



Cepi

RENEWABLE
RECYCLED
RESPONSIBLE
EUROPEAN PAPER

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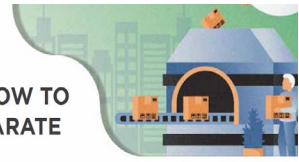


On the way to a European recyclability evaluation for paper packaging

The Circular Economy needs action at all stages of the cycle



GUIDANCE ON HOW TO IMPLEMENT SEPARATE COLLECTION



What is separate collection?

- The Waste Framework Directive (WFD) identifies separate collection as a condition for quality recycling and defines it as: "the collection where a waste stream is kept separate by type and nature to facilitate a specific treatment".
- For paper & board, separate collection not only separate them from residual waste, but also from other recyclables such as plastic, metal or glass.

Why should separate collection be fully implemented in Europe? What are the benefits for municipalities & citizens?

- Compliance with European law.
- Homogeneity of the stream means good quality of material and a higher economic and environmental value.
- Maximise recycling rate and best efficiency in all steps of the recycling chain less landfilling & incineration.
- Simple and easy for citizens/final consumers.
- Optimise costs in the recycling value chain.



PAPER-BASED PACKAGING RECYCLABILITY GUIDELINES

"How to specify and design paper-based packaging in a way to ensure high quality recycling by the paper industry"



Why recyclability test method and evaluation?

- Brand Owners need the certainty that the paper packaging is not only recognized as recyclable, but that it is effectively recycled
 - Paper makers and converters need to know how to improve the recyclability of a product
 - Municipalities need to know what instructions to give their citizens
 - Waste management companies need the certainty of demand by the paper industry
 - Paper packaging recyclers need paper for recycling without disruptive elements for their process and their product
- In combination, this is to further increase the circularity of the paper packaging supply chain

One variable we need to fix is the way we evaluate recyclability

- Today different test methods exist, leading to different recyclability evaluations for identical paper packaging
- Ceperi decided to facilitate a project to harmonise the existing methods.
Some prerequisites:
 - Laboratory test method, not an evaluation
 - Test method should be easily replicable, equipment available around Europe
 - Mimicking the main process steps of standard paper packaging recycling mills in Europe
- A group of experts from institutes and paper associations worked for one year
- Targeted consultation in October/ November among EPRC, Ceperi, 4evergreen
- Ceperi recyclability laboratory test method version 1 is now available

Test procedure

paper & board material/product	250g
	15d old or artificial ageing (3d, 60°C)
↓ representative sample	
preparation	3x3 cm (+/- 0.5 cm)
	50g oven dry
↓	
pulping (acc. ISO 5263-1)	Standard disintegrator
	10 min, 40°C (+/- 1°C)
sheet forming (total stock)	optional
coarse screening	Somerville - hole 5 mm
	5 min
sheet forming (accept coarse screening)	
consistency test, 1000 ml, filter of 10 ± 2 µm porosity	
fine screening (acc. TAPPI T275 sp18)	Somerville - slot 150 µm
	20 min
sheet forming (accept fine screening)	
macrostickies analysis (acc. ISO 15360)	Somerville - slot 150 µm
	10 min

Measurement

20min	
optional	sheet adhesion test
	visual appearance test
	coarse reject determination
	sheet adhesion test
	visual appearance test
	calculation of dissolved and colloidal solids content
	flake content determination
	sheet adhesion test
	visual appearance test
	macrostickies assessment

(The pulping time can be prolonged to 20 minutes when coarse reject consists only of fibre)

Parameter for recyclability assessment

quantity coarse reject
removability of impurities potential of tacky and visual impurities
percentage of dissolved and colloidal solids
quantity fine reject
recyclate quality tacky and visual impurities
recyclate quality tacky impurities (macrostickies)

HARMONISED EUROPEAN LABORATORY TEST METHOD TO PRODUCE PARAMETERS ENABLING THE ASSESSMENT OF THE RECYCLABILITY OF PAPER AND BOARD PRODUCTS IN STANDARD PAPER AND BOARD RECYCLING MILLS

VERSION 1
December 2020

Test procedure

Measurement

Parameter for recyclability assessment

paper & board material/product	amount	250g (at least one piece)
	ageing	15 day old sample or otherwise artificial ageing acc. To Ingede 11 (3d, 60°C)

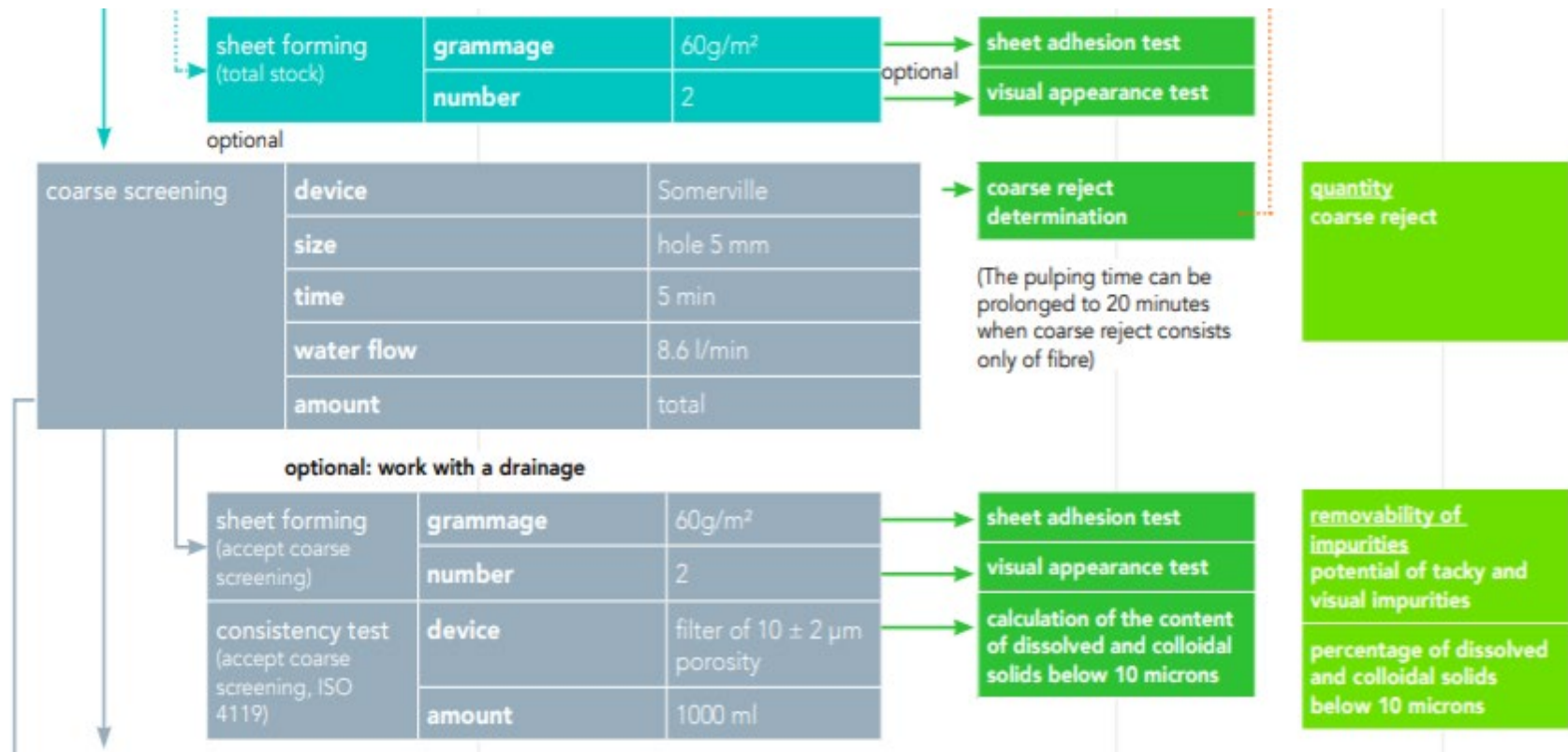
↓ representative sample

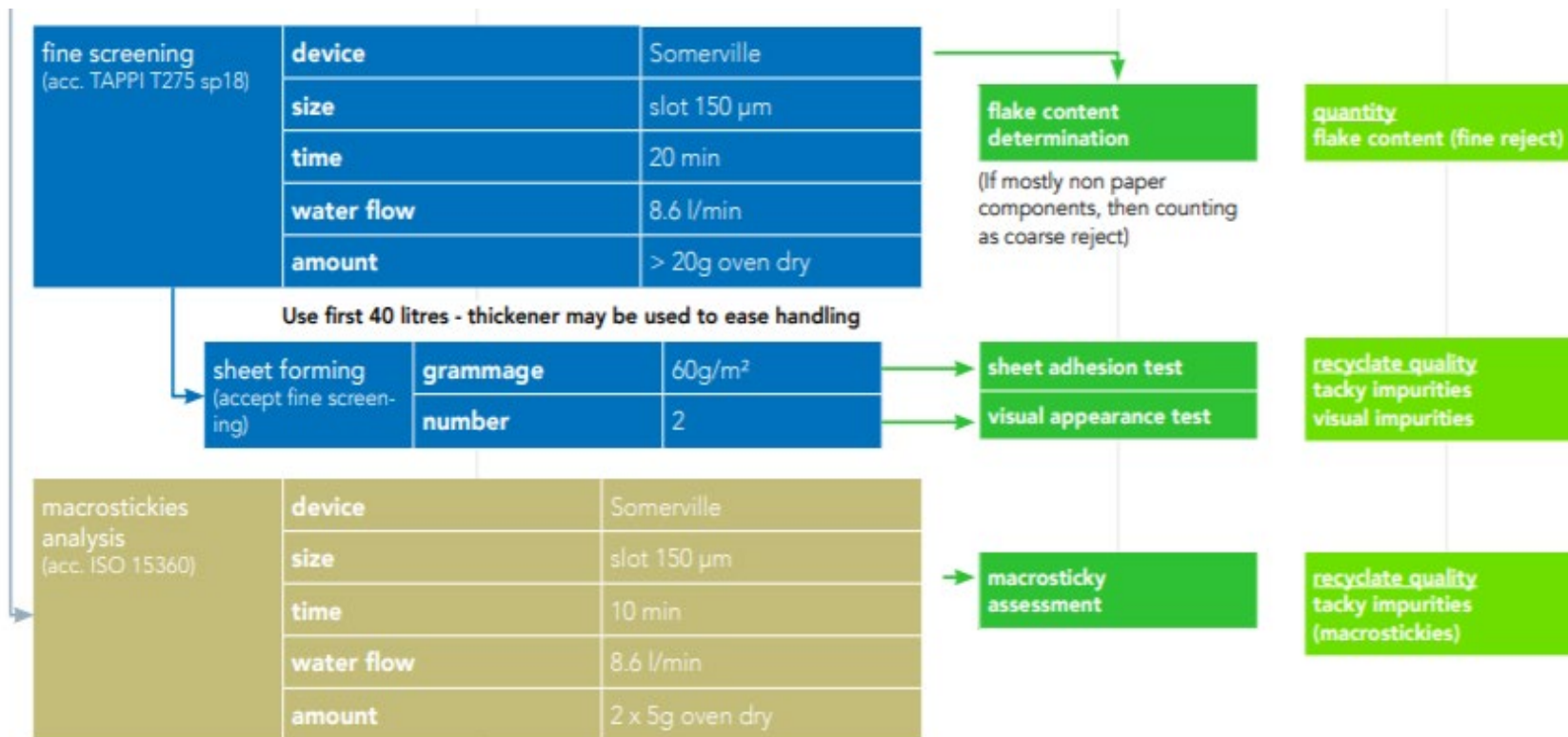
preparation	size	3x3 cm (+/- 0.5 cm)
	amount	50g oven dry
	method	cutting or tearing

↓

pulping (acc. ISO 5263-1)	device	Standard disintegrator
	consistency	2.5%
	time	10 min
	temperature	40°C +/- 1°C

← 20 min





Next steps

The harmonised test method is the basis for further steps undertaken in 4evergreen workstream 1, which develops a recyclability evaluation protocol based on values generated by applying the test method:

- Products will be tested according to the method, results interpreted and partly checked against trials at pilot/mill scale and update needs identified.
- Evaluation schemes are studied and a protocol structure with threshold values will be proposed.
- Additionally, enhanced/specialized recycling processes are mapped and a test approach mimicking those will be proposed, to be also considered for the evaluation protocol.

The test institutes will further gather information and experiences from using the method in view of its completion planned for the end of 2021

Cepi vision on paper collection and sorting in Europe:

In the household as well as in public areas, two different streams for discarding paper based packaging will be made available, between which the consumer will have to distinguish

Regular paper and board bin:

Paper and board (monomaterial) (no labelling system needed), which have no food residues or only light stains

Paper-based composites, if they carry a label indicating it's recyclability in standard paper recycling process and it has no food residues or only light stains



Collection and sorting mainly based on the value of the material obtained, recycling in standard packaging recycling mills

2nd fibre based, lightweight packaging/PMD/yellow bag (DE):

Paper-based composites, if they carry a label indicating it's recyclable in specialised recycling processes

Monomaterial paper and board (no labelling system needed) with clearly visible 3D food residues



Collection and sorting mainly based on EPR fees, recycling in special mills



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