

Technical Notice

Leerdammer tray – Royal Bel Leerdammer



APPLICATION DESCRIPTION	GENERAL INFORMATION	
	Applicant	Royal Bel Leerdammer
	Application date	2018
	Brand	Leerdammer
	Market	Cheese
	DESCRIPTION OF PACKAGING	
	Form	Mono-PET thermoform tray
	Colour	Transparent tray / printed lid (mainly yellow)
	Dimensions, volume	140g
	MATERIALS	
	Body	Mono-PET tray
	Closure system	Mono-PET lid
	Label / sleeve / glue	Paper label glued on the underside of the tray Glue between the lid and the tray
	RECYCLING STREAM	
	Clear PET for the tray and coloured PET for the lid	

The collection and recycling of PET plastic packaging began with bottles. Over the years, recyclers gradually developed lines to deal with this packaging. A plan to extend sorting instructions to all packaging, including PET trays, was launched in 2011.

From 2012 onwards, a number of industrial-scale tests were carried out at plastics reprocessing plants. Initial tests indicated firstly that multilayer trays should be removed from the PET stream, and secondly that it was possible to recycle mono-PET trays with PET bottles in contained conditions. The tests showed that, depending on the type of reprocessing line, trays could have varying impacts on the yield and quality of the final flakes.

In this context, **Royal Bel Leerdammer, keen to improve the recyclability of its packaging, took an innovative approach by developing a PET tray for sliced cheese made of two rigid mono-PET parts.** This packaging is composed of a mono-PET transparent container and a heavily printed mono-PET lid. The lid snaps shut and is sealed to the tray with a line of washable glue. The underside of the tray is partly covered with a paper label.

Cotrep's analysis focused on recycling this new tray in the current conditions for recycling PET trays in France. In conclusion, given the current state of equipment used and available in Europe and the potential volume of Leerdammer trays in PET streams, **Cotrep recognises the usefulness of the work carried out by Bel to improve the recyclability of its trays and recommends improving the washability¹ of the glue and reducing the amount of glue on the label if it wants to secure approval for its packaging to be recyclable in the PET stream.**

¹Extract from [the general notice on glues \(AG10\)](#):

A glue's washability is studied in a laboratory by reproducing conditions close to the industrial context (Solution at 80°C, pH = 12 - 14, agitation washing for 15 minutes). Tests are conducted either directly on flakes coated with the glue to be tested (washability test) or on flakes coated with glue and covered with a label (recyclability test).

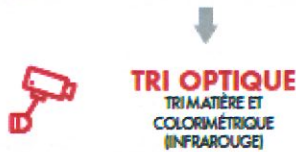
Behaviour of the Leerdammer tray at a sorting centre



The packaging is directed towards hollow containers, together with other rigid packaging



Not applicable



The transparent container is directed towards the clear PET stream

The coloured lid is directed towards the coloured PET stream

There is a risk that the tray and the lid arrive stacked together at this stage

Risk that the stacked trays and lids will be directed to clear PET



The transparent container is directed towards the clear PET stream

The coloured lid is directed towards the coloured PET stream

If the tray and the lid arrive stacked together, the tray is directed towards the coloured PET stream or rejected

Loss of material



Not applicable

Behaviour of the Leerdammer tray with a recycling operator



DÉLITAGE DES BALLES

Not applicable



TRI OPTIQUE &

For clear PET, stacked trays and lids are channelled as rejects

Loss of material



TRI DES MÉTAUX TRI MATIÈRE ET COLORIMÉTRIQUE

Not applicable



BROYAGE

RÉDUCTION DE LA MATIÈRE EN PAILLETES

The laboratory test does not reveal significant differences from the reference scenario



LAVAGE

NETTOYAGE DES PAILLETES

Washing leaves glue residue from the label

Equipment soiled



← PSE : 0,04
← PP : 0,9
← PBD : 0,92
← PBD : 0,94
← 1 litre de flottabilité dans l'eau
← PS : 1,05
← PLA : 1,24
← PET : 1,34
← PVC : 1,34-1,40

FLOTTAISON SÉPARATION PAR DENSITÉ

The paper label does not come fully unstuck from the flakes during washing, and some remains after drying. It is eliminated in the aerulic sorting process

Deterioration in flake quality

Increase in losses
= reduced yield from the line and increase in waste to be processed

Impact on process
Equipment soiled by glue deposit



TRI OPTIQUE SUR PAILLETES ÉPURATION DES PAILLETES

Any flakes coated with glue will be removed

Loss of material



EXTRUSION/ GRANULATION RAMOLLISSEMENT, ÉTIRAGE ET DÉCOUPE EN GRANULÉS

The PET grade has a viscosity index similar to that of bottles

The laboratory test does not reveal significant differences from the reference scenario:

Extrusion/Granulation
Granule checks
Viscosity increase stage

CONCLUSION

Using a rigid tray and a rigid lid together makes it easier for the two parts to be separated, whether by the consumer, by friction during collection or in the early stages of the sorting process. This is not the case for film seals.

In a sorting centre, if they have been separated, the clear mono-PET tray will be sent to the clear PET stream and the printed lid to the coloured PET stream to be recycled.

Some Leerdammer trays arrive at the sorting centre with the tray and lid still together. In this case, the tray will be sent to coloured PET or rejected so that the colour does not contaminate the clear PET. One of these two alternatives is chosen at random depending on how the tray is positioned on the sorting belt. There remains a small risk that the trays will be directed to the clear PET stream. In this case, the residual trays will be eliminated by the sorting lines at the recycling facility.

In general, Cotrep advises against combining a film seal or a printed mono-PET lid with a clear mono-PET tray. It advises Bel to continue the work already begun on making sure the two parts of the packaging are separated.

Cotrep then carried out laboratory tests based on the current situation for recycling mono-PET trays in France, in other words recycling in the same stream as PET bottles. To make its tests representative of the volumes of Leerdammer trays on the market and the potential application to other products, Cotrep tested two concentrations of Leerdammer trays in the PET stream:

- 0.5% of Leerdammer trays
- 1% of Leerdammer trays (this would represent 10% of sealed trays changing to a solution with a rigid lid).

If other recycling streams for PET trays are developed, Cotrep will include additional information in its opinion about these new outlets.

The results obtained in the tests show that with these two concentrations, the Leerdammer trays have no impact on the physical, chemical and mechanical properties of the recycled PET, for the main recycling outlets. It was impossible to examine the impact on yellowing in these tests.

However, the tests also showed that washing did not remove the entire paper label because of the type and quantity of glue used. This results in:

- Equipment soiled by glue deposit,
- A deterioration in flake quality,
- A reduction in yield because of a loss of material,
- Generation of additional waste.

Cotrep advises Royal Bel Leerdammer to reduce the amount of glue used on the label and/or to improve the washability of the glue.

In conclusion, given the current state of equipment used and available in Europe and the potential volume of Leerdammer trays in PET streams, **Cotrep recognises the work carried out by Bel to improve the recyclability of its trays and advises it to implement the previous recommendations if it wants to secure approval for its packaging to be recyclable in the PET stream.**

Paris, 15/10/2018

ELIPSO
Emmanuelle Schloesing

A black ink signature, appearing to be 'ES', written in a stylized, cursive manner.

CITEO
Sophie Bonnier

A blue ink signature, appearing to be 'SB', written in a stylized, cursive manner.

VALORPLAST
Benoît Le Dreff

A black ink signature, appearing to be 'BLD', written in a stylized, cursive manner.