PET

Body

COTREP

Preliminary note

PET aerosol dispensers

CONCLUSION

COTREP has not yet performed any testing in real-life conditions on sorting or recycling PET aerosol dispensers. The analysis in this note is based on previous research by COTREP on PET packaging and on its expertise concerning the operational aspects of sorting and recycling plastic packaging.

Since PET aerosol dispensers contain both components made of several materials, including metals, and potentially inflammable residues (active substances and/or gas), which may disrupt PET recycling, COTREP recommends that industrial operators conduct:

- **risk analyses at sorting centres and with recyclers before bringing any products to market;**
- **eco-design research on this packaging;**
- **research on take-back collection in shops that represent an alternative to the separate collection of household packaging.**

COTREP is available to offer guidance to operators in this research.

AN INNOVATIVE FORM OF PACKAGING

A PET aerosol dispenser consists of a main container made of PET, which contains a product to be sprayed and a pressurised gas. The product is sprayed using a dispensing system composed of a valve and a nozzle, comprising several parts made of different materials, including metals.
Various pressurised gases are used in aerosol dispensers, and they may or may not be flammable. The type of gas used depends on the product and the type of mist wanted.
Approximately 85% of the gases currently used in metal aerosol cans available on the market are flammable. At end of life, first studies show around 20% of aerosols still contain residues of flammable gases, this value must be confirmed and updated with new studies.

Currently, under the Aerosol Dispensers Directive 75/324 EEC, plastic dispensers used for aerosols may not exceed a total capacity of 220ml. The Directive is being reviewed, and this total capacity is likely to be increased to a figure between 600 and 800ml.
At present, plastic aerosol dispensers represent a negligible proportion of the European market (<< 1%).
PET aerosol dispensers are not yet available on the French market, but they are starting to be introduced in some European countries.

COTREP believes that they will begin to be developed and brought to market, since they represent an innovation that is raising considerable interest among marketers, for the following reasons:

- Firstly, PET aerosols offer new features for consumers: they show how full the container is, they are not cold to the touch, etc.
- Secondly, PET brings much more flexibility to the production process (use of preforms, local supply, etc.) and raises the possibility of varied shapes and transparency.

SORTING AND RECYCLING POTENTIAL

***Please note**: COTREP has not yet performed any testing in real-life conditions on sorting or recycling PET aerosol dispensers. The analysis set out below is based on previous research by COTREP on PET packaging and on its expertise concerning the operational aspects of sorting and recycling plastic packaging.*

The following analysis is of a PET aerosol dispenser presumed to be composed of:

- A main container made of PET
- A dispensing system containing components made of several materials, including metals (especially the valve cup)
- Potentially flammable residues of product and/or gas

At a sorting centre, PET aerosol dispensers may be detected during metal sorting or optical sorting and channelled either into the metal recycling stream or as rejects.

- If PET aerosol dispensers are channelled into the metal stream, they may disrupt metal recycling.
- If PET aerosol dispensers are channelled as rejects, the PET part of the aerosol dispenser will not be recycled.

If PET aerosol dispensers remain in PET streams, they will go through all the stages at the sorting centre and end up in PET bales due to be sent to recyclers.
There may be a fire risk when the PET is baled if:

- There is any remaining product and/or flammable gas in the aerosol dispensers, in sufficient quantity to trigger an explosion (explosive atmosphere)
- There is a source of ignition

85% of the metal aerosol dispensers currently on the market contain flammable gases. At end of life, first studies show around 20% still contain residues of flammable gases (source: Citeo). Cotrep recommends keeping on studying the amount of aerosol waste with residues, with the aim to have an updated vision of the situation.

At PET reprocessing plants, PET aerosol dispensers may be detected during metal sorting or optical sorting and channelled either into the metal recycling stream or as rejects. If this occurs, the PET part of the aerosol dispenser will not be recycled.

If, despite these sorting processes, aerosol dispensers remain in PET streams, there may be a fire risk when they are crushed at the beginning of the reprocessing line, if there is still any product and/or flammable gas in the aerosol dispensers at this stage.
Moreover, particles of other residual materials such as metals may disrupt the recycling process and lead to quality problems with the reprocessed material.