
**Packaging and the environment —
Marking for material identification**

Emballage et environnement — Marquage pour l'identification des matériaux

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 4, *Packaging and the environment*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The purpose of this document is to specify a number of markings used to identify packaging materials, with the aim to support the efficient collection, sorting, recycling and recovery after use. The collection and sorting of used packaging is a prerequisite for a successful recycling and recovery process.

Although several countries and regions have established marking systems for material identification, the absence of such systems in other countries and regions has created difficulties for individuals and organizations to properly identify packaging materials. Waste operators lacking sufficient means of mechanical sorting face problems in properly separating the used packaging materials, when specified identification markings are lacking. Moreover, packaging material markings are not always linked to collection symbols for packaging, which depend on the relevant packaging waste management systems.

The usefulness of markings for packaging materials is limited in countries and regions with established collection and sorting schemes, where the latest technologies are used to separate the packaging materials fractions.

This document contains a number of identification markings with their sorting and recycling systems which are successfully used in some countries and regions.

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Packaging and the environment — Marking for material identification

1 Scope

This document shows some examples of markings (words, numbers or symbols) for the identification of packaging materials. This document is applicable to all types of packaging in order to enable the identification of the materials used.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21067-1, *Packaging — Vocabulary — Part 1: General terms*

ISO 21067-2, *Packaging — Vocabulary — Part 2: Packaging and the environment terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21067-1 and ISO 21067-2 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Markings

4.1 Markings of packaging materials

[Tables 1](#) to [6](#) outline some of the most commonly used markings of packaging materials categorized by country and/or region. Where necessary, a short explanation is given about the meaning and purpose of the markings outlined below.

Table 1 — Markings for paper as packaging material by country/region

Material	Country/region	Marking	Application, purpose and meaning	Issuing organization Information source
Paper	China		Applicable to all paper packaging	Indication: voluntary SAC, GB/T18455-2010
	Europe	PAP22 (paper) PAP 21 (fibreboard) PAP 20 (corrugated)	Applicable to packaging and material identification meaning	Indication: voluntary Decision 1997/129/EC, but the marking is mandatory when packaging material identification is adopted

Table 2 — Markings for aluminium as packaging material by country/region

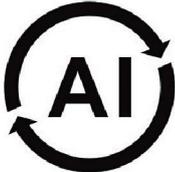
Material	Country/region	Marking	Application, purpose and meaning	Issuing organization Information source
Aluminium	China		Applicable to all aluminium packaging	Indication: voluntary SAC, GB/T18455-2010
	Europe	ALU 41	Applicable to packaging and material identification meaning	Indication: voluntary Decision 1997/129/EC but the marking is mandatory when packaging material identification is adopted
			Applicable to packaging and material identification meaning	Indication: voluntary EN/TR 14311

Table 3 — Markings for glass as packaging material by country/region

Material	Country/region	Marking	Application, purpose and meaning	Issuing organization Information source
Glass	Europe	GL70 (colourless) GL71 (green) GL72 (brown)	Applicable to packaging and material identification meaning	Indication: voluntary Decision 1997/129/EC but the marking is mandatory when packaging material identification is adopted

Table 4 — Markings for plastics as packaging material by country/region (including numbers and abbreviations of commonly used plastics-polymers for packaging)

Material	Country/ region	Marking	Application, purpose and meaning	Issuing organization Information source
Plastics	China		Applicable to plastic packaging. This an example of the symbol. See Annex A for the numbers and abbreviations of commonly used plastics-polymers for packaging	Indication: voluntary SAC, GB/T18455-2010
	Europe	HDPE2	Applicable to packaging and material identification meaning. See Annex A for the numbers and abbreviations of commonly used plastics-polymers for packaging	Indication: voluntary Decision 1997/129/EC but the marking is mandatory when packaging material identification is adopted
			Applicable to plastic packaging and material identification meaning This an example of symbol. See Annex A for the numbers and abbreviations of commonly used plastics-polymers for packaging	Indication: voluntary EN/TR 14311
	USA		Applicable to plastic packaging. This an example of the symbol. See Annex A for the numbers and abbreviations of commonly used plastics-polymers for packaging	Indication: voluntary ASTM, ASTM D7611/D7611M -2013e1, but mandatory when material identification is adopted by state legislation in the USA

Table 5 — Markings for steel as packaging material by country/region

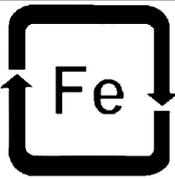
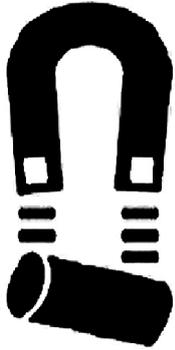
Material	Country/region	Marking	Application, purpose and meaning	Issuing organization Information source
Steel	China		Applicable to steel packaging.	Indication: voluntary SAC, GB/T18455-2010
	Europe	FE40	Applicable to packaging and material identification meaning	Indication: voluntary, Decision 1997/129/EC but the marking is mandatory when packaging material identification is adopted
			Applicable to packaging and material identification meaning	Indication: voluntary, EN/TR 14311

Table 6 — Markings for other packaging materials by country/region

Material	Country / region	Marking	Application, purpose and meaning	Issue organisation Information source
Wood	Europe	FOR 50 FOR 51 (cork)	Applicable to packaging and material identification meaning	Indication: voluntary Decision 1997/129/EC but the marking is mandatory when packaging material identification is adopted
Ceramics	Not designated	Not designated	Not designated	Not designated

4.2 Markings and symbols related to packaging

Table 7 shows examples of markings and symbols related to packaging without a material identification purpose. Such markings often point to a specific collection and sorting instruction or refer to a specific packaging waste management system in place. Others can refer to the recyclability of the packaging or packaging material concerned.

Table 7 — Markings and symbols related to packaging materials and/or products without a clear material identification purpose

Material	Country /Region	Marking	Application, purpose and meaning	Issuing organization Information source
Paper	Japan	 Paper	Containers/packaging Paper box, paper bag, wrapping paper, paper container for liquid, paper cup, other than next column corrugated cardboard and Paper carton for milk, beverage, alcohol, etc., with no aluminium layer. Paper made packaging component	Law for Promotion of Effective Utilization of Resources Recycling: Containers and Packaging Recycling Law
		 Corrugated cardboard box	Corrugated cardboard box	Indication: voluntary Cardboard Recycling Council Recycling: voluntary
		 Paper carton	Paper carton for milk, beverages, alcohol, etc., with no aluminium layer	Indication: voluntary The Beverage Paper Container Recycling Council Recycling: voluntary
	Korea	 Carton  Paper	Applicable to all carton and paper packaging with some exceptions listed in Article 6 of Directive on Separate discharge Mark	Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)

Table 7 (continued)

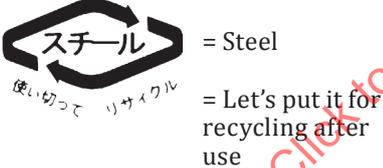
Material	Country /Region	Marking	Application, purpose and meaning	Issuing organization Information source
Aluminium	Japan	 Aluminium	Aluminium cans for beverages such as soft drinks, alcohol drinks, lactic drinks	Law for Promotion of Effective Utilization of Resources Recycling: voluntary
		Not designated	Other aluminium packaging	Not designated
	Korea	 = Cans = Aluminium	Applicable to all aluminium packaging with some exceptions listed in Article 6 of Directive on Separate discharge Mark	Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)
Steel	Japan	 Steel	Steel cans for beverages such as soft drinks, alcohol drinks, lactic drinks	Law for Promotion of Effective Utilization of Resources Recycling: voluntary
		 = Steel = Let's put it for recycling after use	18 litres steel cans	Indication: voluntary Japan Federation of 18-Litre Metal Can Manufacturer's Trade Union Recycling: voluntary
		 Steel	Steel cans other than for beverage, 18-litre cans, drums	Indication: voluntary Japan General Can Manufacturer Association Recycling: voluntary
	Korea	 = Cans = Steel	Applicable to all steel packaging with some exceptions listed in Article 6 of Directive on Separate discharge Mark	Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)

Table 7 (continued)

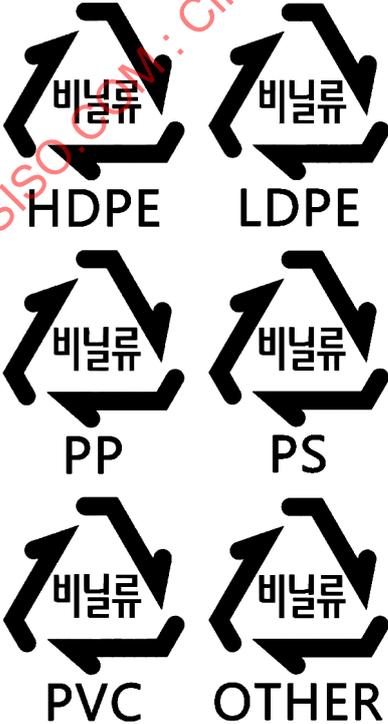
Material	Country /Region	Marking	Application, purpose and meaning	Issuing organization Information source
Glass	Japan	Not designated	Not designated	Indication: Not designated Containers and Packaging Recycling Law Recycling: Not designated
	Korea	 Glass	Applicable to all glass packaging with some exceptions listed in Article 6 of Directive on Separate discharge Mark	Act on the promotion of saving and recycling of resources Article 14 (Separate Discharge Mark)
	Europe		Indicates the method of collection preferred for efficient glass recycling	Indication: voluntary. Other markings are also used on glass packaging for this purpose in various countries. FEVE
Plastics	Japan		Designated PET bottle Beverages such as soft drinks, alcohol drinks, lactic drinks Specified seasoning such as soy sauce, vinegar, dressing without oil NOTE Even a PET bottle is prohibited from attaching this mark when filling something other than specified above. PET bottles filled with such contents other than specified need to be marked with "other plastics" shown below. This mark can be attached only to PET bottles filled with designated contents. It cannot be attached to PET film or PET sheet.	Law for Promotion of Effective Utilization of Resources Recycling: Containers and Packaging Recycling Law

Table 7 (continued)

Material	Country /Region	Marking	Application, purpose and meaning	Issuing organization Information source
Plastics		 <p>= Plastics</p> <p>PE-HD</p>	<p>Other plastics</p> <p>Packaging and packaging component made of plastics except designated PET bottle described upper column.</p> <p>The Law for Promotion of Effective Utilization of Resources recommends adding the abbreviation for the type of plastic under the identification mark without number.</p> <p>This an example of the symbol.</p> <p>See Annex A for the abbreviations of commonly used plastics-polymers for packaging</p>	<p>Law for Promotion of Effective Utilization of Resources</p> <p>Recycling: Containers and Packaging Recycling Law</p>
		 <p>PET</p>	<p>Applicable to all PET packaging with some exceptions listed in Article 6 of Directive on Separate discharge Mark</p>	<p>Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)</p>

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Table 7 (continued)

Material	Country /Region	Marking	Application, purpose and meaning	Issuing organization Information source
	Korea	 <p>Meaning of inside Characters = Plastics</p>	<p>Applicable to HDPE, LDPE, PP, PS, PVC and other rigid plastic containers with some exceptions listed in Article 6 of Directive on Separate discharge Mark.</p>	<p>Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)</p>
		 <p>Meaning of characters: Plastic films</p>	<p>Applicable to HDPE, LDPE, PP, PS, PVC and other flexible plastic films and bags with some exceptions listed in Article 6 of Directive on Separate discharge Mark.</p>	<p>Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)</p>

In the case of Korea, Rep., in line with the Act on the promotion of saving and recycling of resources, as amended on 2019-12-25, new regulation on packaging material and structure grade labelling standard has been implemented (enforced on 2020-02-17).

Figure 1 illustrates the examples of marking of "ease of recycling level" at the top of the label:

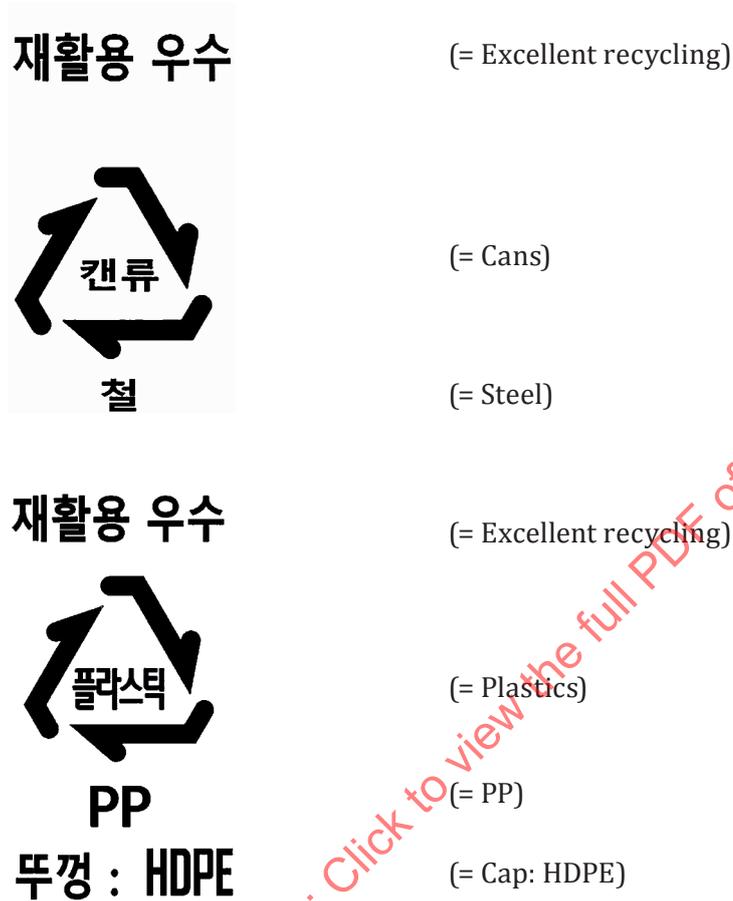


Figure 1 — Examples of markings for the "ease of recycling level" at the top of the label in Korea, Rep.

Figure 2 illustrates the examples of markings for the "ease of recycling level" at the bottom of the label:



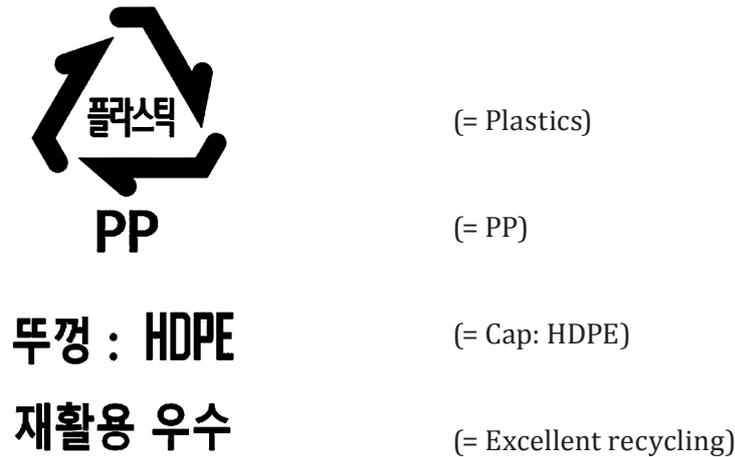


Figure 2 — Examples of markings for the "ease of recycling level" at the bottom of the label in Korea, Rep.

Figure 3 illustrates the examples of markings for "ease of recycling level" when material identification mark is not available (e.g. limited printable surface). Either of the following can be accepted:



Figure 3 — Examples of markings for "ease of recycling level" in Korea, Rep., when material identification is not available

5 Recommendations

5.1 The marking should be compatible with and/or support the collection and sorting system as applicable.

5.2 The marking should provide information on the material(s) used to manufacture the packaging. The supplier should not use contradicting or conflicting material identification marking on the same packaging component.

5.3 Packaging may consist of various packaging components. Packaging components normally consist of several packaging constituents. The material identification markings described in this document should be applied to the material that is clearly the predominant material.

5.4 When the material identification markings are used on the packaging and packaging components, they should be of a suitable size and clarity for easy recognition and understanding by the users. They should be designed in an accessible way, i.e. that they are intuitively understood by all consumers including children and senior people.

5.5 The material identification marking may be applied to the packaging by a variety of methods including printing, screen printing, labelling, moulding and engraving.

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Annex A (informative)

Numbers and abbreviations of commonly used plastics-polymers for packaging by country or region

Material	Country/region	Numbers and abbreviations	Application, purpose and meaning	Issuing organization Information source
Polyethyl- ene-terephtha- late	China	01 PET	Applicable to all plastic packaging	Indication: voluntary SAC, GB/T18455-2010
	Europe	01PET or 1PET	Applicable to all plastic packaging	Indication: voluntary Decision 97/129/EC but mandatory when material identification is adopted. EN/TR 14311
	USA	1PETE or 01PET	Applicable to all plastic packaging	Indication: voluntary ASTM, ASTM D7611/D7611M-2013e1, but mandatory when material identification is adopted by state legislation in the USA.
	Japan	1PET or PET	1PET: Beverages such as soft drinks, alcohol drinks, lactic drinks Specified seasoning such as soy sauce, vinegar, dressing without oil PET: Applicable to all plastic packaging except the PET bottles described above	1PET: Indication: Containers and Packaging Recycling Law PET: Indication: voluntary JISC, JIS K6899-1-2015
	Korea	PET	Applicable to all plastic packaging	Indication: Act on the promotion of saving and recycling of resources, Article 14 (Separate Discharge Mark)
	China	02 PE-HD	Applicable to all plastic packaging	Indication: voluntary SAC, GB/T18455-2010

^a The number 07 is not defined in 97/129/EC. It is commonly used as OTHER in Europe.