



**Best in class
deposit systems**

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Impact of the introduction of a Deposit Recovery System (on beverage bottles) on the French sorting plants (MRFs)

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Objectives of the study

Study and analyze the impact of the introduction of a Deposit Return System (DRS) on beverage bottles on the existing packaging sorting plants (MRFs) in France:

- ▶ **Quantities and qualities** of incoming and outgoing streams
- ▶ Evolution of the **number of streams** to be produced
- ▶ **Evolution of the qualities** of the produced streams
- ▶ **Evolution of costs and revenues** (costs of sorting and revenue from sales of materials)

1. Study's assumptions:

What streams are concerned by deposit?

- PET and HDPE (PP) bottles
- Milk is also targeted by the directive
- Drink cartons are not included in this study
- Drink cans (Aluminum and steel) are included, to avoid discrimination between materials

What year to consider?

- 2025 for mid-term perspective (two year after introduction)
- 2029 for long term perspective (end of “ramping up” period)

What type of collection should be considered for MRF?

- Mixed Materials (paper and light packages) as it's the dominant stream in France

What level of refuse should be considered?

Same quantities (kg/inhabitants) as the latest prospective studies carried by the French EPA (ADEME)

What level of collection (redemption rate) from deposit system?

Ramping up phase (2025) = 64%

End of ramping up phase = 90%

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2. Overall collection rate for beverages

- For 2025 (« ramping up » phase, for an introduction of deposit in 2023):

Streams	Collected w/ deposit	Collected w/in MRFS	Total
Clear PET bottles	64%	19%	83%
Dark PET bottles	64%	19%	83%
Opaque PET bottles	58%	22%	81%
HDPE Milk bottles	0%	62%	62%
TOTAL	55%	25%	80%

- For 2029 (after deposit has reached full efficiency) :

Streams	Collected w/ deposit	Collected w/in MRFS	Total
Clear PET bottles	90%	4%	94%
Dark PET bottles	90%	4%	94%
Opaque PET bottles	82%	10%	92%
HDPE Milk bottles	0%	67%	67%
TOTAL	77%	13%	90%

Directive objective 2025: Beverage bottles collection > 77%

Directive objective 2029: Beverage bottles collection > 90%

3. Impact on outgoing streams (MRF)

Evolution of produced quantities (outgoing of the MRFs)

For 2029, for a medium size MRF (550 000 inhab)

Streams	Scénario 2029 w/o deposit	Scénario 2029 with deposit	Difference
Clear PET	1 690 t	230 t	-85%
Mixed Plastics	1 170 t	830 t	-30%
Acier	1 450 t	1 320 t	-10%
Alu	190 t	80 t	-58%

Evolution of streams quality (outgoing of the MRFs)

=> number of streams considered identical

- **PET bottles** = less beverage/food contact bottles => decrease of stream value
- **HDPE/PP bottles** = no impact
- **Mix Plastics** (flux “développement” = Opaque PET+dark PET bottles+PET trays+PS) => decrease of value (less bottles = less value + more difficult to sort)
- **Steel fraction** = will loose also 1 or 2% of quality => lower value
- **Aluminum fraction** = Aluminum composition in bales should decrease from 65% to 35% =>72 negative value

4. Evolution of incoming streams (MRF)

► Decrease of quantities:

Impacts	Scénario 2025	Scénario 2029
Tonnage	- 6%	- 8%
Parc centre de tri France	- 210 kt/an	- 280 kt/an
Medium size MRF (550 000 habitants)	- 1 700 t/an	- 2 200 t/an
Large size MRF (1 000 000 habitants)	- 3 000 t/an	- 4 000 t/an

► Decrease of Volumes:

	Scénario 2025	Scénario 2029
Density	+ 7%	+ 8%
Volume (taking into account quantities reduction)	- 12%	- 15%

Introduction of deposit system will impact selective collection quantities by about 8% and volumes by about 15%

5. Impact on sorting plants (MRF)

Technical: MRF equipments and facilities are lightly impacted in case of deposit introduction in France, but no new investments are needed

Scenario	Annual cost impact over France	Impact of sorting medium size MRF	Impact of sorting large size MRF
S1 : decrease of throughput (most likely scenario)	≅ -3 à -2 M€ <1% of global cost	Overall cost stable +12 €/t	Overall cost stable +10 €/t

Cost: Global cost are stable (countrywide), but with the decrease of quantities the cost per ton will have to increase

Conclusions (to date)

- Operation and costs of the sorting in itself won't change much
- Lower quantities and volumes will make the equipment already in place less "profitable" but the overall sorting cost should remain stable
- Revenues from sales of materials (Plastics and Metals) will be the most impacted, with lower quantities of the most expensive streams (PET and aluminum) and decrease of the produced qualities which will reduce the price per ton

⇒ **Things to consider when assessing the impact on existing Selective Collection system:**

- **Impact on quantities, densities and volumes to collect, sort and sale**
- **Impact on quality of streams produces by MRFs**

⇒ **Impact on revenue from Materials sales**

- **Impact on sorting cost and structures**
- **Impact on collection scheme**

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