



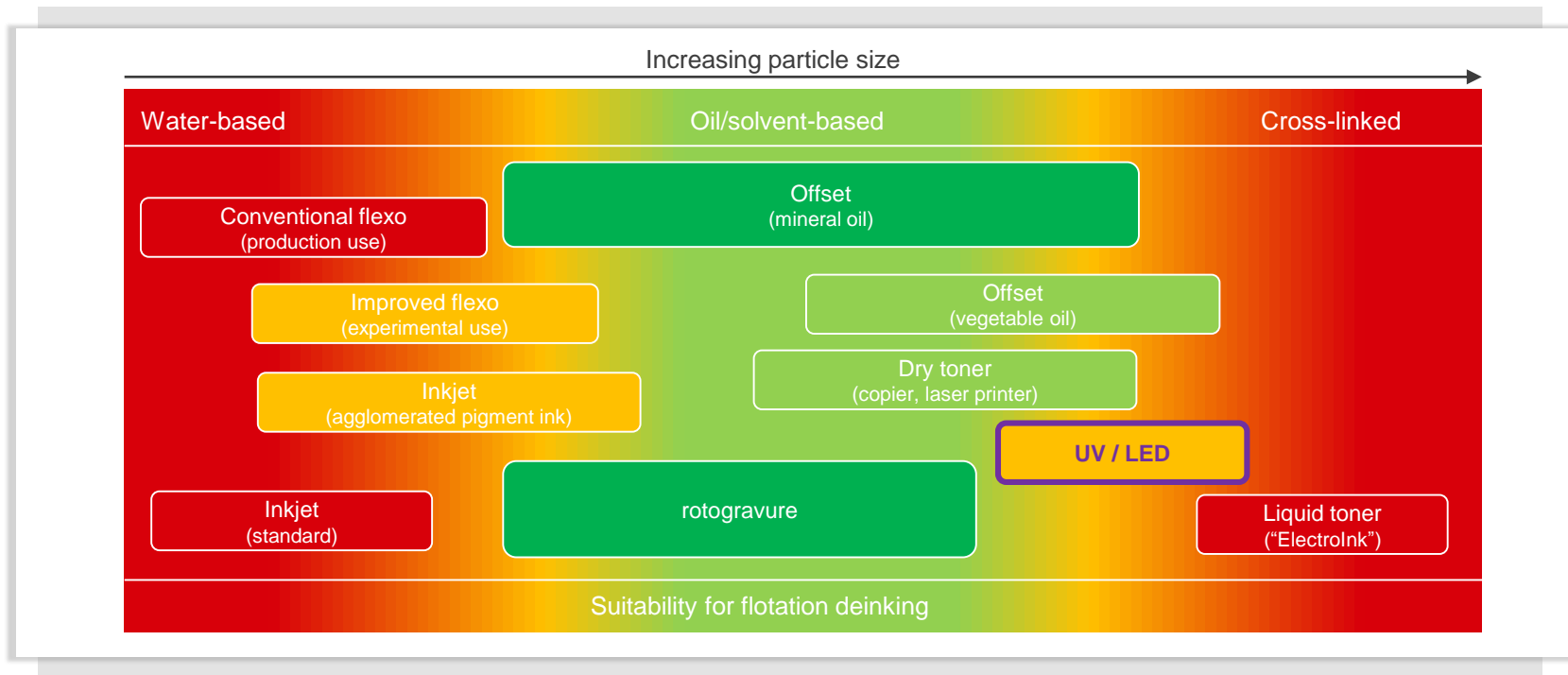
IST UV Days 2019

Deinking of UV-/LED-UV prints

Thomas Glaser



Actual situation



How is the Deinkability measured?

Officially approved lab test method Deinkability INGEDE* Method 11 (01/2018)

INGEDE Method 11 February 2018 1st Page	Assessment of print product recyclability - Deinkability test -	 International Association of Paper Recyclers
---	---	--

Introduction

Good recyclability of print products is crucial for the sustainability of the graphic paper value. It brings to the end of the life cycle of the product and supports the circular economy. The key principle is to reduce the amount of waste.

One of the main tasks is to provide tests for the assessment of the recyclability, in this case, deinkability.

- Deinkability
- Quantification of deinkability requirements

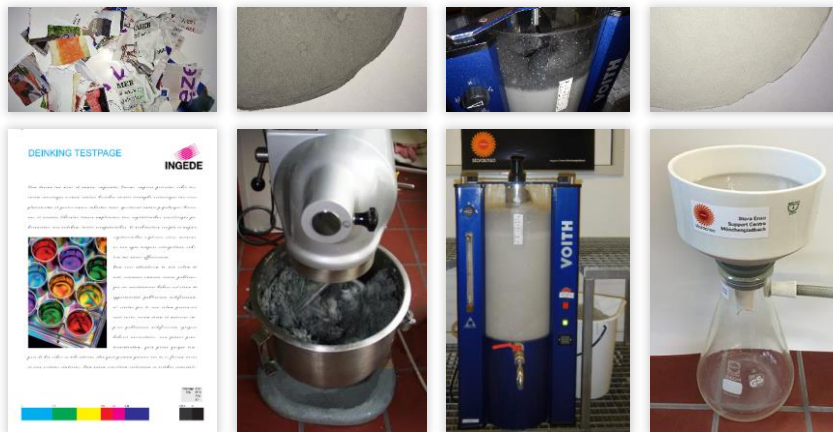
The deinkability test is a complex process that takes into account different types of paper, and it is based on the reduction of the amount of ink and colorants in the paper. The key principle is to reduce the amount of ink and colorants in the paper. The test is a complex process that takes into account different types of paper, and it is based on the reduction of the amount of ink and colorants in the paper.

Recyclability is the main reason of choosing graphic paper for recycling for most functions, and it is based on the reduction of the amount of ink and colorants in the paper. The key principle is to reduce the amount of ink and colorants in the paper. The test is a complex process that takes into account different types of paper, and it is based on the reduction of the amount of ink and colorants in the paper.

The test is a complex process that takes into account different types of paper, and it is based on the reduction of the amount of ink and colorants in the paper. The key principle is to reduce the amount of ink and colorants in the paper. The test is a complex process that takes into account different types of paper, and it is based on the reduction of the amount of ink and colorants in the paper.

INGEDE
Methode 11

* **INGEDE** is an association of leading European paper manufacturers founded in 1989. INGEDE aims at promoting utilization of recovered graphic paper (newsprint, magazines and office paper) and improving the conditions for an extended use of recovered paper for the production of new graphic paper, hygiene paper, and white top liner and folding boxboard. www.ingede.com



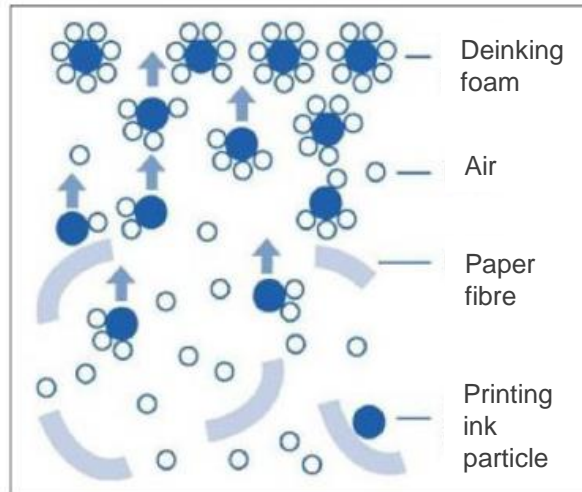
Sample
preparation

Pulping

Flotation

Sheet
forming

Removal of UV-/LED UV ink



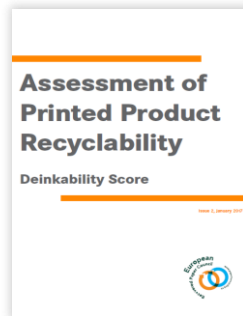
Bildquelle: vdp

Printing ink particles are transported by the air bubbles to the surface

Size of printing ink particles must be small and hydrophobic

Assessment of Deinkability?

Assessment of Printed Product Recyclability – Deinkability Score (01/2017)



EPRC Score Card

* The European Paper Recycling Council (EPRC) was set up as an industry self-initiative in November 2000 to monitor progress towards meeting higher paper recycling targets. These are set out in the European Declaration on Paper Recycling first published in 2000 and renewed every five years since. The current target for the 2016-2020 declaration is set to 74%. www.paperrecovery.org

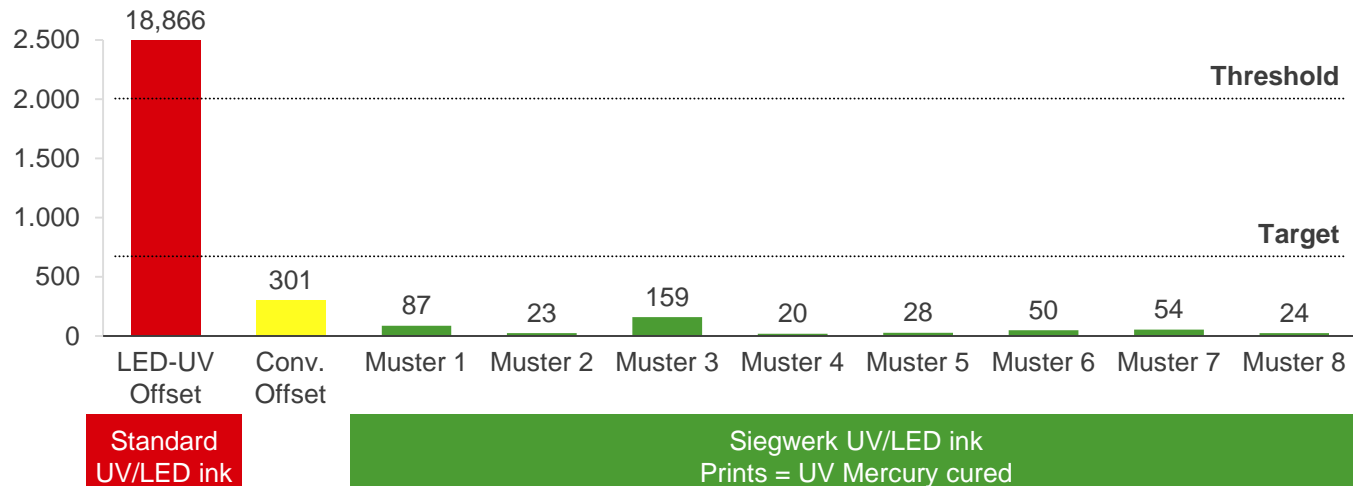
The assessment is based on 6 parameters determined in the deinking lab test

Score (Punktzahl)	Evaluation of deinkability (Bewertung der Deinkbarkeit)
71 to 100 Points	Good (Gut)
51 to 70 Points	Fair (Befriedigend)
0 to 50 Points	Tolerable (Ausreichend)
Negative (failed to meet at least one threshold) Negativ (mindestens ein Schwellenwert verfehlt)	Not suitable for deinking (nicht zum Deinking geeignet *)

Dirt specks (ink particles) after flotation

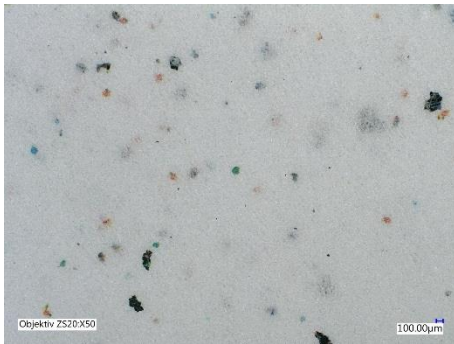
Dirt specks area deinked pulp <math>< \mu\text{m}</math> (A50)

Dirt specks area
mm²/m²

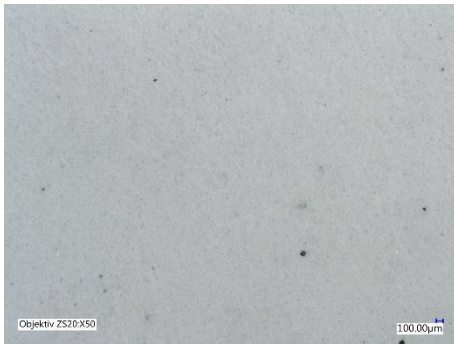


Dirt specks (ink particles) after flotation

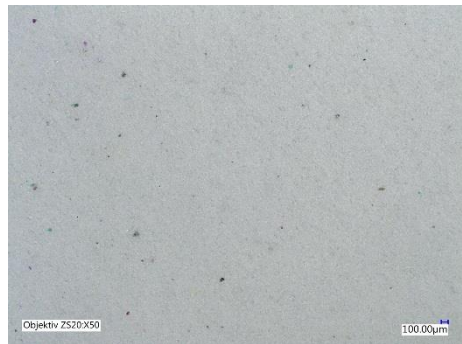
**STANDARD
UV/LED INK**



**CONVENTIONAL OIL
BASED INK**



**SIEGWERK
UV/LED INK**



Results

UV/LED inks 8 completely different formulations/chemistries have been tested

Deinking score 93-100 points = good deinkability

Conclusion

- Very good deinking for different formulations/chemistries tested
- Deinking independent of UV lamp technology
- Different papers showed good deinkability
- Standard UV/LED inks normally clearly failed deinking tests or scored below 70 points only due to a high dirt specks area after flotation

Tested and approved by



storaenso

THE RENEWABLE MATERIALS COMPANY



For further questions please mail to

Deinking@Siegwerk.com