



## **RESY GmbH: Technical Commission**

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### **Explanation of the Recyclability of Packaging made of Paper or Cardboard**

Until now the functional aspect has been of primary importance in designing packaging made of paper and cardboard, especially with regard to providing the packaged good the most effective protection possible against a variety of harmful influences.

For environmental and economic reasons, and as a result of the objectives which have been set in the area of waste disposal, packaging is now in addition supposed to be recyclable after it has been used. Packaging made of paper or cardboard usually meets these requirements without any problem, as is demonstrated by the high percentage of recycled paper that the German paper industry has attained relative to other countries.

In order to be able to design packaging to perform special functions, however, it is frequently necessary to combine the packing material made of paper or cardboard with other materials and enhancements (for example, lamination, sheathing or coating, window envelopes). In some cases this impairs or in certain cases even makes it impossible to recycle the material and thus the finished packaging as well.

Basically, one should therefore attempt to make sure that none of the non-paper material used in constructing packaging based on paper or cardboard impairs the recycling of the packaging. Thus, this material does not necessarily have to be recyclable, but it should not hinder the recycling of the basic packing material. The wide variety of products which do show this characteristic makes it impossible to put together a complete list. This is moreover the case because the disturbing effect of the material must always be seen in the context of the recycling technique being used. However, on the basis of actual experience gained in the paper industry, which recycles used paper, the following problem areas should be listed:



## 1. **Combinations with plastic**

Combinations with plastic should be primarily made of paper or cardboard and the plastic must be separable and extractable in the aqueous phase. In the case of thermal recycling, no harmful emissions may be released. Thin coatings, for example of PE below 12 g/m<sup>2</sup>, disintegrate (because they are not firm enough) and are therefore not adequately extracted, thereby reducing the quality of the product.

## 2. **Combinations with wax, paraffin, bitumen and similar material**

### 2.1. **Combinations with wax or paraffin**

Combinations with wax or paraffin disintegrate, cannot be extracted and lower the quality of the product.

### 2.2. **Combinations with bitumen and similar material**

Combinations with bitumen and similar material disintegrate, cannot be extracted, completely disrupt the process and therefore cannot be recycled.

## 3. **Paper with high wet-strength**

Paper with high wet-strength is undesirable, as it is extracted during the normal material preparation and increases the quantity of residual material.

## 4. **Adhesive tape and stick-on labels**

Adhesive tape and stick-on labels are packaging aids which are not supposed to be suited for recycling. This requirement is met when they do not hinder the recycling process or can be extracted. No harmful emissions may occur when the adhesive tape which has been sorted out is subjected to thermal recycling.

Therefore, instead of PVC tapes Polypropylen tapes should be used.

## 5. **Glue and adhesives / conglutination**

Adhesives used in the manufacturing of packaging (packing material is not meant here) should not be redispersible and the thickness of the substance layer should be great enough to allow it to be separated out.

This compiled list lays no claim to completeness. When required, it especially needs to be altered and, if need be, revised to correspond to the state of knowledge and state of technology. In case of doubt, an appraisal on the recyclability of a particular packaging should be requested from a recognized technical institute, and presented to the Technical Commission of RESY GmbH, the Technische Ausschüssen der Fach-vereinigung Pack- und Wellpappenpapiere and the Fachvereinigung Maschinenkarton so that they may decide on the matter. To judge the recyclability of transportation packagings the standardized test method PTS-RH 021/95 is used. Tests according to this method can be ordered at the Papiertechnische Stiftung, München or the Institut für Papierfabrikation, Darmstadt.