

General Notice

Problem of reinforcements in paper/cardboard packaging

TECHNICAL DESCRIPTION – IMPACT ASSESSMENT

In packaging, a reinforcement is any structure that adds strength and rigidity. The reinforcement can be created using various processes (glass fibre, steel wire, polyester, cellulose fibres treated with a WSA or any other process). It is integrated into the actual material to be reinforced and can concern different packaging components:

- the main body, to stiffen the entire structure;
- an ancillary element (e.g. label, closure system) whose strength or protective function will be improved accordingly.

In the “Paper/cardboard packaging” stream, use of a reinforced structure mixed with cellulosic fibres makes separation harder during the recycling process. This structure is supposed to be eliminated, possibly along with some of the related fibre. It therefore reduces material yield and negatively affects the economic impact of recycling; it may also block recycling equipment and cause stoppage.

Consequently, if such structures are used in packaging whose body is mostly fibrous, this significantly disrupts the paper recycling process and will therefore be identified as recycling disruptor.

On the other hand, if this type of reinforcement features in an “ancillary” element of the packaging (fibrous or non-fibrous) with a marginal weight and size in relation to the packaging item itself, the impact on the papermaking process is negligible. Among the different possible secondary elements, some (adhesive tape, labels, closing ties, etc.) may effectively have a reinforced structure that can nevertheless be easily separated from the packaging body’s constituent cellulosic fibres during the pulping stage. This implies that strong adhesives should not be used for secondary elements applied to the packaging surface as this would diminish separability of these elements and the fibres.

Once separated and therefore not recycled, these ancillary elements nevertheless represent extra waste for the paper recycler to process; however **they do not disrupt recycling of the packaging’s cellulose fibres.**

The potential impacts of these two types of packaging – reinforced body or reinforced element – are given in the table below.

CHARACTERISTICS ASSESSED DURING RECYCLING	PACKAGING BODY					
	REINFORCEMENT INTEGRATED INTO THE PACKAGING STRUCTURE			REINFORCED ANCILLARY ELEMENT		
IMPACT ON THE PACKAGING’S FIBRE YIELD	High			Low or non-existent		
DISSOLVED AND COLLOIDAL MATTER	Varnish	Ink	Adhesive	Varnish	Ink	Adhesive
	∅	∅	∅	∅	∅	∅
PULPING ENERGY	Poor disintegration of the paper/cardboard fraction			Easy disintegration of the paper/cardboard fraction		

* in minimal conditions of use ** including natural moisture and residual liquid



Caution

∅ No impact

⌘ Under study

➤ Environmental impact

GENERAL OPINION OF CEREC

In the "Paper/cardboard packaging" stream, the disruptive effect of a packaging item is notably defined as the impossibility of defibrating the packaging body. Two cases of packaging should therefore be distinguished:

- If the reinforcement features in the main packaging body, the main body cannot be defibrated and so cannot be recycled: **this type of packaging thus falls into the "Disruptive packaging" category.**

CEREC advises against using reinforcements or any other stiffening structure that is incompatible with the paper recycling process;

- If the secondary or "ancillary" element is reinforced (labels, closure systems such as adhesive tape, etc.), it is eliminated during recycling without technically disrupting the process. **Consequently, the secondary or "ancillary" element does not disrupt recycling of the packaging which therefore may not be considered disruptive itself.**

As such, considering the properties contributed to the packaging by the element in question, CEREC has issued a favourable opinion regarding the recycling of packaging which solely has reinforced secondary elements that are completely separable from the body.

However, CEREC recommends packaging designers to reduce the number and size of secondary reinforced elements to the strict minimum necessary, i.e. the expected packaging functions, to limit the amount of rejects to be processed and the reduction in recycling yield.

APPROVAL



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