

RECYCLABILITY OF PLASTIC PACKAGING

IMPROVING RECYCLING THROUGH ECO-DESIGN

GUIDE 2022 EDITION



COTREP

Technical Committee for the Recycling
of Plastic Packaging

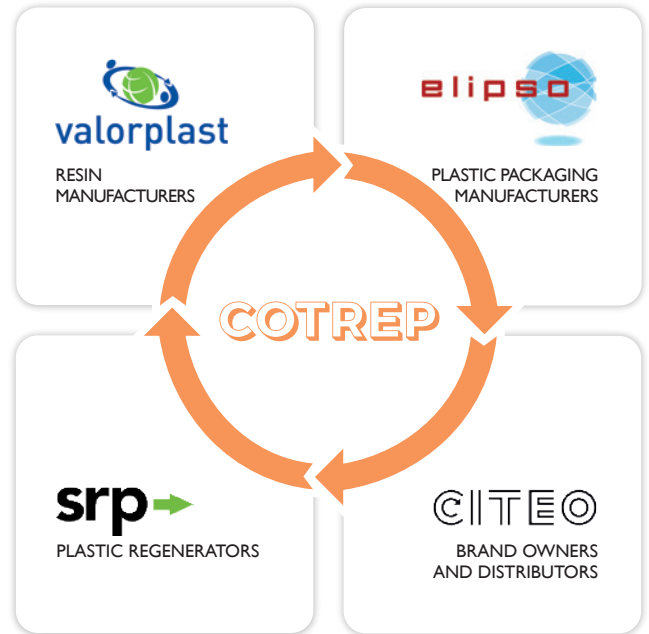
Editorial

Plastic packaging can be seen everywhere in daily life and has revolutionised the way we live, offering us simple, effective and practical solutions. Every year, some 1.2 million tonnes of plastic are used in France to package the products we use every day. Once used by consumers, this ultimately becomes waste. We are therefore faced with the significant challenges of recycling increasing volumes of this material while taking action from the early stages of the process by eco-designing packaging.

Valorplast, Elipso and Citeo set up COTREP (the Technical Committee for the Recycling of Plastic Packaging) in 2001 to support manufacturers and users of plastic packaging within the French market. In 2020, regenerators represented by the SRP joined COTREP. COTREP's mission is to help designers and users of plastic household packaging to develop recyclable solutions while allowing innovation.

COTREP has shared its expertise by publishing over 50 general notices on plastic household packaging recyclability based on field expertise and testing conducted in laboratories, on a pilot scale, in test centres, or in industrial conditions at regeneration plants. These notices form a universally accessible knowledge base.

This guide reiterates key recyclability principles set out by COTREP to promote innovation without compromising the recycling potential of plastic household packaging.



Improving the recyclability of packaging is a strategic eco-design measure.



CATHERINE KLEIN
Managing Director
of Valorplast



EMMANUELLE BUFFET
Executive Delegate of Elipso



FRANÇOIS AUBLÉ
Chairman of the SRP



VALENTIN FOURNEL
Citeo Eco-design
Services Director

Members

COTREP

COTREP embodies a commitment among all stakeholders in the plastic household packaging value chain to improve recyclability. It includes resin manufacturers, plastic packaging manufacturers, marketers and regenerators, represented by Valorplast, Elipso, Citeo and the SRP. Its mission, set out in a charter, is to disseminate knowledge of various packaging components' impact on recycling.



Elipso is a trade association that seeks to promote the plastic packaging industry.

Every day, Elipso:

- helps companies to adapt to changes in regulations
- helps public authorities and decision-makers to identify future priorities
- acts as a recognised intermediary between the press, partners in the sector and its clients
- represents the industry and promotes its image



Since 1993, Valorplast has advocated three key strategic priorities aimed at developing the circular economy for plastic packaging:

- increasing the recycling rate of plastic household packaging through eco-design and the extension of sorting instructions
- ensuring that recycled plastic meets high quality standards so that guaranteed outlets with high added value are available for this material
- devising innovations to help develop future recycling streams



Citeo is a mission-led business set up by companies in the fast-moving consumer goods and retail sectors to reduce the environmental impact of their packaging and paper waste by proposing solutions for waste reduction, reuse, sorting and recycling. In France, 70% of household packaging and 57.5% of paper are currently recycled thanks to the efforts of French people to sort their waste, now the most popular environmental «good deed».



The SRP is the French organisation representing companies that run plastics regeneration units in France. Such facilities are industrial sites dedicated to mechanical recycling and perform at least two of the following processes: washing, shredding, densification, micronisation, granulation, compounding. Twenty-six regenerators are currently members, representing 32 recycled raw material (RRM)¹ production sites in France, which is approximately 80% of the country's capacity.

SRP members are vital links in the chain for developing an effective and low-carbon national circular economy. Within COTREP they provide operational expertise on the impact of packaging on regeneration lines and its effect on RRM quality as defined by converters' specifications.

¹ RRM plastics are materials/ compounds that are ready for use by plastics processors as a full or partial substitute for virgin resins. They are produced by regenerators using waste from a variety of sources including households and economic activities (farming, construction, service sector and industry). They must meet precise specifications.

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ECO-DESIGN: A TOOL FOR IMPROVING RECYCLABILITY

WHAT PROGRESS HAS BEEN MADE ON ECO-DESIGNING HOUSEHOLD PACKAGING?

In 2020, the majority of plastic household packaging tonnage is already recyclable.

- 65% of marketed plastic packaging is recyclable in existing streams. This packaging included PET, PP and PE bottles; non-lidded rigid PET, PE and PP packaging; and flexible PE packaging.
- 15% of plastic packaging is eligible to join streams under development: lidded rigid PET packaging, flexible PP packaging and rigid PS packaging.
- 20% of plastic packaging is not yet allocated a recycling stream and required development to enable recycling. This included packaging made of resins with no allocated stream (PVC, PLA, etc.), complex packaging, etc.

The purpose of COTREP guidelines and measures is to help you switch to recyclable solutions.



The European Commission target is for 100% of plastic packaging to be recyclable or reusable by 2030.

EXTENSION OF SORTING INSTRUCTIONS IN FULL SWING

Since 1992: sorting bin used for plastic bottles

Since this date, French consumers have been able to use their sorting bins for certain packaging types: paper/cardboard packaging, metal packaging, and plastic bottles.



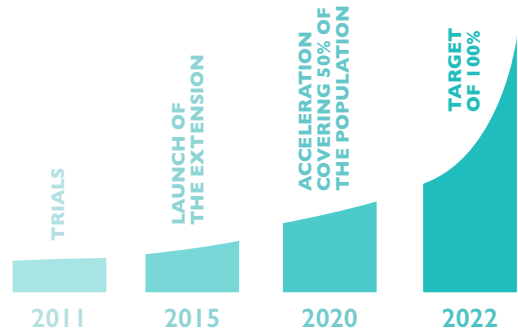
Now: sorting instructions extended to all plastic packaging

The plan to extend sorting instructions launched by Citeo and its partners in 2011 is aimed at making sorting simpler for consumers by allowing them to use their sorting bin for all their packaging waste.

Since the beginning of 2021, the extension of sorting instructions has enabled half of the French population to sort all their plastic packaging waste including pots, trays and films. Under the French Energy Transition Act, the extension of sorting instructions applies to the entire French population in 2022.



Steps towards 100% coverage of the French population by the extension of sorting instructions

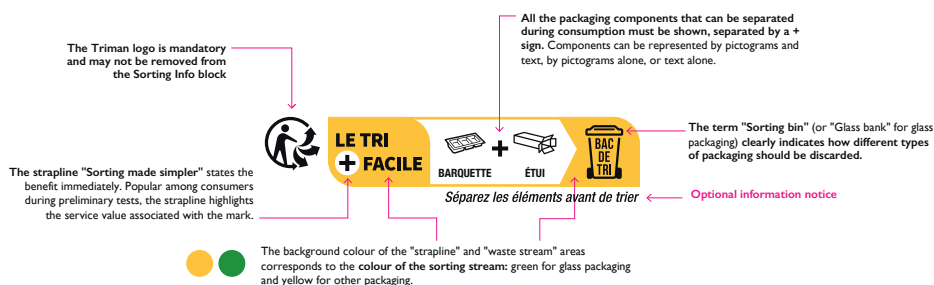


Steps to speed up plastic recycling

The extension of sorting to include all household packaging will facilitate the collection of packaging for recycling. This marks a significant advance for the circular economy. The challenge will be to design recyclable packaging that neither disrupts current industrial recycling processes nor compromises the quality of recycled material.

NEW HARMONISED SORTING INFO!

A new compulsory label will soon be included on all packaging to help consumers sort their waste appropriately. www.citeo.com/info-tri

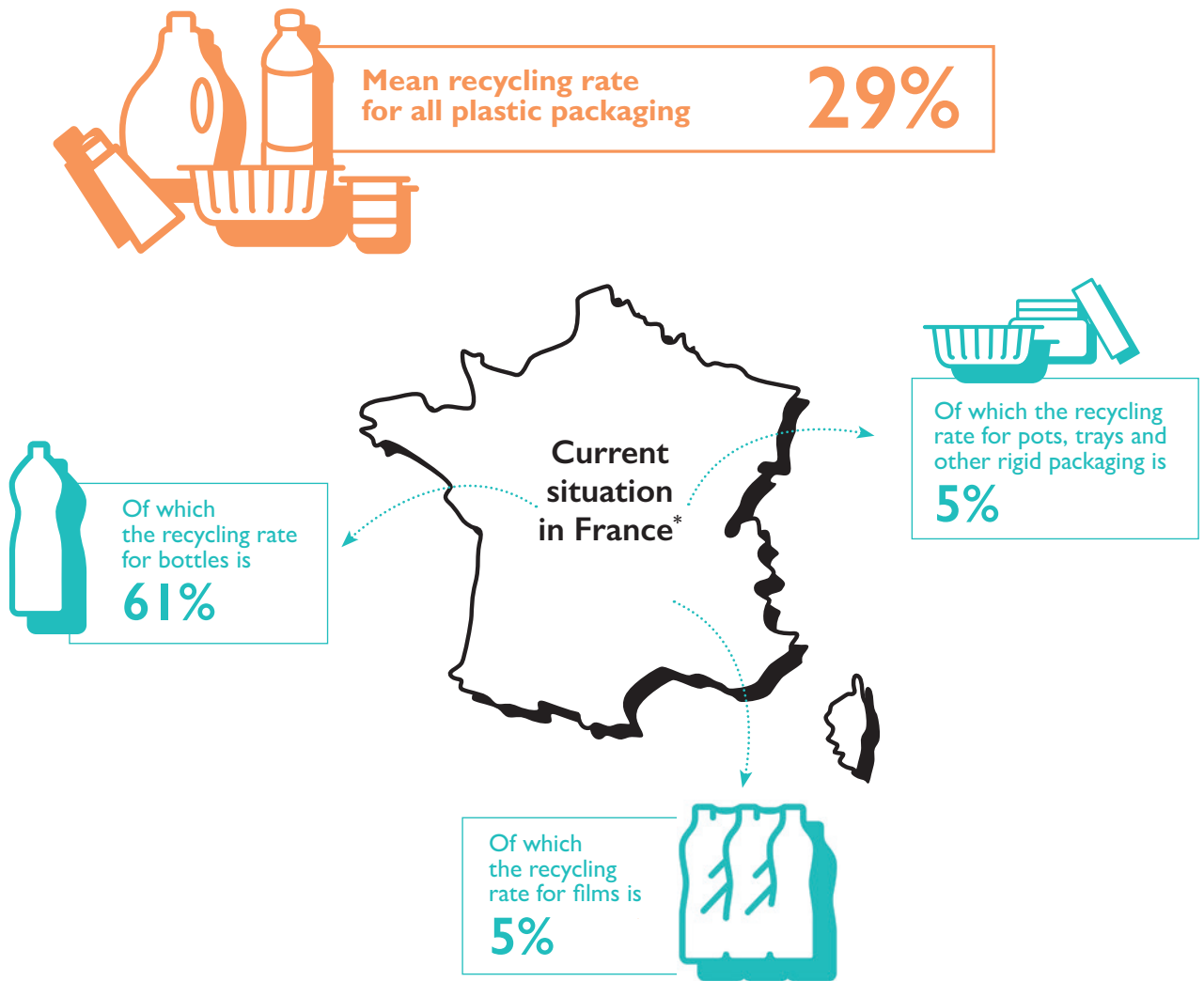


RECYCLING RATES SET TO RISE

The extension of sorting instructions will prompt a rise in the recycling rate for plastic packaging

The aim of extending the sorting instructions to all plastic packaging is to double the recycling rate for these items. This will be achieved by sorting pots, trays, other rigid plastic items and films, and through a ripple effect from plastic packaging already covered by the sorting instructions (bottles). This project is also positively affecting recycling of other packaging materials.

As a result, an additional 4kg of household packaging waste is sorted per person per year in the regions covered. Evidence confirming the anticipated ripple effect can be seen in the fact that half of this additional sorted packaging is glass, metal, paper/cardboard or plastic bottles. The other half is pots, trays and films, 51 000 tonnes of which was recycled in 2020.



The European Commission target is for 55% of such packaging to be recycled by 2030.

*including the French overseas departments, regions and collectivities

PROCESSES







AT SORTING CENTRES

Separating and preparing different packaging items for recycling

Packaging placed in residents' sorting bins is taken to sorting centres. These sorting centres separate the various packaging types into streams which are then sent to regenerators.

It has been necessary to modernise and reorganise French sorting centres to meet the requirements of the sorting instructions extension project. France has gone from 260 partly outdated centres to 160 centres, 60 of which are equipped with cutting-edge technologies such as optical sorting to separate the different types of plastics.

The table below shows the main processes used to sort plastic household packaging waste at sorting centres. Packaging (or packaging components) with no current designated recycling stream is rejected. These rejects are subsequently sent for energy recovery (80%) or landfill (20%)*.

STEPS	DESCRIPTION	EXAMPLES OF PRACTICES TO AVOID
<p>BAG OPENER FEED</p> 	<p>Packaging collected under the selective collection system is unloaded. Any collection bags are opened to fully separate all packaging for sorting processes.</p>	
<p>BALLISTIC SEPARATION</p> 	<p>Packaging is sorted by size and shape. Medium-sized plastic packaging is split into flat materials (bags, films, etc.) and hollow containers (bottles, pots, trays, etc.).</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Packaging that combines features of hollow containers and flat materials
<p>METAL SORTING</p> 	<p>Packaging items partly or fully composed of metals are divided into ferrous metals and non-ferrous metals.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Mixed plastic/metal packaging • Packaging that includes metallic inks • Packaging components such as hinges, springs, etc. enclosed in plastic components
<p>OPTICAL SORTING</p> 	<p>Using optical sorting technology, it is possible to sort by material and colour where necessary. Material sorting is performed by near-infrared (NIR) spectroscopy, enabling different plastic resins to be detected and separated. Colour sorting is performed by camera in the visible light range of the spectrum (VIS) and applied to the PET stream to split it into a clear and coloured stream.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Packaging covered with a full sleeve (sleeves covering > 70% for bottles > 500ml and > 50% for bottles < 500ml) • Dark packaging incorporating carbon black • Packaging whose body is made of a combination of different resins or materials
<p>MANUAL FILTERING</p> 	<p>After automatic sorting, the quality of plastic streams can be further enhanced manually by operators removing unwanted residual items.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Resins other than PET, PE, PP, PS (PVC, PLA, PC, etc.) • Copolyesters (PETG, etc.)
<p>BALING</p> 	<p>The various sorted plastic streams are compressed into bales to facilitate and optimise transport to regeneration units.</p>	

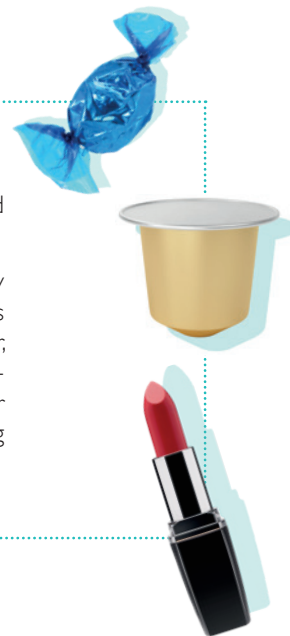
* Citeo sources

FOCUS ON 2 ISSUES AT SORTING CENTRES

Small packaging items are more difficult to sort

Small/low-capacity packaging items (pods, films < A5, bottles < 20 ml, etc.) are often rejected during ballistic separation.

The fine fraction (diameter < 60 mm) in which small packaging items are included is highly disparate and includes numerous impurities (sharp objects, residues, food remains, etc.). This fraction is generally rejected at the early stages of sorting by ballistic separation. However, small packaging items may sometimes be sorted and directed to recycling streams. For example, they may bounce and fail to fall through the trommel's holes, be enclosed in other objects, etc. Further work on eco-designing small packaging items is required to help sorting technologies capture them more precisely without lowering the quality of other streams.

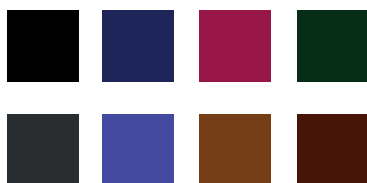


Not all dark packaging is detectable

The use of certain colorant solutions in dark plastic packaging, e.g. certain solutions containing carbon black, can render dark packaging items undetectable by optical sorting equipment. These pigments absorb infrared radiation, which means that the packaging returns no signal to the optical sorting equipment and therefore cannot be identified at sorting centres and directed towards a recycling stream.

Innovative detectable black colorant solutions are available. COTREP has developed a test protocol for validating the detectability of dark colorants. This is available at www.cotrep.fr

Colours considered to be dark.
A specific detectable colorant must be used.



Colours considered detectable by
near-infrared optical sorting equipment.



REGENERATION STREAMS

WITH DIFFERENT LEVELS OF MATURITY

Under the extension of sorting instructions, all plastic household packaging waste is collected. Packaging collected and sorted at sorting centres is dispatched to join existing regeneration streams. Plastic regeneration units are industrial sites performing at least two of the following processes: washing, shredding, densification, micronisation, granulation, compounding. The possibility of developing new regeneration streams is currently being considered. Some packaging items have no allocated regeneration stream.

Available streams

CLEAR PET bottles

Transparent/light blue transparent bottles



COLOURED AND OPAQUE PET bottles

Coloured transparent and opaque bottle*



Rigid HDPE packaging

Bottles, pots and trays, and other rigid packaging (including tubes)



Rigid PP packaging

Bottles, pots and trays, and other rigid packaging (including tubes)



NON-LIDDED CLEAR PET rigid packaging

Pots, trays and other non-lidded clear PET rigid packaging



PE films and flexible packaging

Flexible packaging, films, nets and bags



* Including non-lidded coloured PET pots and trays.

Streams under development

Work is in progress to set up regeneration streams for certain packaging items that are sorted under the extension of sorting instructions.



LIDDED PET rigid packaging

Sorting of these packaging items is being trialled at sorting centres and their mechanical and chemical regeneration potential is being tested. Applications are also being developed for this stream type.



FLEXIBLE PP PACKAGING

Sorting of films is being trialled at sorting centres and their mechanical and chemical regeneration potential is being tested. Applications are also being developed for this stream type.



RIGID PS PACKAGING

Trials are in progress to develop current outlets and create new regeneration streams.

No streams available

Some plastic resins are not allocated permanent recycling streams, as the marketed tonnages are insufficient to justify organising an industrial sorting and regeneration stream.

PVC packaging

Due to its low tonnage in packaging, there are no plans to develop a dedicated sorting and regeneration stream for PVC packaging, unlike in other sectors such as construction.

Moreover, this resin is not eligible for additional recovery processes (e.g. solid recovered fuel or pyrolysis). PVC is therefore not appropriate for use in packaging and COTREP discourages its use.



COMPOSTABLE packaging

Compostable packaging is rejected at sorting centres, as it is not allocated a dedicated regeneration stream.

Key compostable materials: PLA and PHA

Currently marketed tonnages are too low to develop a dedicated sorting and regeneration stream.

NON-PET, PE, PP OR PS PACKAGING

Currently marketed tonnages are too low to develop dedicated sorting and regeneration streams.

Why can't flexible PP packaging be recycled in the rigid PP stream?





Firstly, recycling a mixture of flexible and rigid PP leads to lower quality recycled PP, which is not sustainable given France's recycling targets. Secondly, French recycling lines are not equipped to process a mixture of flexible and rigid PP, as this requires special equipment, and there are no compelling arguments to invest in this area. COTREP has published a negative notice (AG60 and AG61) on recycling flexible packaging in the rigid packaging stream.

REGENERATION PROCESSES

Regeneration is the process by which packaging sorted at sorting centres is used to produce recycled materials ready to be reincorporated in new products.

The table below shows the main processes used to regenerate plastic household packaging waste.

STEPS	DESCRIPTION	EXAMPLES OF PRACTICES TO AVOID
<p>BALE OPENING</p> 	<p>A quality inspection of bales is conducted on receipt: checks are performed on specifications (dimensions, weight, etc.) and compliance with quality standards (characterisation of composition).</p>	
<p>OPTICAL SORTING</p>  <p>METAL SORTING</p> 	<p>The quality of bales leaving sorting centres is not high enough for regeneration. Material sorting of objects is performed to remove contaminants and other impurities: other polymers, non-polymer compounds (e.g. wood, metal, paper, etc.).</p> <p>The clear PET stream is also colour sorted to extract coloured or opaque PET.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Packaging combining several resins and plastic/metal • Metallic inks • Hinges or metal springs enclosed in plastic items • Carbon black as an outer layer or combined with materials preventing recognition by optical sorting equipment (NIR)
<p>SHREDDING</p> 	<p>Packaging is shredded into flakes.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Incompatible, inseparable multi-layered packaging • Glass, metal items, etc. that may damage the shredder
<p>WASHING</p> 	<p>The flakes are washed to remove particles and residues (labels, adhesives, inks, remains, etc.).</p> <p>Conditions for washing in water:</p> <ul style="list-style-type: none"> • PET: 60-90°C in alkaline conditions • PE/PP/PS: water at room temperature 	<p>Avoid:</p> <ul style="list-style-type: none"> • Metallic ink pigments which are difficult to eliminate • Labels that are non-removable in water
<p>SORTING BY DENSITY</p> 	<p>The flakes are placed in a flotation tank to separate the required polymer from other polymers by density. For PE or PP, contaminants such as stones or metal can also be eliminated at this stage.</p>  <p>EPS: 0.04 PP: 0.9 LDPE: 0.92 HDPE: 0.94 I: buoyancy limit in water PS: 1.05 PLA: 1.24 PET: 1.34 PVC: 1.34-1.40</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Combinations of separable items of similar densities (e.g.: PVC with PET) • Items of a similar density to water (d=1) • Additives that alter flake behaviour during flotation (e.g.: fillers)

STEPS	DESCRIPTION	EXAMPLES OF PRACTICES TO AVOID
<p>OPTICAL SORTING OF FLAKES (*)</p> 	<p>Final filtering of flakes by optical sorting to not high enough trace impurities (other polymers, other materials, or the same polymer in a different colour).</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Materials/resins other than the majority resin (loss of material: approximately 20 flakes removed per 1 unwanted flake in the stream) • Plastic combined with metal (aluminium or steel)
<p>EXTRUSION / GRANULATION</p> 	<p>Conversion into granulate with a filtration stage to eliminate any final impurities.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Thermosetting materials • Combining with polymers that have different softening/melting points to the main polymer • Materials that are not separable by filtration • Metal items
<p>VACUUM DECONTAMINATION (**)</p> 	<p>The PET is heated under vacuum to extract any remaining contaminants, make it suitable for contact with food, and increase the viscosity of the PET to achieve characteristics required for manufacturing bottles or trays.</p>	<p>Avoid:</p> <ul style="list-style-type: none"> • Direct printing except for expiry dates on clear PET
<p>QUALITY CONTROL</p> 	<p>Quality check (of physical, mechanical and chemical parameters) prior to shipment to plastics converters for manufacture of new items.</p>	

(*) optional step performed on certain regeneration lines (***) for food-grade PET only.

Packaging items (or components of packaging items) with elements that cause issues for regeneration are rejected (the procedure varies depending on the stage in the process at which they are discarded).



RECYCLING, A SECOND LIFE

Current situation

Mechanical recycling is the main process applied in Europe for 99% of plastic recycling. Applications for recycled PET, PE and PP vary depending on the material's mechanical properties, colour, available quantities, and suitability for use in food-grade products.

CLEAR PET outlets:

In France, the recycled clear PET stream mainly consists of transparent or azure plastic bottles. Some streams may accept clear PET trays and pots for recycling mixed in with bottles. The majority of French clear PET regenerators currently apply EFSA¹-approved processes enabling them to produce food-grade rPET. Currently, the main outlets for clear rPET are packaging items, i.e. **bottles, pots and trays**. Clear rPET can also be used to make **textile fibre** (polyester).

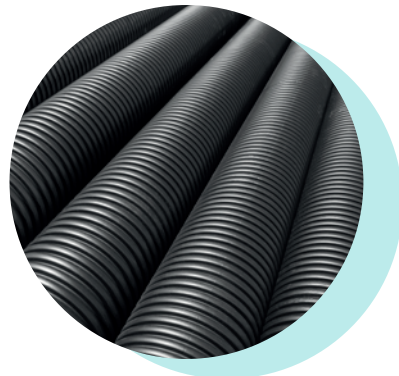


COLOURED PET outlets:

In France, the recycled coloured PET stream mainly consists of transparent or opaque coloured plastic bottles. Some streams may accept coloured PET trays and pots for recycling mixed in with bottles. Coloured PET is mainly regenerated as **plastic fibre** which is often used in the construction or automotive sectors.

RIGID PE outlets:

In France, rigid PE packaging is regenerated as a mixture and not separated by colour or packaging type. The regenerated material is therefore grey. The main applications for rPE from rigid packaging are **tubes for the construction sector**. Other applications are also possible including **watering cans, car seats and bins**. Non-food packaging applications are also beginning to be developed.



¹ EFSA: European Food Safety Authority

RIGID PP outlets:

In France, rigid PP packaging is regenerated without being sorted by colour or packaging type. The regenerated material is therefore dark coloured. The main applications for rPP are **injection-moulded parts** for manufacturing **automotive components** or **storage crates**. Non-food packaging applications are also beginning to be developed.



FLEXIBLE PE outlets:

Flexible PE packaging is regenerated without being sorted by colour or packaging type. The regenerated material is therefore grey. The main applications for rPE from flexible packaging are **bin bags** and **irrigation pipes**. Applications for other film types are being examined.

Recycling and contact with food

Numerous packaging items are used in the food sector. They must meet multiple standards in order to be approved for contact with food.

In fact, the need to produce food-grade packaging is one of the main challenges faced when reincorporating recycled materials.

Clear PET regenerators are currently approved by the European Food Safety Authority (EFSA) to produce food-grade packaging since:

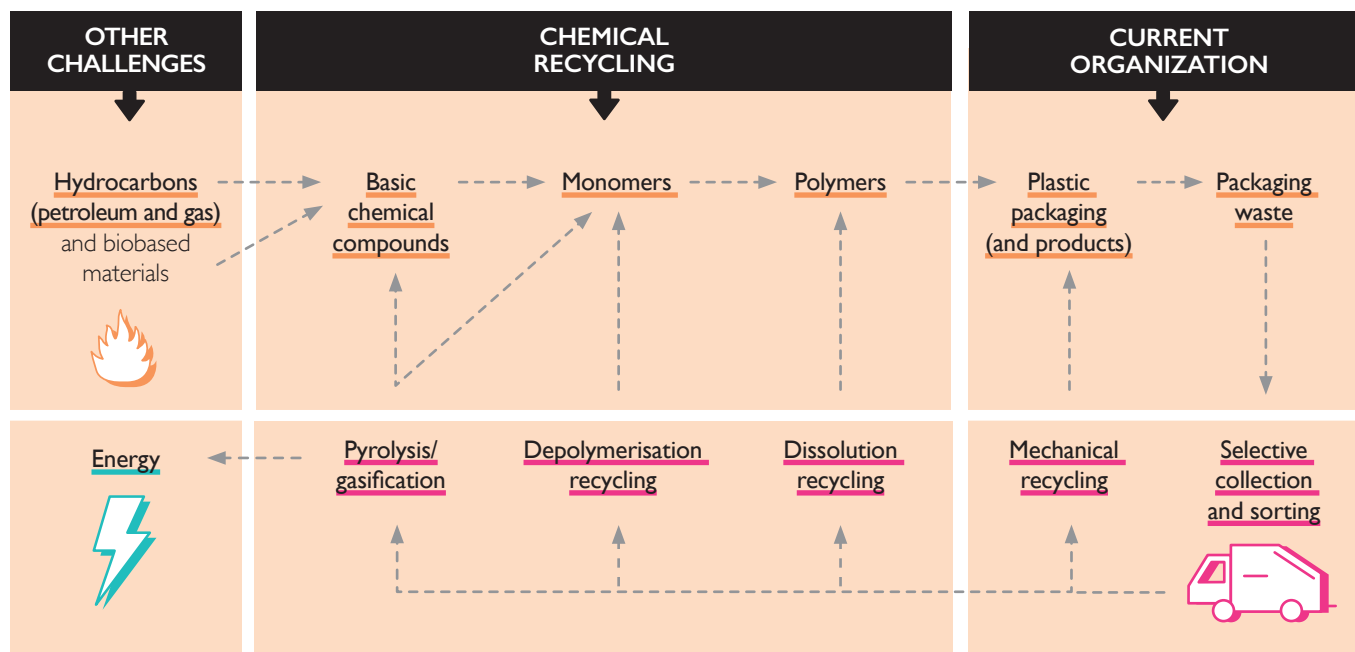
- the clear PET stream mainly consists of packaging that has been used to contain food (a maximum of 5% packaging that has not contained food is authorised by the EFSA)
- these regenerators have implemented decontamination processes validated by the EFSA, ensuring that recycled material meets food safety standards.

R&D work is currently being conducted to enable food-grade packaging to be produced from other resins including coloured PET, opaque PET and a wider range of other resins (PS, PE, PP). COTREP guidelines for the relevant packaging items may need to be amended to reflect these new processes.

CHEMICAL RECYCLING

The term chemical recycling covers several types of processes:

- **Physical or dissolution recycling:** the plastic is mixed into a solvent to remove additives and colourants, leaving only "pure" plastic. The polymers remain intact.
- **Depolymerisation recycling:** a chemical, biological and/or thermal process breaking plastic's molecular bonds to turn them back into monomers.
- **Pyrolysis and gasification:** these processes are used to break plastic's molecular bonds to form liquid or gaseous hydrocarbons similar to petroleum refining byproducts.



- Input materials
- Conversion processes
- Output materials

CHEMICAL RECYCLING: A TOOL TO SUPPLEMENT MECHANICAL RECYCLING

Chemical recycling is a solution used to process various items including certain types of complex packaging. **However, this type of process is still under-developed at industrial scale.** COTREP is monitoring the development of these new processes and work carried out on them. The guidelines will be updated once these processes are operational for French packaging streams.



DESIGN PRINCIPLES FOR RECYCLABLE PACKAGING

COTREP publishes guidelines helping designers and users of plastic packaging to market solutions that can be collected, sorted and regenerated in French recycling streams. Each stream operates in its own specific way and has its own prerequisites and outlets for regenerated materials.

Rather than performing individual recyclability assessments, COTREP provides a knowledge base comprising a set of general notices and guidelines helping individuals assess the recyclability of their packaging.

The following 3 principles should be applied to ensure that packaging is recyclable throughout France:

1

The priority is to recycle the main packaging component, i.e. the bottle, tray body, pot body or film.

Therefore, the main component should ideally be mono-material and composed of a resin that is sorted and directed to an existing recycling stream (see sorted streams).

PACKAGING TYPES	BOTTLES	POTS, TRAYS & OTHER RIGID PACKAGING	FILM & FLEXIBLE PACKAGING
Currently sorted resins	Clear PET, coloured and opaque PET, PP, HDPE	Clear PET (with no cover or lid), coloured PET (with no cover or lid), PP and HDPE	PE
Resins being examined		PS, lidded clear PET, lidded coloured PET	PP

2

Barriers, additives and fillers should not compromise sorting and recycling.

The main resin is often combined with other materials used to improve packaging features (barrier properties, sealability, visual aspects, processability, etc.).

Packaging should not contain any carbon black, fillers or additives that alter its density. Compatible functional barriers should be used instead.

3

None of the associated components should disrupt recycling of the packaging body.

Design choices for associated components (closure systems: covers, lids, etc. and design elements: labels, inks, adhesives, etc.) should be based on the resin used in the body.



ECO-DESIGN GUIDELINES

Recycling compatibility is rated using 4 categories

The COTREP guidelines were updated at the beginning of 2021 to improve their accuracy and better reflect the impacts of packaging components on recycling.

For each sorted stream, COTREP issues guidance on recycling plastic packaging in optimal conditions without disrupting the stream (in terms of yield, damage to equipment, decline in the quality of recycled materials, etc.).

This is based on test results or expert opinion. It reflects current knowledge of the various streams and may be updated to reflect changes in industrial practices and packaging tonnage.

The guidelines are split into 4 categories. Each packaging component is assessed in light of sorting and regeneration constraints for the various streams.

FULL COMPATIBILITY – IDEAL

This category includes components that are most compatible with recycling in the identified stream. Good work! You need take no further action. Your component or resin is eco-designed to be recycled in line with the French system.

For example:

- PE cap on a PET bottle

TOLERATED COMPATIBILITY

This category includes components or resins compatible with recycling in the identified stream.

COTREP considers them to be sufficiently compatible with the recycling stream.

For example:

- EVOH in rigid PP packaging

LIMITED COMPATIBILITY – CONDITIONAL

This category includes components or resins that have limited compatibility with recycling in the identified stream and should be substituted where possible.

Although inclusion of such items in the recycled stream causes issues, the sector has adapted to limit impacts to an acceptable level under current marketing conditions. Action should be taken to substitute these components where possible.

For example:

- Aluminium lid on an HDPE bottle

NON-COMPATIBLE AND/OR DISRUPTIVE

This category includes components or resins that should be avoided as they will significantly diminish the quality of recycled material and/or disrupt sorting and regeneration processes.

Priority action should be taken to attempt to eliminate such components.

Examples:

- Aluminium on PET
- PVC on PET
- Wood combined with rigid HDPE or PP

Scope of COTREP guidelines

The COTREP guidelines are valid for France. European guidelines are not always consistent with those issued by COTREP. Some European guidelines may differ from those issued by COTREP:

- **The packaging tonnage is different:** consumer habits differ among European countries, which means that different packaging is marketed.
- **Streams are organised differently:** streams are tailored to consumer habits, marketed tonnages, and country-specific factors. In France, a mixture of all packaging types is collected (excluding glass) whereas in Germany, for example, paper/cardboard is separated at source from plastic. Consequently, material sorting and filtering processes performed by recycling professionals are different, as are the costs and quality levels.

HOW TO USE THE COTREP GUIDELINES

➔ Assessments should be performed in 3 steps:

1. Select the packaging type you wish to assess (bottle, tray, pot, flexible packaging, tube, etc.).
2. Select the majority plastic resin used in the packaging body.
3. Consult the detailed guidelines for the body, closure system, designs, and any other associated components.

Closure system

These associated components should not disrupt recycling of the packaging body.

Please note that if your packaging includes a lid or cover, the adhesive used to bond the closure system should also be included in the assessment.

Designs

These should be designed to enable the packaging item to be sorted in the appropriate recycling stream and to be easily separable from the packaging body during regeneration. What labels, sleeves or printing is appropriate for your packaging item?



Packaging body

This is the majority component that should be given priority for recycling. Which colours, barriers and additives are compatible with the main resin?

How should the COTREP guidelines be interpreted?

If a component falls in the orange column (limited compatibility – conditional), this does not mean that your packaging item is not recyclable in its stream and you should not be discouraged. Where possible, we recommend carrying out eco-design or R&D work to try and substitute it.

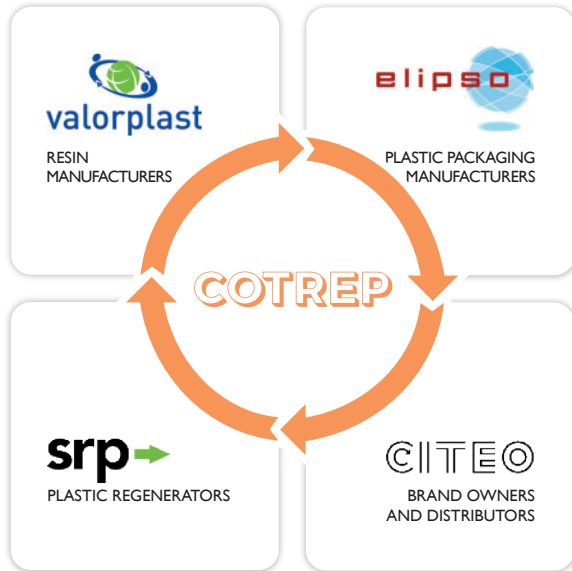
If a component falls in the red column (not compatible and/or disruptive), this means that your packaging item is not recyclable in the French stream as this component limits recyclability of the full packaging item. Some of these disruptive components may damage regenerators' industrial facilities and/or diminish the quality of recycled material.



GET STARTED

Finding information

Technical Committee for the Recycling of Plastic Packaging www.cotrep.fr



- Guidelines issued on the recycling compatibility of packaging
- General notices issued on the potential of packaging at sorting centres or its impact on the relevant recycling stream
- Technical notices issued on the detection of dark packaging during optical sorting

Assessing recyclability

Packaging recyclability test
<https://tree.citeo.com/>



- Packaging recyclability assessment based on guidelines issued by COTREP and other specialist material networks
- Identification of disruptive components

FURTHER RESOURCES

Learn about eco-design methods

Online eco-design facilitator

<https://feel.citeo.com>



- A full eco-design assessment of your product
- A personalised action plan with tangible action points
- A selection of tools and services meeting your requirements

Measuring and validating environmental benefits

BEE: An LCA tool developed by Citeo

<https://bee.citeo.com>



- Free, confidential and open access
- Calculation of the environmental impact of various packaging solutions and validation of chosen eco-design processes
- Rapid identification of tangible eco-design recommendations

Securing backing for your environmental process

French Environment and Energy Management Agency

www.ademe.fr



- General database on eco-design and sustainable development
- Funding of projects relating to eco-design and packaging waste management

Glossary

SRF	Solid Recovered Fuel
d	Density
EFSA	European Food Safety Authority
EVOH	Ethylene-Vinyl Alcohol
HDPE	High Density Polyethylene
LDPE	Low Density Polyethylene
NIR	Near-Infrared
PA	Polyamide
PC	Polycarbonate
RRM	Recycled Raw Material
PE	Polyethylene
PET	Polyethylene Terephthalate
PETg	PolyEthylene Terephthalate Glycol
PHA	Polyhydroxyalkanoates
PLA	Polylactic Acid
PP	PolyPropylene
PS	Polystyrene
PVC	Polyvinyl Chloride
R&D	Research and Development
rPE	Recycled polyethylene
rPET	Recycled polyethylene terephthalate
rPP	Recycled polypropylene
SRF	Solid Recovered Fuel

COTREP

www.cotrep.fr

CITEO

50-52, boulevard Haussman
75009 Paris, France
Tel.: +33 (0)1 81 69 06 00

www.citeo.fr



13, rue La Fayette
75009 Paris, France
Tel.: +33 (0)1 46 22 33 66

www.elipso.org

srp →

1 bis, rue de Milan
75009 Paris, France
Tel.: +33 (0)1 53 32 79 79

www.srp-recyclage-plastiques.org

valorplast

21, rue d'Artois
75008 Paris, France
Tel.: +33 (0)1 88 46 10 00

www.valorplast.com