

GENERAL NOTICE
*Technical Sheet***SUBJECT**

Impact of the compaction of plastic bottles by consumers on the collection, sorting and recycling processes.

General notice**1 – compaction of bottles – overview**

Two type of compaction process are possible: vertical and horizontal. Compaction enables consumers to gain space in their sorting bin.



Vertical compacting



horizontal compacting

The volume reduction of bottle by compaction depends on its plastic type, its thickness and the compacting method used.

In any case, bottles are distorted and compacted in unpredictable ways mixed with other packaging, in waste collection trucks and during truck unloading.

2 – Impact of compaction during sorting steps

There are a lot of sorting plants in France (approximately 240 in 2009). Sorting plants are more or less automated and equipped with various technologies.

However, almost every sorting plants use at the entrance:

- A granulometric screening system and/or
- A flat / hollow sorting system (ballistic separator)

Sorting plants equipped with a screening system

Excessive compaction in the vertical way can lead to a reduction of the packaging size; compacted bottle may slip through the net of the screening system and be treated as a sorting waste.

In that case, the bottle will not be recycled.

Sorting plants equipped with a ballistic separator

Excessive compaction in the horizontal way makes the bottle recognized as a “flat shape”, and goes in the paper stream. It disturbs the sorting conditions.

If there is a second sorting of the paper stream, the bottle can be separated at this step. If not, it will be eliminated in the sorted waste stream or will arrive to the stationer paper recycling company where it will be treated as a waste. Therefore, the bottle will not be recycled.

Impact on automatic (optical) sorting of bottles

Compaction in the horizontal way doesn't have any impact on the identification by the sorting machine. Compaction in the vertical way could have an impact if excessive (but it is not proved).

Impact on baling

A reasonable horizontally or vertically compaction does not seem to have an impact on the baling process.

3- Impact of compaction during the reclaiming and recycling steps

There is no significant impact to report, except:

- potential sorting errors during optical sorting: clear bottles might be oriented into the dark stream,
- sorting efficiency decrease when bottles are excessively compacted in the vertical way (ejection risk or on the contrary maintaining disruptive bottles into the stream).

The packaging form has no impact on the next step of the process (grinding).

4- Conclusion

An excessive reduction of the bottle's size by compaction (horizontally or vertically) can lead to the ejection of the bottle during the sorting steps.

However, the manual compaction, and as a result each compaction in similar condition than manual compaction, doesn't seem to have any impact on the sorting and recycling steps.

Considering the variety of the sorting systems, it is not possible to define technical specifications for compacting (width and height of the bottle for example).