
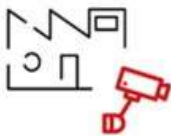


## Technical Notice – Sorting

### Detectability and sorting of the colorant solution LYONDELLBASELL / POLYBATCH 73641 NIR at sorting centres

APPLICATION DESCRIPTION	<b>GENERAL INFORMATION</b>		
	Applicant	LYONDELLBASELL	
	Application date	2021	
	Reference of the colorant solution	POLYBATCH 73641 NIR	
	Max. limit for concentration of the colorant solution	5%	
	<b>DESCRIPTION OF THE COLORANT SOLUTION</b>		
	Colour	Black	
	Colorant solution suitable for:	Rigid PP packaging	
	<b>PURPOSE OF THE APPLICATION</b>		
	To test the detectability of the black colorant solution POLYBATCH 73641 NIR, which is provided by LYONDELLBASELL and used to colour rigid PP packaging, at French sorting centres.		

**This notice relates to the detectability and sortability of the colorant solution and not the recyclability of the packaging as a whole.**



**Sorting centre**  
Detectability: Ability of packaging to be recognised by optical sorting systems  
Sortability: Ability of packaging to be channelled to the correct stream



**Regeneration**  
 Ability of packaging waste to be converted into ready-to-use flakes or granulate



**Use of recycled material**  
 Ability of flakes or granulate to be converted into new products

### TECHNICAL CONCLUSIONS

Given the evidence provided to COTREP, and in view of the results presented in the test reports from optical sorting (O.S.) equipment manufacturers, LYONDELLBASELL's black colorant solution POLYBATCH 73641 NIR used to colour rigid PP packaging is detectable by optical sorting in conditions representative of the technology used in French household packaging waste sorting centres. Use of a proportion of less than or equal to 5% of this colorant solution in rigid PP packaging will enable it to be detected and channelled to the PP packaging stream with a satisfactory level of performance.

Although COTREP is issuing a positive opinion regarding the detectability and sortability of LYONDELLBASELL's black colorant solution POLYBATCH 73641 NIR, this opinion provides no indication of the recyclability of the packaging as a whole.

This notice is valid when the colorant solution:

- is used in the manufacture of rigid PP packaging;
- has a maximum proportion of 5%;
- is not used with production scrap, other colorant solutions or recycled materials potentially containing carbon black.

COTREP reserves the right to review its opinion if the company modifies the composition of the colorant solution.

## FIND OUT MORE

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The extension of sorting guidelines to all plastic packaging has led to the modernisation of sorting centres in France. In particular, centres are automating their processes and acquiring optical separators using near infrared technology.

This step in the sorting process is critical to separating plastic packaging. It enables packaging to be sorted by resin and colour.

At this step in the sorting process, undetectable packaging is rejected by sorting centres and sent for energy recovery.

Carbon black pigment, which is currently widely used for dark-coloured packaging, absorbs infrared light emitted by the optical sorting equipment and returns no signal. Consequently, the packaging is not detected and therefore neither sorted nor recycled.

LYONDELLBASELL's black colorant solution POLYBATCH 73641 NIR used to colour rigid PP packaging offers an alternative to undetectable colorant solutions. The results of static and dynamic tests performed on the premises of two O.S. manufacturers (PELLENC SA and TOMRA) according to the COTREP procedure were positive. Rigid PP packaging containing 5% of black colorant solution POLYBATCH 73641 NIR was detected and channelled to the PP stream with the same level of performance (quality, capture rate) as other rigid PP household packaging waste.

The conclusions set out in this notice are based on a set of commitments undertaken by each of the parties indicated below.

LYONDELLBASELL undertook to:

- use the sorting procedure provided by COTREP ("COTREP optical sorting test procedure for assessing the detectability of dark packaging at optical sorting stages" - version of January 2019<sup>1</sup>);
- perform tests on the premises of two O.S. manufacturers representative of existing sorting facilities in France;
- submit test reports to COTREP for its analysis and opinion;
- offer a colorant solution that:
  - o meets the essential requirements of the Packaging and Packaging Waste Directive (94/62/EC).
  - o does not alter the density of the packaging: the density of packaging mainly consisting of PP or PE must be < 1 and > 1 for packaging mainly consisting of PET or PS.

The O.S. manufacturers made an undertaking to COTREP to:

- follow the procedure in its entirety;
- perform tests using technologies and machine settings representative of those used in current sorting centres and under normal operating conditions.

Paris, 28 May 2021

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<sup>1</sup> Available from the COTREP website: <https://www.cotrep.fr/content/uploads/sites/3/2019/02/tri-p1-emballages-sombres-v01-2019.pdf>