

RECYCLABILITY ASSESMENT available @Centro Qualità Carta



Business Unit of

LUCENSE
RICERCA E SERVIZI PER L'INNOVAZIONE





Unità Operativa di

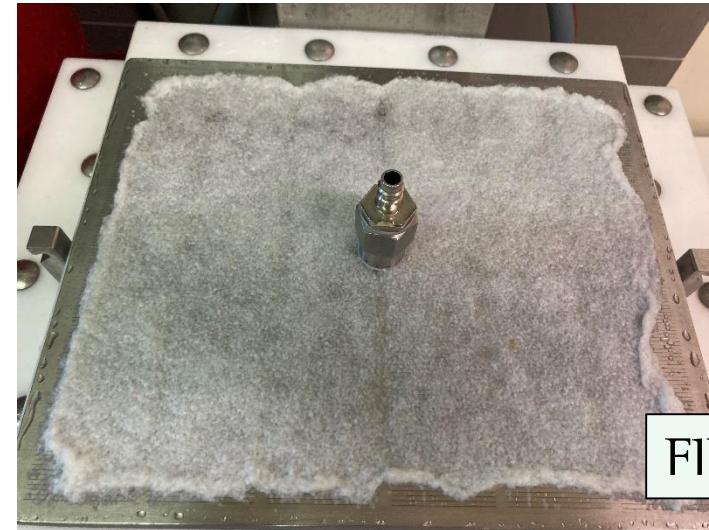


LUCENSE SCARL UNISTORE - 2019 - 2019/319650		
NORMA ITALIANA	Carta e cartone - Determinazione dei parametri di riciclabilità di materiali e prodotti a prevalenza cellulosica	UNI 11743
		MARZO 2019
Paper and board - Determination of parameters of recyclability of cellulose-based materials and products		
La norma specifica un metodo per determinare i parametri più significativi ai fini della valutazione della riciclabilità su scala di laboratorio di materiali e prodotti a prevalenza cellulosica, simulando alcune delle fasi principali dei processi industriali di lavorazione della carta da riciclare al fine di produrre nuova carta e nuovo cartone. Il metodo specificato nella norma permette di analizzare sia parametri di processo (scarto grossolano, fiocchi e contenuto di particelle adesive con diametro minore di 2 mm) sia parametri di qualità del prodotto ottenuto con le fibre riciclate (formazione del foglio, adesività e disomogeneità ottiche). La norma si applica solamente a carta e cartone intesi come materiali a prevalenza cellulosica e a prodotti costituiti in prevalenza da tali materiali. La norma non prende in considerazione ulteriori specifiche necessarie per la lavorazione della carta da riciclare per mezzo di tecnologia di disinquinamento.		
TESTO ITALIANO		
ICS 85.060		
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UNI 11743:2019		Pagina 1





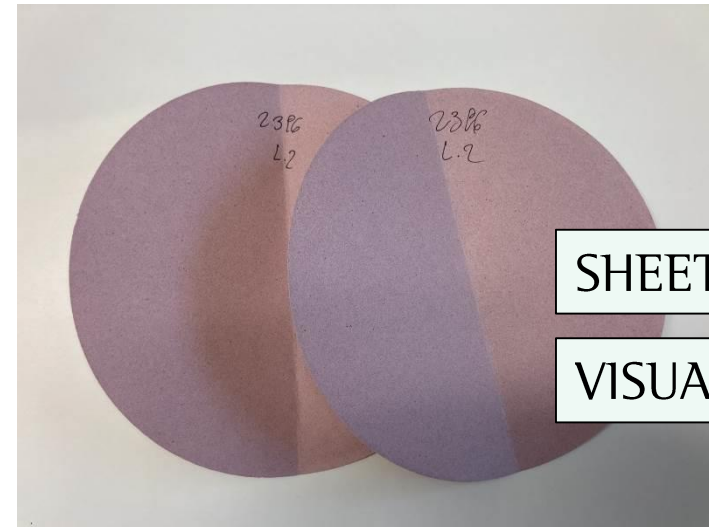
COARSE REJECT



FIBRE FLAKES



MACROSTICKIES



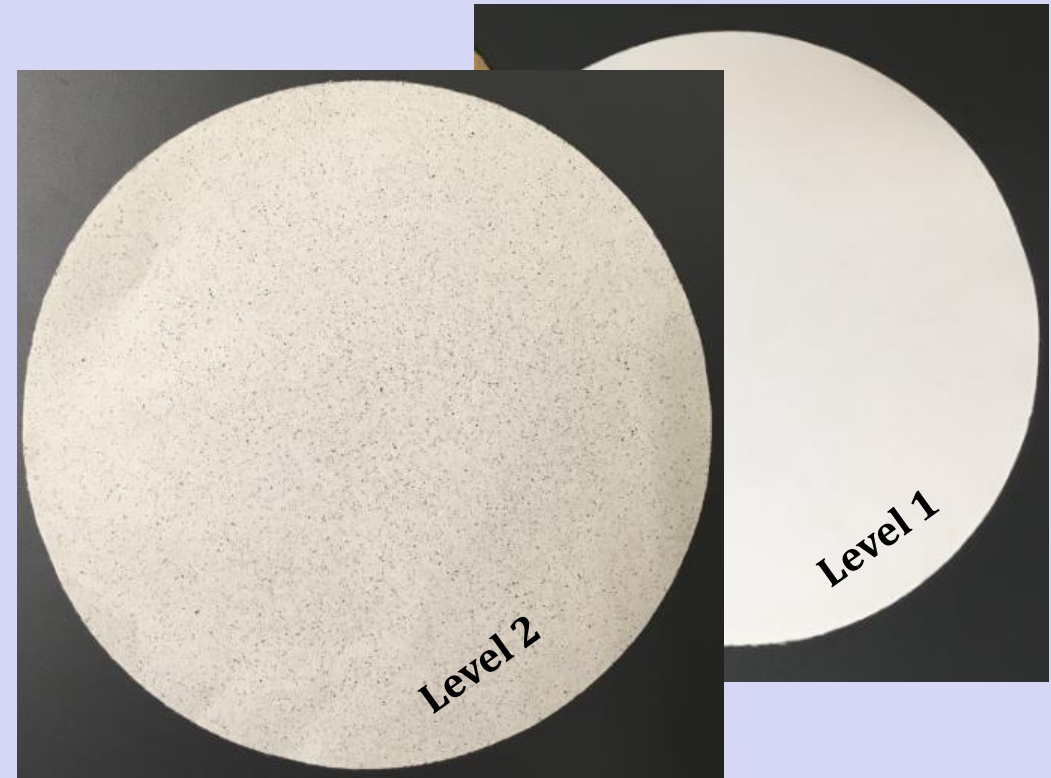
SHEET ADHESION

VISUAL IMPURITIES

Macrostickies



VISUAL IMPURITIES



Evaluation

Evaluation criteria	Recyclable				Not recyclable
	Livello A+	Livello A	Livello B	Livello C	
Coarse reject(%)	< 1.5	1.5 - 10	10.1 - 20	20.1 - 40	> 40
Macrostickies $\Phi < 2000\mu\text{m}$. (mm ² /kg)	< 2.500	2.500 - 10.000	10.001-20.000	20.001 – 50.000	> 50.000
Fibre flakes (%)	< 5.0	5.0 – 15.0	15.1 – 40.0	> 40.0	
Sheet adhesion	Absent	Absent	Absent	Absent	present
Visual impurities	level 1	level 2	level 3	level 3	

Level A, B, C



“A+ : “recyclable with paper in an effective and efficient way from a technological and economic point of view when used, through the currently most widespread paper production technologies, in mixture with other secondary fibers obtained from the separate collection of paper. Its recycling results in a waste of less than 1,5 %”



...Its recycling results in a waste of less than 10%”



...Its recycling results in a waste of less than 20%”



“C: recyclable with paper when used, through the currently most widespread paper production technologies, in mixture with other secondary fibers obtained from the separate collection of paper. Its recycling involves a waste of up to 40 % and/or a significant contribution of adhesive particles or agglomerates of cellulose fibres”



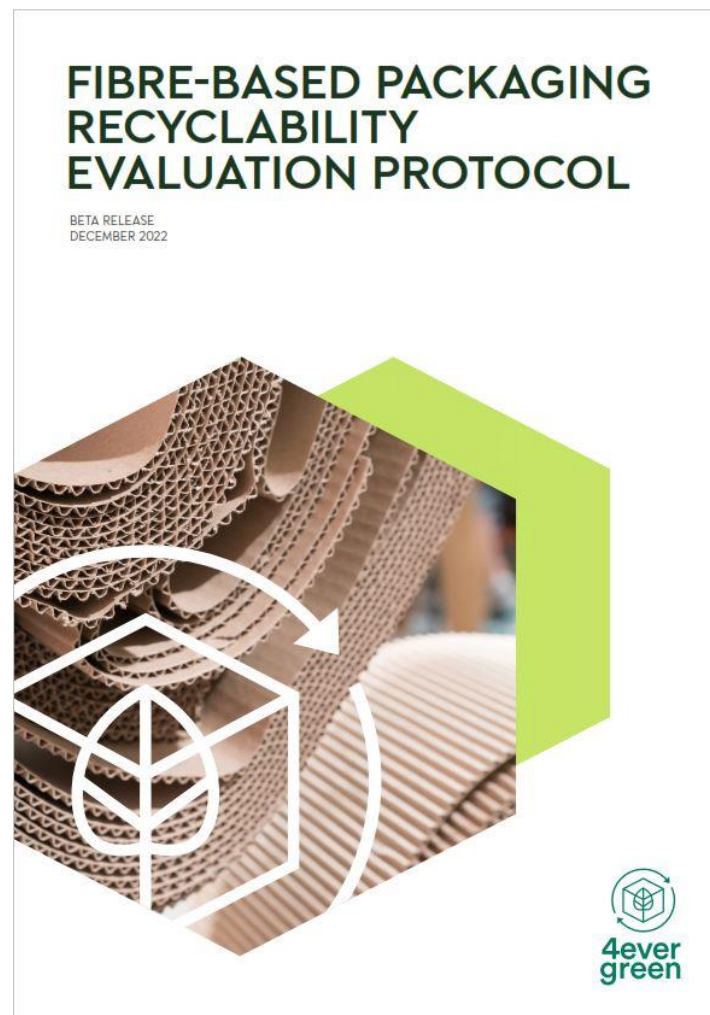
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**Harmonised European laboratory test method
to generate parameters enabling the
assessment of the recyclability of paper and
board products in standard paper and board
recycling mills**

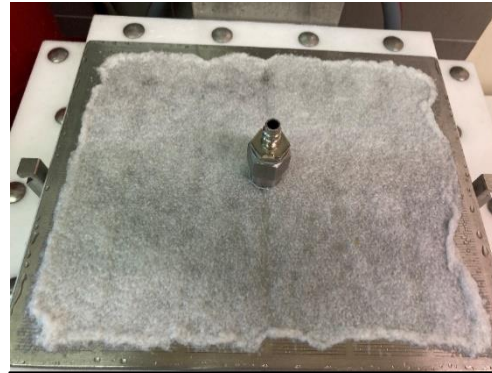
Short title: CEPI recyclability laboratory test method
Version 2, October 2022
15 pages



More info on:
<https://4evergreenforum.eu/about/guidelinesandprotocol/>



Coarse Reject



Fine Reject



Sheet adhesion
Visual Impurities



Macrostickies

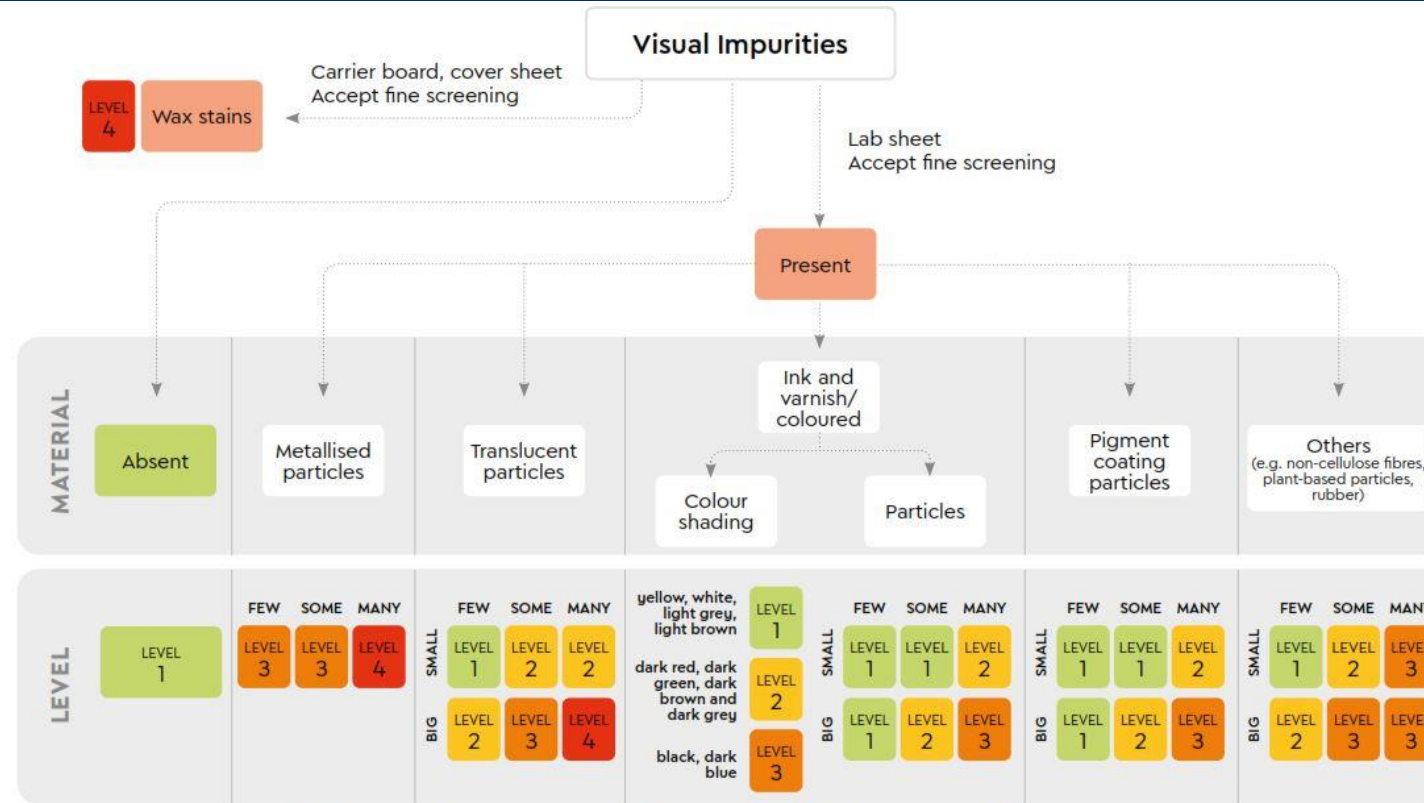


Evaporation Residue



COD

Visual impurities



NOTE: All applicable columns should be evaluated. Worst case level allocation applies.

LEVEL 1	No visual quality issues	LEVEL 3	Some visual quality issues
LEVEL 2	Minor visual quality issues	LEVEL 4	Significant visual quality issues

Visual impurities per hand sheet			
Amount	Few	Some	Many
	<10	10 - 100	>100
Size	Small	Big	Combination
	<1 mm	>=1 mm	Consider the worst case level

EVALUATION

Total score	Standard Mill Recyclability	SCORE COMPONENT BREAKDOWN								
/100	0-100 Suitable for Standard Mill recycling	YIELD			VISUAL IMPURITIES			SHEET ADHESION		
		SCORE	DESCRIPTION	LEVEL	SCORE	DESCRIPTION	LEVEL	SCORE	DESCRIPTION	
		100 - 90	The method indicates that the packaging is expected not to pose any repulpability issues in the standard mill and is therefore considered Best in Class .	LEVEL 1	0	Poses no visual quality issues .	LEVEL 1	0	Poses no adhesion issues .	
				LEVEL 2	-5	Poses minor visual quality issues that can be acceptable in the mix.	LEVEL 2	0	Poses minor adhesion issues that can be acceptable in the mix.	
		89 - 70	The method indicates that the packaging has minor repulpability issues that could have limited impact on the recyclability in the standard mill.	LEVEL 3	-15	Poses some visual quality issues that can be acceptable in the mix for certain types of production.				
	<0 Not suitable for Standard Mill recycling. Potentially recyclable in other mill types*	TOTAL SCORE COMPOSED OF								
		69 - 50	The method indicates that the packaging has some repulpability issues that affect the process in the standard mill and should therefore not be abundant.	AND			AND			
		49 - 0	The method indicates that the packaging has significant repulpability issues that have a significant impact on the process in the standard mill and should therefore be avoided when possible.	LEVEL 4	-30	Poses significant visual quality issues that can be problematic in the mix. Sample is at risk of receiving a KO in future versions of the Evaluation Protocol**	LEVEL 3	KO	Poses significant adhesion issues that can have a significant impact on the process in the standard mill	
		<0	The method indicates that the packaging has major repulpability issues which could stop the process at a standard mill and therefore are not suitable for this mill. It is recommended to evaluate this product with either Part II or III.							

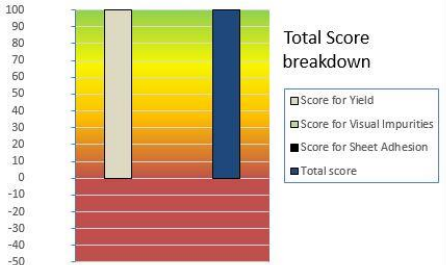
Calculation of Recyclability Scores for Standard Mill

Version 1.0
Date 14/11/2022



Cells in Green should be filled by the user
Cells in Yellow are calculated automatically

Recyclability Results	Acronym	INPUT	Unit	Recyclability Score Standard Mill	Score Range	Comment
Coarse Reject	CR	0	0 - 100 [%]			Cepi method lab result for Coarse Reject
Fine Reject	FR	0	0 - 100 [%]			Cepi method lab result for Fine Reject
Yield	Y	100,0	0 - 100 [%]	100	min -100, max 100	Yield percentage, after applying a correction factor of 0.9 to the Fine Reject. (100%-CR-0.9* FR)
Visual Impurities	VI	1	1 - 4 [Level]	0	min -30, max 0	See VI decision tree for the appropriate level assignment.
Sheet Adhesion	SA	1	1 - 3 [Level]	0	min KO, max 0	KO (Knock Out) is applied by limiting the final score to negative values.
				100	/100	Total Score. For interpretation, see description table below.





AUSTRALIAN METHOD



Version 1 – December 2022

Standardised Test Method for Repulpability Assessment

Author

This methodology has been created by Warren Batchelor – BioPria (Monash University).

Method

Sample preparation

Samples should be cut up into 2.5 cm x 2.5 cm (approximately) squares before pulping.



Coarse reject/ Yield



Visual impurities



Tensile strength



Stickies evaluation

Repulpability evaluation

The recycled material quality can be evaluated from the following table:

Yield	Handsheets properties	Result
90%+	AND Acceptable performance for application	Good recyclability - acceptable
80%-89%	AND Acceptable performance for application	Poor recyclability - possibly acceptable, depending on grade and mill
<79%	Not recyclable – not acceptable	

Note: All test results must be reported in the Pulpability Reporting Template provided for consistency.



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