycling of special waste, accounting for 72.2% as against 2022, with a 0.3% increase compared to 2021, even though with a slightly decreased quantity due to a drop in waste production. Municipal waste recycling is less effective, especially applying the new European calculation method: in 2022 it accounted for 49.2%, as against a European target of 55% by 2025, 60% by 2030 and 65% by 2035. It is worth noting the worsening of quality, hence the increase in waste and foreign fractions recorded with the increasing separate waste collection percentages: in 2018, actual municipal waste recycling amounted to 45.8% (with 12.4% of scrap) given 58.2% of separate waste collection; in 2022 separate waste collection rose to 65.2% and actual recycling to 49.2% (with 16% of scrap). To increase municipal waste recycling and thus reach the European targets, it will therefore be necessary not only to recover the delays in separate waste collection that still exist in many municipalities, but also to dedicate greater attention to improving the care and quality of separate waste collection itself.

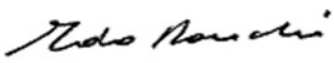
Pending the application of the new European Regulation that is expected to deliver some significant innovations (on the recyclability of packaging, on the increase in recycling and the use of secondary raw materials), the recycling of packaging waste continues reaching levels of European excellence: in 2023 it reached 75.3%, up from 70.7% in 2022, exceeding not only the European 65% target by 2025, but also that of 70% by 2030.

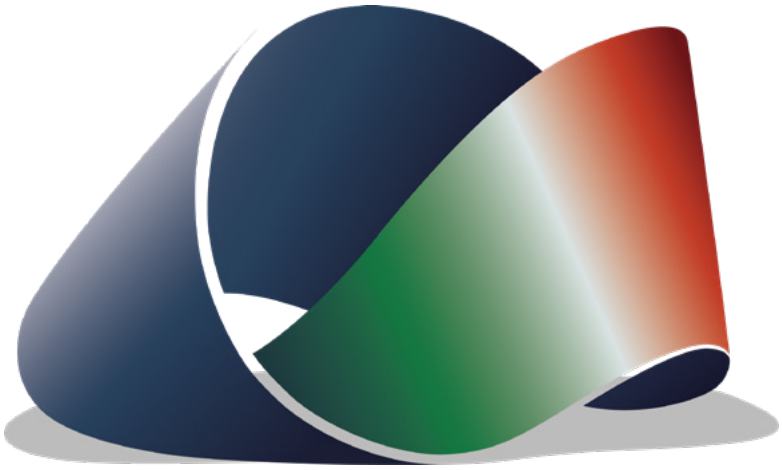
Almost all supply chains exceed the European targets: paper and cardboard 92.3%, steel 87.8%, glass 77.4% (even if it is down by 3.4% if compared to the previous year), aluminum 70.3%, wood 64.9% and bioplastics 56.9%. Plastics are at 47.7%, therefore still below the 50% target set for 2025, even though they are getting closer. It should be noted that for plastics, difficulties persist in both demand and market prices for secondary raw materials obtained from recycling, with several recycling companies struggling due to the high costs of feedstock to be recycled, the further slowdown in virgin polymer prices, unfair competition from recycled materials (R-PET flakes and granules or even semi-finished products) imported from non-European countries without adequate certification and traceability, as well as low demand from both the construction and automotive sectors undergoing a difficult period. The decline recorded in glass recycling is due to a turbulent market trend and lower-priced imports from abroad. In the paper sector, domestic production does not

absorb the quantities of waste paper obtained from the treatment of separate collection of paper and cardboard waste, which, even in 2023, were exported in a quantity equal to approximately 2 million tonnes.
Even in the secondary raw materials outlets, generated by the recycling of PFU (end-of-life tyres), difficulties are expected if the possibilities offered by the new Minimum Environmental Criteria for the construction and maintenance of roads (CAM Strade regulations) are not adequately used to promote the use of asphalts enriched with recycled rubber powder.
These examples highlight the importance of providing greater stability and opportunities to the secondary raw materials markets, which are necessary to ensure both high performance and adequate profitability for industrial recycling activities, in order to increase the recycled waste quantities in Italy: i.e. a central theme for the coming years, as also recalled by the President of the European Commission Ursula Von der Leyen, and which should be at the centre of a newly announced European legislation on the matter.

It should be pointed out that in the recycling of organic waste, the Italian plant system, in contrast to the separate collection stabilization signs, has significantly increased the overall treatment capacity, with an excess of installed capacity in some areas that risks putting existing plants under pressure. Several plants are making up for the current lack of wet and green waste with other organic residues, such as sludge, so much so that the total quantity of waste treated in the plants is growing more than the quantities of organic waste collected. Finally, the difficulties affecting the WEEE sector should be highlighted this year as well; a sector that is increasingly more strategic due to the quantities of waste produced (from the growth and spread of digitalization and energy transition, with batteries and solar panels) and due to the importance of the available secondary raw materials to be recycled, many of which are critical and/or strategic. In 2023, collection data continue to be low, accounting for 30%, far from the European targets (65%) and full potential to be achieved.
As analysed by this Report, also thanks to a contribution from EEA, a few interesting initiatives are being developed for the recycling of textile waste. The Italian legislators had already announced the introduction of a mandatory rule for separate collection of textile waste starting from January 1st, 2022, a significant step towards a more sustainable and circular waste management system. However, as highlighted by ISPRA data, this obligation is still partly disregarded also due to the lack of recycling plants, while still waiting for the introduction of an Italian EPR scheme applying to the textile sector.

Presidente Fondazione sviluppo sostenibile
Edo Ronchi





Recycling** in the **new European legislature** and **novelties for Italy

Pending the resumption of the European Parliament's work on legislative proposals on waste recycling, the EU is making slow progress on waste management policies.

The completion of the approval procedures is still on the agenda:

- the reform of the Waste Framework Directive, which provides for the introduction of the Extended Producer Responsibility (EPR) scheme in the textile sector and minimum targets for the reduction of food waste;
- the Regulation regarding the management of end-of-life vehicles, which proposes an extension of the range of vehicles for which the existing minimum recycling and recovery targets would apply, a better framework for the Extended Producer Responsibility scheme, the introduction of minimum targets for recycling plastic and for the reuse of recycled plastic in the production of new vehicles;
- the Regulation on the prevention of losses of plastic pellets to reduce microplastic pollution.

Whereas, a series of Regulations were approved in 2024: i.e. the Regulation on packaging and packaging waste, the Regulation on cross-border transport of waste, the Regulation on critical raw materials, the Construction Materials Regulation, the Ecodesign Regulation, the Directive on the right to repair and the Directive on waste water management.

Implementation of the **new Packaging Regulation** for recycling

As already known, a new European Regulation that reforms the legislation regarding packaging and related waste, introducing new and more ambitious objectives for the packaging sector has been approved, after having incorporated some appropriate amendments.

The first aspect addressed by the Regulation is the reduction of the use of hazardous substances in packaging. Particular attention is given to PFAS by providing that the marketing of packaging with concentrations exceeding certain quantities shall be banned within a year and a half from the entry into force of the Regulation.

The Regulation provides for specific targets for reducing waste production. By January 1st, 2030, manufacturers or importers shall ensure that the packaging placed on the market is designed in such a way that its weight and volume are reduced to the minimum necessary to ensure its functionality, taking into account its shape and the material from which it is made. Economic operators filling packaging in multiple packaging, transport packaging or e-commerce packaging shall ensure that the proportion of empty space shall not exceed 50%.

Furthermore, a substantial reduction in the consumption of lightweight plastic bags is envisaged.

Per capita reduction targets have also been established, compared to 2018 values, of at least:

- 5% by 2030;
- 10% by 2035;
- 15% by 2040.

The innovation introduced by the Regulation consists in the provision of minimum reuse objectives for certain types of packaging based on a deposit and return system, even if the Regulation exempts from this obligation countries that demonstrate high performance in separate waste collection and recycling.

The principle applies whereby all packaging placed on the market must be recyclable. To deliver this result, all packaging, once it has become waste, must be designed to be recyclable on a large scale.

By January 1st, 2029, measures must be adopted to ensure separate collection of waste plastic bottles and metal containers, both disposable for drinks and with a maximum capacity of three litres, by at least 90% per year, by weight.

The new Regulation has introduced specific deadlines by which all plastic parts of packaging placed on the market must contain minimum percentages of recycled content. The compostability obligation of materials used for certain types of packaging is also introduced.

The ban on placing a series of packaging on the market comes into force from 1 January 2030, such as, for example, plastic packaging used to wrap products together at the point of sale, single-use for less than 1.5 kg of pre-packaged fresh fruit and vegetables; single-use packaging for food and drinks intended for consumption in the hotel, restaurant and catering sector.

News from Italy

At present, the **Environmental Decree Law** no. 153/2024 has not yet been converted into law and therefore, pending the transformation of the decree into the final law, in the meantime no changes can be made. The text under discussion provides for:

- the increase in the number of members representing trade categories in the National Committee of the National Register of Environmental Managers;
- the legal representative of the company can also play the role of technical manager of the company itself;
- the addition of activities related to the care and maintenance of public and private greenery and landscape to the list of waste producing activities.

Decree Law no. 131/2024 was converted into Law no. 166/2024. It includes two articles that provide for an adjustment of the internal regulations on the management of waste from electrical and electronic equipment to European legislation (**WEEE**). It sets out that the management consortia must design, implement and finance public communication, information and awareness programmes, also through the Coordination Centre, on the importance of separate collection of WEEE and on the environmental and economic benefits of their recycling, using at least 3% of the total revenues.

Furthermore, the regulation regarding the collection of WEEE is modified, providing for the free collection of used equipment of an equivalent type, upon the supply of a new electrical or electronic device. Retailers with a sales area of at least 400 m2 must ensure the collection of very small WEEE from households free of charge and without the obligation to purchase WEEE. Online sales are also regulated. Pursuant to the law, any manufacturer placing a product on the national market, also through e-commerce platforms, for which an Extended Producer Responsibility EPR Scheme has been introduced, is subject to the same responsibility and must fulfil the related obligations envisaged by the law.

A special section is added to the National Register of Producers in which the e-commerce platform managers are registered.

Decree Law no. 84/24, converted into Law no. 115/2024, introduces provisions on **critical raw materials of strategic interest**, in particular, in relation to the issuing authorization procedure for strategic recycling plants. The same Decree also sets out rules on the correct management of the end-of-life **photovoltaic panels**. It is established that the relevant Ministries can avail themselves of the Gestore dei servizi energetici (GSE) for the supervision and control of the collective photovoltaic panel waste management systems.

Finally, Ministerial Decree no. 127/2024 on **inert waste from construction and demolition** has been in force since 26 September 2024, replacing the previous no. 152/2022, redefining the criteria for the cessation of waste qualification and expanding the cases of use of recycled materials.

The recycling challenge of the ***textile sector***

The increasing textile waste generated in Europe every year, as well as the increasing exports outside the European Union, due to the lack of textile waste recycling infrastructures within the EU Member States, is one of the main environmental issues addressed by current European policies. Textile waste is in fact the target of a series of EU legislative actions, ranging from the obligation of separate collection to the introduction of mandatory ecodesign requirements, to the ban on the destruction of unsold clothing, to the fight against greenwashing, to the introduction of Extended Producer Responsibility EPR Schemes for textile products, as well as to the fight against illegal exports outside the European Union.

The recent study by the European Topic Centre on Circular Economy and Resource Use (ETC CE) "Textile waste management in Europe's circular economy", published in May 2024 by the European Environment Agency (EEA), provides an updated overview of textile waste management in Europe.

In 2020, the European Union generated approximately 6.9 Mt of textile waste, with an average of around 16 kg per capita: only 4.4 kg per capita was collected separately for reuse and recycling.

The Waste Framework Directive requires Member States to set up separate collection systems for used textiles starting from 2025. However, without a substantial increase in sorting and recycling capacities, large quantities of collected textile waste risk being disposed of through incineration, landfilling or export to regions outside the EU.

EU exports of used textiles

Over the last two decades, the amount of second-hand textiles exported by the EU has tripled, from around 550 kt to almost 1.4 Mt., although these exports are often made as donations to developing countries. 45% of the exported textiles flows was shipped to Africa, where part is sold and reused locally and part ends up in landfills or illegally burned; 43% was shipped to Asia, where it is sorted and processed, often being downcycled into industrial rags or re-exported for further recycling or reuse, while non-recyclable items often end up in landfills.

Recycling: Limited but growing

Il riciclo dei tessili rimane limita-Textile recycling remains limited. Most textiles are recycled into lower-value products such as rags or insulation. Although recycling is growing, it is still not enough to handle the growing volume of textile waste caused by fast fashion and overconsumption. Additionally, textiles are often not designed keeping recycling in mind, complicating the process of recycling materials at the end of their lifecycle. Many textiles and garments are made from mixed materials or treated with chemicals, making them difficult to recycle. Additionally, current recycling technologies are not yet fully developed or widely available to handle the complex and diverse range of textile products.

Europe seems poised to make progress in 2024, thanks to initiatives such as the EU Textile Strategy, the introduction of specific targets for textile waste management, and the provision of harmonised rules at European level on Extended Producer Responsibility and the Ecodesign Regulation, aimed at improving the durability and ease of maintenance of items.

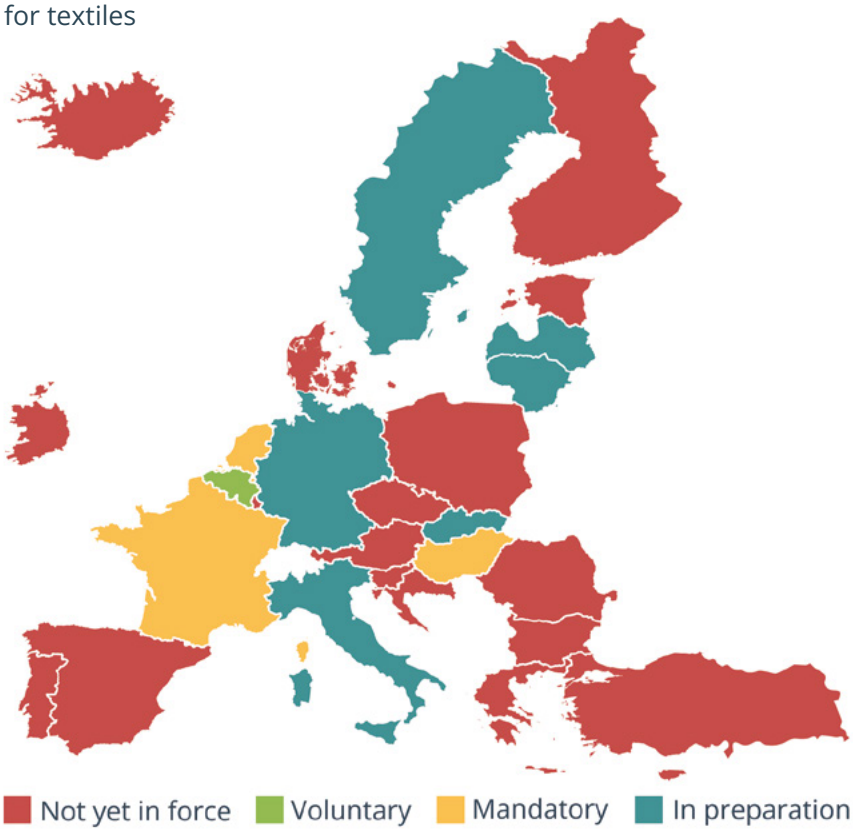
Today, only 1% of textiles are recycled in a closed loop and it is estimated that between 150 and

250 new recycling plants would be needed by 2030 to achieve circularity in Europe.

Extended Producer Responsibility (EPR) in the EU for Textile Waste

Source: ETC CE

Geographical overview on the **current state of EPR systems** for textiles



The EPR scheme aims to create an economy focused on the collection, reuse and recycling of textiles, while ensuring that products are designed with circularity in mind. To achieve these goals, the European Commission proposes to earmark a significant part of the EPR contributions paid by textile producers for waste prevention measures and preparation for reuse. To date, mandatory EPR schemes for textiles exist only in France, Hungary and the Netherlands and a voluntary scheme in Flanders (Belgium).

Many countries are conducting preparatory studies or developing an EPR scheme, while others are waiting for the amendment of the Waste Framework Directive.

EPR systems should be extended to home textile products, clothing items (including leather), clothing accessories and footwear.

The Italian textile industry towards circularity

The Italian legislator brought forward the obligation of separate collection for textile waste since 2022. However, as highlighted by ISPRA data, this obligation remains partially unfulfilled.

The quantities collected have been constantly increasing in recent years: in 2022 the collection amounted to approximately 160.3 kt. The so-called pre-consumer waste must be added to these quantities of post-consumer textile waste, i.e. the special waste produced by the textile sector (waste from the processing of leather and fur and from the textile industry), which - according to the data published in the ISPRA Special Waste Report 2024 - amounted to approximately 603 kt in 2022.

In 2024, no news was recorded with a view to introducing an Italian EPR scheme for the textile sector, despite the fact that the production and distribution chains and related sectors have long since begun the preparation phases and launched voluntary initiatives aimed at implementing experimental circularity projects.

From a regulatory point of view, the Ministry of the Environment and Energy Security is still awaiting developments in this area at European level, by the beginning of 2025, with the approval of the amendment to the Waste Framework Directive, which provides for the introduction of mandatory and harmonized Extended Producer Responsibility schemes for the management of textile waste.

Italy boasts the largest and most comprehensive textile production system in Europe and it accounts for approximately 30% of the entire continental supply chain. It shall have to make adequate investments to meet the huge challenge of leading the green transition of the continental manufacturing industry towards a truly circular model.

The ***recycling industries*** *in* ***Italy***

According to the most recent ISPRA data, referred to 2022, the recycling rate of municipal waste increased by more than one percentage point, reaching 49.2%. At the same time, with reference to special waste (including construction and demolition waste), overall production decreased by 2.1% compared to the previous year (about 161 Mt) with a material recovery of about 72.2%.

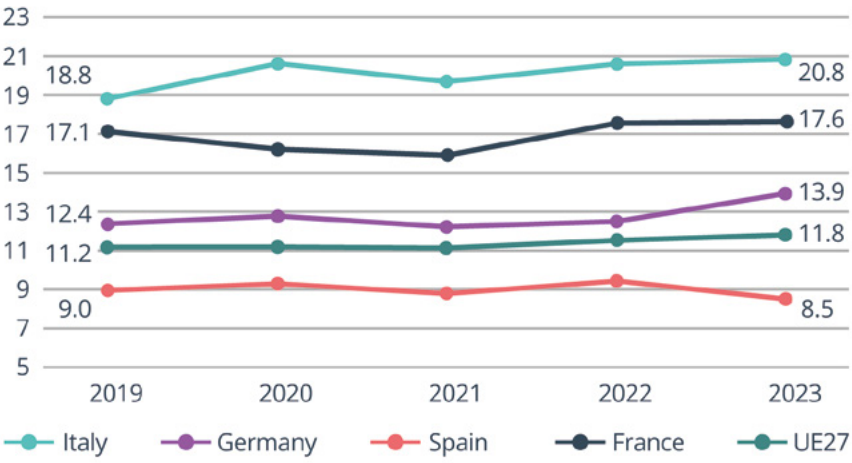
In 2023, the circular material use rate in the EU27 was 11.8%. In Italy, the value reached 20.8% (higher than the European average by 9 percentage points), recording the best performance among the main European countries. France ranks second (17.6%), with more than three percentage points behind Italy, while Germany and Spain rank third and fourth, respectively, with a circular material use rate of 13.9% and 8.5%, respectively. With regard to this specific indicator, Italy ranks second compared to all 27 EU countries, behind only the Netherlands, which recorded a value of 30.6% in 2023. Regarding the materials circular use rate trend over the last five years, Italy recorded the greatest increase, from 18.8% in 2019 to 20.8% in 2023 (+2%).

In 2023, the new packaging waste recycling targets were already achieved at a national level, with approximately 10.5 Mt material collected and earmarked for recycling out of a total of 13.9 Mt placed on the market for consumption, equal to 75.3%.

In 2023 Italy's leading position at a European level was confirmed, thus reaching and exceeding the 2025 objective (65% post-consumer packaging recycling) by more than 10 percentage points and the 2030 target by 5 percentage points. The sectors analyzed are listed here below.

Source: EUROSTAT

Circular material use rate in the main **European countries**, 2019-2023 (%)



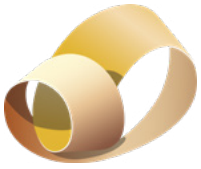
In 2023, faced with a sharp decline in consumption, the quantity of recycled **paper and cardboard** packaging increased by approximately 8% and reached 4.7 Mt. The recycling rate therefore rose to 92%, over ten percentage points more than the 80% of 2022, and returned to a level higher than the European target of 85% set for 2030. However, these last two years have been characterized by very fluctuating trends in consumption and raw material markets, due to high uncertainty, and a significant quantity of recycled waste exported abroad.

In 2023, the **plastics** supply chain recorded a slight increase in the quantities that were actually recycled equal to 1.4%, reaching 48% of recycling of packaging released for consumption. Compared to 2022, the quantities earmarked for mechanical recycling increased by 2.5%. Over the past few years COREPLA has been collaborating with companies specialising in the development of chemical recycling projects: in 2023, 4,209 t of selected waste were recycled, more than double compared to the previous year (1,719 t). The new European Regulation on packaging and packaging waste will significantly change the way in which packaging is designed, manufactured and used on the European market. The impacts on the plastic packaging supply chain are so significant that the entire supply chain must coordinate its actions to be prepared for the expiry of the individual measures. Market difficulties remain, due to lack of demand and inadequate prices, for secondary raw materials derived from plastic recycling.

The amount of **glass** packaging released for consumption fell by approximately seven percentage points, accompanied by a 4.3% reduction in national collection. The amount of recycled waste also fell by over 10 percentage points compared to 2022, from 2.3 to 2 Mt. The recycling rate was 77.4%, down 3.4 percentage points compared to 2022, still above the legal targets set for 2030 at 75%. Glass recycling was negatively affected by the turbulent trend of the national secondary raw material scrap market, which reached very high prices, far exceeding the cost of virgin raw materials.

In 2023, the quantities of recycled **steel** packaging amounted to 428 kt (+2.4% compared to 2022), approximately 88% of the packaging released for consumption, with an increase of almost ten percentage points compared to 2022: the 80% recycling target set for 2030 is thus reached and exceeded. At an industrial level, the issue of the energy impact in steel production is the main focus on which the technological choices of the world's steel industries are concentrating in order to reduce greenhouse gas emissions.

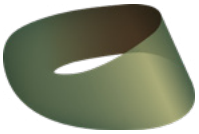
The **aluminum** supply chain reached 59.3 kt of recycling, in 2023, thus ensuring a 70.3% recycling of the packaging released for consumption, down 3.3 percentage points compared to the 2022 figure (73.6%), caused by both the increase in the quantities released on the market and the reduction in the quantities recycled. The 1.5% drop in the quantities recycled in 2023, compared to the 2022 figure, is attributable to the high variability of the value of secondary aluminum recorded on the market, with a consequent scrap stock policy which, in part, was also appreciated on foreign markets.



In 2023, the **wood** packaging supply chain industry achieved a recycling result of 64.9%, with approximately 2.2 Mt. for wood packaging waste. The targets of 25% by 2025 and 30% by 2030 have both already been achieved and largely exceeded by our country. 97% of recycled wood material is transformed into chipboard panels used by the furniture and furnishing accessories industry.

Compostable **bioplastic** waste is processed by organic recycling plants. The amount of recycled packaging on the amount released for consumption reached approximately 57% in 2023, equal to 44.3 kt, reaching the target set for 2025 well in advance and even two points higher than that of 2030. Italy today has a capacity for treating organic waste (green and organic municipal waste) that guarantees the self-sufficiency of the national system, thanks to a network of 357 plants distributed throughout the territory treating approximately 5 Mt of municipal waste, including packaging and compostable bioplastic products.

Although the obligation to carry out the separate collection of the **organic waste** has been introduced in Italy since January 1st, 2022, in 675 municipalities, up to a total of over 900 thousand inhabitants, separate collection has not yet been fully implemented; while in another 853 municipalities, equal to approximately 4.7 million inhabitants, the separate collection percentage is still well below the estimated per capita production. In 2022, 7.2 Mt of organic waste were collected in Italy, of which 5.4 Mt of wet waste and 1.8 Mt of green waste. The integration of composting with the anaerobic digestion process also made it possible to obtain, again in 2022, approximately 409 Mm^3 of biogas, part of which used for the production of electricity (approximately 411 GWh) and thermal energy (approximately 169 GWh), but in an ever-increasing quantity destined for the production of biomethane, which reached 167 Mm^3 in the reference year. In some regions, organic waste treatment capacities significantly exceed the collected and available waste: this imbalance is creating difficulties for the recycling companies.



In 2022, **sludge** management from the treatment of municipal wastewater involved a quantity equal to 3 Mt of the total managed amount, 54.2% of which was disposed of, 43.4% was used for recovery operations, while the remaining 2.4% remained in storage. In Italy, 18,042 municipal wastewater treatment plants are operational. 95.7% of the municipal wastewater is fully or partially treated but, to guarantee a high water protection, it is urgent to equip approximately 340 Municipalities with municipal wastewater treatment plants, which are still completely lacking.

Over 530 kt of end-of-life **tires** were produced in Italy in 2022, with a 7.8% increase compared to 2021. Approximately 85.4% of the quantities of PFU managed were recovered as material. However, data is based on MUD (single environmental statement form data) which also includes solid wheels, bicycle tires, Avio tires and inner tubes, expressly excluded by the Ministerial Decree no. 182/2019. Therefore, this quantity is higher than the quantities declared by the consortia, equal to approximately 53%. In view of the closure of the market outlet, expected from 2031, for recycled end-of-life tires powder, whose effects are already visible, recycling difficulties are foreseen with further growth in the energy recovery of PFU, waiting for the development of pyrolysis plants, unless there will be an increased use of recycled PFU for modified asphalts, as envisaged by the new Minimum Environmental Criteria for the construction and maintenance of roads (CAM Strade regulations).

In 2023, the **WEEE** collection rate was at 30%, still decreasing as in previous years, 35 percentage points away from the EU objectives (the European Union has set the collection target at 65% since 2019). EU Regulation 2024/1252, better known as the Critical Raw Materials Act, which came into force last May, added a further objective, namely increasing the recycling capacity of critical raw materials, by 2030, to secure the coverage of at least 25% of the consumption of strategic raw materials in the European Union. WEEE are real urban mines for the extraction of these materials and this confronts our country with a dual challenge: raising awareness and educating citizens on the proper WEEE collection and intensifying controls in order to detect flows that are managed outside official channels.

In 2023, 9,399 t of exhausted portable **batteries** and accumulators were collected, with a decrease of -8.7% compared to 2022. The Regulation on batteries and waste batteries, which came into force in August 2023, provides for ambitious collection targets for waste portable batteries (63% by the end of 2027 and 73% by the end of 2030) and batteries for light transport vehicles (51% by the end of 2028 and 61% by the end of 2031), as well as minimum levels of materials recovered from battery waste. A very important change, given the role that batteries will play in the ecological transition, from energy storage to transport.

In 2023, the collection rate of **used oils** was higher than 47% of the oil released for consumption, with a total collected amount of approximately 183 kt. Of these, approximately 180 kt were made available to the 2 regeneration companies of the consortium, equipped with a total of 3 plants, located in the North in Lombardy, in the Center in Lazio and in the South in Campania, for a total installed capacity of 249 kt. At the same time, the regeneration rate, initially reduced due to the greater recovery of oil from emulsions, quickly recovered to the current values of 98%.

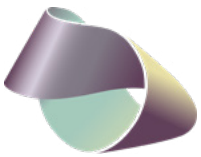
In 2023, approximately 2.4 Mt of **used vegetable oils** for food use were placed on the market in Italy. Almost 300 kt of exhausted vegetable oils were produced: approximately 65% came from the domestic sector and 35% from the professional sector, divided between catering, industry and craft sectors. The total vegetable and animal oils and fats earmarked for recycling were over 100 kt, a figure that grew by approximately 4% compared to the values of 2022.

In 2022, there was a reduction in the quantities destined for recycling of **end-of-life vehicles** compared to those recorded in 2021. The main causes can be linked to the drop in annual registrations certified by the PRA public Vehicle Register and the international situation that generated delays in the supply of raw materials for the construction of cars and the consequent crisis in the sector, with major delays in both production and delivery. Energy recovery is zero, compromising the possibility of achieving the overall recovery target.

Construction and demolition waste (CDW) was confirmed, also in 2022, as the most significant waste flow (about 60 Mt) at a national level with a percentage equal to 50% of the total special waste produced by economic activities. The recovery rate accounted for 79.8% in 2022, therefore above the 70% target set for 2020 by the Waste Framework Directive. Although ISPRA data indicate high recovery percentages, critical issues related to the traceability of CDWwaste flows persist. The market for recovered aggregates is underdeveloped and heterogeneous across the territory, with replacement rates of natural aggregates still very low.

Street sweeping waste is collected separately from other solid municipal waste. The recovered quantities in 2022 were substantially in line with the previous year (499 kt). There are still several obstacles that prevent the sector from making a substantial contribution to achieving the circular economy objectives. The failure to separate from unsorted urban waste, still very widespread, leads to an underestimation of the real and potential quantities.

In 2022, the percentage of Italian municipalities that collected **textile** waste separately accounted for 76% of the total which, although higher than during the previous years, still appeared far from the expected total coverage of the national territory. The quantities collected have been constantly increasing in recent years: in 2022 the collected textile waste amounted to approximately 160 kt, an increase of approximately 4% compared to approximately 154 kt in 2021. Furthermore, in 2022, the estimated share of urban textile waste was still large, over 1 Mt (approximately 7 times the amount of separate collection detected in 2022) that ended up in unsorted waste collection. The whole supply chain is fully aware of the crucial importance of the EPR scheme to bring about a decisive turning point in the sector.



The operators active in the **solvent** recycling sector continue to be a fundamental link in the national production context. With an overall authorised capacity of over 300 kt/year, they guarantee the management of over 70% of the solvent-based wastewater produced at a national level. The volumes of recovered products (almost double the European average where only 38% of the wastewater generated is recovered) are an important source of new available raw materials.

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