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**Recycling von bedruckten Kunststoffverpackungen –
Bewertung der Druckfarbenentfernung mittels eines Messverfahrens;
Text Englisch**

Recycling of printed polymer packaging –
Evaluation of deinking using a test procedure; Text in English

Recyclage des emballages en polymères imprimés –
Évaluation du désencrage à l'aide d'une procédure d'essai; Texte en anglais

Gesamtumfang 16 Seiten

Dieses Dokument wurde durch die im Vorwort genannten Verfasser erarbeitet und verabschiedet.

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Foreword

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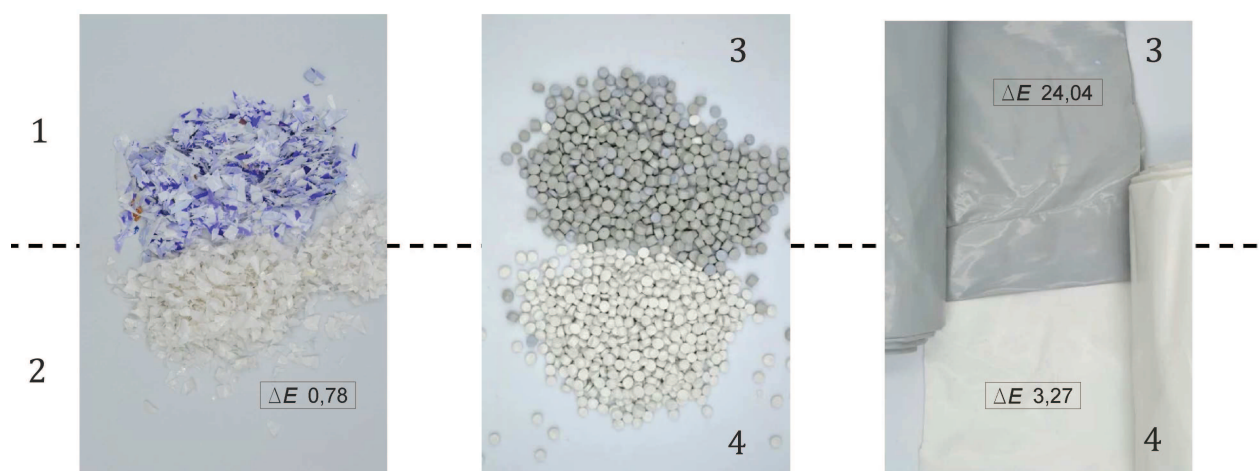
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Introduction

The recycling of plastic packaging is a complex problem that is not solved yet. Printed plastic packaging is an even greater challenge, as printing ink consists mostly out of pigments (responsible for the colour) and binder (to hold the small pigment particles in place). The removal of ink from this printed plastic packaging prior to regranulation enables higher recyclate quality. These improvements can be found in:

- colour: deinked printed plastic packaging can be regranulated into brighter/whiter recyclate;
- odour: with successful deinking, the odour of the recyclate is less intense;
- processability: without ink being present in the regranulation step, there is less gas and gel formation, which improves the overall process stability and also product quality.



Key

- 1 No deinking
- 2 With Deinking
- 3 Intense Odour
- 4 Little Odour

LDPE film, surface printed with standard NC ink. 100 % recycled content without any masterbatch or additive

Figure 1 — Example of successful deinking

The above Figure 1 is a demonstration of what deinking can achieve. The material used is a typical frozen food packaging structure: white mass coloured LDPE film is surface printed with an NC ink (top left). If this material is regranulated (middle, top) and blown into a film (top right), the recyclate exhibits an intense grey colour and also an intense odour.

If the same material (again, top left) is deinked, the flakes' material looks almost as it had never been printed (bottom left). This material can then be regranulated (bottom, middle) and blown into film (bottom, right) that is slightly off-white.

Plastic packaging is printed by a great variety of printing inks, where a great number of different substances classes are used as binders and pigments. This large variability is consequently found in the behaviour of the ink during deinking: Some ink systems deink readily at mild conditions in little time, where other ink systems require more aggressive conditions and time or are even not at all deinkable in reasonable conditions.

To spark innovation in both, recycling and packaging, industry, this document is intended to become a widely accepted test method that allows objective determination of the deinkability of printed plastic packaging and printing inks.