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Packaging material recycling — Report on substances and materials which may impede recycling

National foreword

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TECHNICAL REPORT

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Recyclage des matériaux d'emballage — Rapport sur les substances et les matériaux pouvant empêcher le recyclage

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Foreword

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The committee responsible for this document is ISO/TC 122, *Packaging*, Subcommittee SC 4, *Packaging and environment*.

Introduction

Saving resources and increasing resource efficiency, together with minimizing the negative environmental impacts, are acknowledged as important objectives in the search for sustainability. The recycling of used packaging is one of the principal strategies that contribute significantly to the fulfilment of these objectives.

To ensure the efficacy of this strategy, recycled materials need to meet the requirements of the identified applications. The supply of used packaging has to be sufficiently continuous and stable in order to sustain an industrial recycling operation. Furthermore, the collection and sorting schemes have to be designed and managed for delivering the required fractions of used packaging fit for recycling.

It is essential that consistent information and communication about recycling be provided to users. This includes raising awareness of the value of recycling, as well as providing specific instructions as to how users can actively participate in the collection and sorting of used packaging for subsequent material recycling.

The composition of the used packaging streams, the sorting and recycling practices and technologies, as well as the market demand for recycled materials will continue to change due to innovation, regulations, and other developments. In such a context, it is important to always keep in mind the importance of the yield and efficiency of the whole recycling system, in addition to the quality and the intrinsic properties of materials to be recycled. Sometimes, innovations can themselves act as impediments to recycling, at least at the moment of their introduction. Precautions must be taken so that innovations do not jeopardize the functionality of existing schemes.

The recovery of used packaging by material recycling is largely influenced by the materials and substances used for packaging and the condition in which they arrive at the recycling operations, notably the presence of impurities such as product residues and extraneously introduced materials. Collection of several packaging materials together (co-mingling) can often result in lower quality materials with high content of impurities. In turn, this may lead to lower yields and increased costs. The proper design of collection and sorting schemes is of critical importance. This Technical Report provides examples covering the main packaging materials and can be used as a guide for taking into account substances and materials that may be incorporated in packaging and which may inhibit subsequent operations related to recycling.

This Technical Report covers the following aspects:

— materials, combinations of materials, or designs of packaging that may create problems in collecting and sorting before material recycling;

— substances or materials that have the potential to create problems in the recycling process;

— the presence of substances or materials that may negatively influence the quality of the recycled material.

ISO 18604 sets out the basis for classifying packaging as recoverable by material recycling. This is one of the routes for the recovery of used packaging, with the inter-relationship between the various routes being covered in ISO 18601.

ISO 18604 requires that the design, choice of materials, and the manufacturing operations of packaging take into account the activities to which the used packaging will be exposed when processed through the expected recovery operations. In particular, that International Standard deals with the need to take into account the collection, sorting, and recycling of the materials.

This Technical Report, therefore, provides a non-exhaustive overview of substances, materials, and components that need to be considered in the design and control of packaging as defined in ISO 18604.

Packaging material recycling — Report on substances and materials which may impede recycling

1 Scope

This Technical Report provides a non-exhaustive overview of substances and materials that may cause a sustained impediment to recycling activities and is intended to assist in the assessment requirements set out in ISO 18604.

It describes substances or materials which cause problems or inhibit the recycling process, or which have a negative influence on the quality of recycled material, where technical solutions are not expected to be developed in the near future.

These examples are, however, qualified by the fact that the recycling operations can vary regionally, that technology is constantly changing, and that the use to which the recycled material is put will also determine whether the presence of such substances and materials is a problem.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18601, *Packaging and the environment — General requirements for the use of ISO standards in the field of packaging and the environment*

ISO 18604, *Packaging and the environment — Material recycling*

ISO 21067, *Packaging — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21067 apply.

4 Recycling

A viable recycling system requires, in the first place, a well-functioning market for the recycled materials. The recycled materials need to meet the requirements of the identified applications, and the supply of used packaging has to be sufficiently continuous and stable in order to sustain an industrial recycling operation. Furthermore, the collection and sorting schemes have to be designed and managed for delivering the required fractions of used packaging fit for recycling.

The performance of a recycling system typically depends on a number of elements. These are the design, production, distribution, and use of packaging placed on the market, as well as the collection and sorting of used packaging and subsequent recycling operations for the identified applications of the recycled materials. Not all recycling technologies are widely available or used in all regions and countries.

The recovery of used packaging by material recycling is largely influenced by the materials used for packaging and the condition in which they arrive at the recycling operations, notably the presence of impurities such as product residues and extraneously introduced materials. This Technical Report provides examples covering the main packaging materials and can be used as a guide for taking into account substances and materials that may be incorporated in packaging and which may or do inhibit subsequent operations related to recycling.