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# MARKING OF PACKAGING WITH ECOLOGICAL SYMBOLS

## AKTUALNA SYTUACJA ZNAKOWANIA ŚRODOWISKOWEGO OPAKOWAŃ / ZNAKOWANIE ŚRODOWISKOWE OPAKOWAŃ / OZNACZANIE OPAKOWAŃ SYMBOLAMI ŚRODOWISKOWYMI

**ABSTRACT:** Do you know how to mark correctly the packaging? The situation connected with the environmental marking of packaging is somewhat difficult. There is no uniform approach to marking issue in the European Union. The binding rules are insufficient and remain too large freedom in this respect – it causes, in turn, the fact that some countries have commenced to create their own initiatives and introduce their own principles concerning labelling.

The present paper is an attempt to organize the knowledge concerning the environmental marks on the packaging. It includes the discussion of the basic groups of the signs together with the guidelines relating to their application. The text refers also to the present and obligatory legal acts, existing in Poland. In the paper, the problems of different requirements concerning packaging marking in different European countries have been discussed.

**Key words:** environmental marks, eco-marks, sustainable development, recyclability, greenwashing, circular economy (GOZ)

**STRESZCZENIE:** Czy potrafimy prawidłowo oznaczać opakowania? Sytuacja związana ze znakowaniem środowiskowym opakowań jest dosyć trudna. W UE nie ma jednolitego podejścia do tematu znakowania. Obowiązujące przepisy są niewystarczające i pozostawiają zbyt dużą dowolność w tym zakresie - to z kolei powoduje że, niektóre kraje zaczęły tworzyć własne inicjatywy i wprowadzać własne zasady dotyczące znakowania.

Poniższy artykuł stara się uporządkować wiedzę dotyczącą znaków środowiskowych na opakowaniach. Omówione w nim zostały podstawowe grupy znaków wraz z wytycznymi co do ich stosowania. Tekst odwołuje się do też, do istniejących i obowiązujących w Polsce aktów prawnych. A także porusza problematykę różnych wymagań dotyczących znakowania w różnych krajach Europy.

**Słowa kluczowe:** znaki środowiskowe, eko-znaki, zrównoważony rozwój, przydatność do recyklingu, greenwashing, GOZ

For a long time, the role of packaging has extended its basic protective role. To-day, the packaging has to attract the attention, initiate the purchase and also, pay the informational role.

The information present on the labels should be reliable, transparent and easy to understand and they should not mislead the customer in the respect of the properties, effect or features of the product. The majority of the guidelines concerning the type of information which should be present on the packaging are referred to the packaged product and it is the obligatory information.[1] Apart from the lot of information on the label, we may also find different types of pictograms, signs and graphic symbols.

The marks on the packaging may concern the contents of the packaging transport conditions and handling as the packaging itself. One of the most frequently met signs concerning the packaging includes the environmental marks, playing a significant role in the increasingly ecology-aware world. The consumers want to be better informed about the effect of their purchase decisions on the environment and they want to make well informed choice. Unfortunately, we have to-day the situation of enormous quantity of marks and pictograms and the information contained on the packaging is not always true and completely understandable. The aim of the present paper

is to make the order in respect of the existing information about environmental marking of the packaging.

Due to the supplied information, the environmental marks may be classified into the following types:

- marks concerning the composition of the packaging – including the signs of material identification; the signs, specifying the content of recycled material, or the marks informing about the content of plastics;
- marks, informing about the properties of the packaging, satisfying the specified requirements, connected with the environmental protection such as recyclability or compostability;
- other signs – including the marks indicating the appropriate handling of the packaging after its use, or the signs of membership to the organizational-legal system, connected with the waste management.

In the EU countries, according to the recommendations of Directive 94/62/EC, Decision of the European Commission 97/129/EEC of January 1997, the voluntary system of identification of packaging material was introduced

(ID-identification system).[2,3] The mentioned system specifies the symbols of packaging material and the code numbers, corresponding to the discussed materials. Annexes I-VII of the mentioned above document contain the symbols of materials and the corresponding numerical codes which have been given in Tab.1. Annexes I-VI concern the uniform materials (plastics, paper, metal, wood, textiles, glass) whereas Annex VII is referred to multi-material packaging. For the multi-material packaging, the letter C and the symbol of predominant (in mass) material is provided. For example, the symbol of material for packaging produced from laminate: cardboard/aluminium/polyethylene is C/PAP (C/symbol of predominant material, i.e. PAP cardboard).

In Poland, the Regulation of the Minister of Environment dating to 3 September 2014 on the patterns for marking of packaging [4] is, at present, the obligatory rule; it specifies the detailed principles of marking the packages, and it has been developed on the grounds of guidelines and decisions of the European Union, and, in particular, Directive 94/62/EC of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste (Official Journal L 86 of

**TAB.1. SYSTEM OF IDENTIFICATION PURSUANT TO DECISION 97/129/EC**

Annex	Type of material	Material	Symbol	Numerical code
I	Plastic	Polyethylene terephthalate	PET	1
		High-density polyethylene	HDPE	2
		Vinyl polychloride	PVC	3
		Low-density polyethylene	LDPE	4
		Polypropylene	PP	5
		Polystyrene	PS	6
II	Paper and cardboard	Corrugated cardboard	PAP	20
		Cardboard different than corrugated cardboard	PAP	21
		Paper	PAP	22
III	Metal	Steel	FE	40
		Aluminium	ALU	41
IV	Natural	Wood	FOR	50
		Cork	FOR	51

Annex	Type of material	Material	Symbol	Numerical code
V	Textiles	Cotton	TEX	60
		Jute	TEX	61
VI	Glass	Colourless glass	GL	70
		Green glass	GL	71
		Brown glass	GL	72
VII	Multi-material	Paper and cardboard/different metals	C/*	80
		Paper and cardboard/plastics	C/*	81
		Paper and cardboard /galvanized steel sheet/aluminium	C/*	82
		Paper and cardboard /galvanized steel sheet	C/*	83
		Paper and cardboard/ plastics/aluminium	C/*	84
		Paper and cardboard /plastics/aluminium/galvanized steel sheet	C/*	85
		Plastics/aluminium	C/*	90
		Plastics/galvanized steel sheet	C/*	91
		Plastics/different metals	C/*	92
		Glass/plastics	C/*	96
		Glass/aluminium	C/*	97
		Glass/galvanized steel sheet	C/*	98
		Glass/different metals	C/*	99

\* Mixed materials: C plus abbreviation corresponding to dominant material

5.04. 2005, p.6) and the Commission Decision 97/129/EC of 28 January 1997/

The symbols identifying packaging material cannot be identified with the suitability to recycling (recyclability)[5]. Their aim is to improve the recovery of the recyclable materials via their correct identification. Currently in Poland the system of marking is voluntary but if the entrepreneur decides to use it, it must be consistent with the legal regulations.

It is worthy to mention that the draft PPWR Regulation (Packaging and Packaging Waste Regulation) envisages

**TAB.2. THE PATTERNS OF THE HDPE PACKAGING MARKING ACCORDING TO THE REGULATION OF THE MINISTER OF THE ENVIRONMENT OF 3 SEPTEMBER 2014**

2	High density polyethylene	

introduction of a duty of material identification of packaging[6]. It means that each packaging shall possess a label, containing information about raw material composition. The mentioned duty will not refer to transport packaging. The Commission will undertake also standardization of formats and requirements in respect of packaging labelling. It concerns, inter alia, information about the content of material coming from recycling or the content of bio-derived raw materials. We have, however, to wait a while for the defined guidelines. The Commission makes the obligation to issue the respective acts at the period up to 18 months since the entry of the discussed Regulation into effect.

At present, the producers are obliged to place the appropriate marks on the single-use plastic packaging, informing about the content of plastics and the relating threat to the environment (Fig.1).

In connection with the introduction of the Act of 14 April 2023 on the change of the act on the duties of entrepreneurs in respect of management of certain waste and on the product

fee, there has been imposed the duty on the producers to mark certain packaging[7]. The amendment results from the implementation of the EU Directive of 5 June 2019, being known as SUP Directive (Single-Use Plastic Directive)[8]. The aim of the mentioned Directive is to reduce the impact of certain single-use products and plastic fishing-related items on natural environment.

The single-use plastic products covered with the marking requirements include as follows:

- 1) sanitary pads and tampons and applicators for tampons;
- 2) wet wipes;
- 3) tobacco products with plastic-containing filters and filters, containing plastic; and
- 4) cups for drinks and beverages.

The marks informing about the content of renewable raw materials in packaging are still a relatively new variety of ecological signs. The mentioned system may be applied in relation to many products, being totally or partially produced from natural-origin materials (excluding solid, liquid and gas fuels). To apply for certification, the product must contain at least 20% of organic carbon from renewable resources. In 2015, COBRO introduced program for certification of the renewable raw material content in packaging products, introduced into the domestic market. There is given below the marking employed by different units in order to distinguish the products produced from renewable raw materials.

The group of marks concerning the composition of the packaging includes also FSC mark (Forest Stewardship Council International) – the most recognisable mark all over the world, the mark informing about the sustainable forest management (Fig.3). FSC label confirms that the timber or wood fibres used in manufacture of a defined product come from the certified forests. The certified forests are those ones which are managed in compliance with FSC requirements. FSC certificate is intended for all entities of wood and paper sector which possess legally obtained raw materials or products[9].

Another group of marks includes declarations (claims) and marks that confirm meeting the specified environmental requirements. The mentioned marking is employed as an



FIG.1. THE OBLIGATORY MARKING OF THE PRODUCTS, COMPLIANT WITH THE SINGLE-USE PLASTIC DIRECTIVE



FIG.2. EXAMPLES OF MARKS, INFORMING ABOUT THE CONTENT OF RENEWABLE RAW MATERIALS



FIG.3. FSC FOREST STEWARDSHIP COUNCIL MARKS

indispensable instrument of communication in green marketing; however, due to a lack of transparent legislation, they do not always reflect the real properties of packaging. The study of the European Commission of 2020 revealed that 53.3% of the examined statements concerning environmental protection in the EU were recognised as unclear or misleading and 40% were unjustified[10]. Lack of common rules for the enterprises which declare voluntary claims in respect of eco-friendliness leads to malpractice and works against the companies which act, in fact, in accordance with the principles of sustainable development. Moreover, a high freedom in application of the signs causes that the consumers feel confused and lose their confidence in reliability of eco-marking.[11]



FIG.4. "MÖBIUS LOOP" – SYMBOL OF RECYCLABILITY ISO 14021:2016



FIG.5. PERCENTAGE VALUE OF RECYCLED CONTENT

The EU has undertaken the measures, aimed at the protection of the consumers from "greenwashing" and pseudo-ecological declarations on the packaging[12]. The task of Directive of the European Parliament and of the Council on substantiation and communication of explicit the environmental claims (Proposal for a Directive of 22 March 2023, Green Claims Directive) to make that the claims concerning environment are reliable, comparable and verifiable in total EU. The environmental claims being not supported by the studies will be forbidden. The discussed document contains the guidelines concerning the correct application of green claims. The ban will cover, inter alia, the following cases:

- marking concerning the sustainable character that is not based on the system of certification and has not been established by public organs;
- general environmental claim for which the entrepreneur is not able to indicate the recognised high environmental effectiveness, being relevant for the discussed claim, e.g.: eco-friendly, green, friendly to nature;
- environmental claim in relation to the whole product whereas it refers only to a certain aspect;
- presentation of the requirements imposed by law on all products belonging to a respective category of products at the EU market as the property, that distinguishes the offer of a given entrepreneur.

The marking connected with recyclability is nowadays one of the most popular environmental claims. Thus, the information

about the limited burden of packaging to the environment, as a result of their reuse, is made available.

The basic international mark of recycling is a symbol, composed of three subsequent arrows, distributed on the plane of triangle in a form of the so-called Möbius loop (or strip) acc. to ISO 14021[13]. Each of three arrows illustrates one stage of three-degree loop of recycling, i.e. collection, processing and sale together with use of the products, manufactured from materials, processed during the recycling process. The discussed sign is also associated with the motto "3R": Reduce, Reuse, Recycle, being the encouragement for protection of the environment in result of minimization of the waste amount, secondary use of products and packaging and recycling. A similar symbol with a given percentage value signalizes that a defined part of the product was made from processed materials.

In Poland, the Regulation of the Minister of Environment of 3 September 2014 on the patterns for package marking has determined the model of the packaging marking, indicating the suitability of the product for recycling (recyclability) (Fig.6), and the symbol of the suitability for reuse (Fig.7). The mentioned symbols may be employed in the case of meeting the requirements of standards PN-EN 13430:2007 "Packaging – Requirements for Packaging Recoverable by Material Recycling" or PN-EN 13429 "Packaging – Reuse"[14,15].

In our country, COBRO, as under the structures of the Institute of Technology of Łódź, has conducted - since 1993 - a voluntary certification of packaging suitable for re-processing. It has been the first certification in Poland which concerns evaluation of packaging in aspect of one of the ecological criteria. The producer of packaging, who obtained the discussed certificate, is entitled to put the special mark on the packaging.

Symbols of suitability for organic recycling, i.e. for biodegradation and composting are a similar group as the discussed above and are given in figure below.

The last, third group of symbols includes, inter alia, the symbols indicating the way of the waste removal. Fig.10 – Take Care of Cleanliness – reminds about the necessity of disposing of the used product via its throwing out to waste bin.

Lack of uniform regulations in respect of packaging marking at the European level caused that certain Member States of



FIG.6. SYMBOL OF RECYCLABILITY

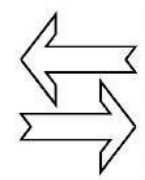


FIG.7. SYMBOL FOR REUSABLE PACKAGING

REGULATION OF THE MINISTER OF ENVIRONMENT OF 3 SEPTEMBER 2014  
ON PATTERNS OF PACKAGING MARKING

the EU and Great Britain developed their own initiatives concerning, inter alia, logo of recycling. The mentioned limitations affected considerably the companies which run commercial activities in different countries.



FIG.8. SYMBOL FOR RECYCLABLE PACKAGING, USED BY COBRO



FIG.9. THE EXAMPLES OF SYMBOLS, INFORMING ABOUT THE SUITABILITY OF PACKAGING FOR COMPOSTING AND BIODEGRADATION

The example may be France where since 9 March 2023, it is obligatory to use Triman logo on all the packaging directed to consumer. Triman logo (Fig.11) informs the consumers about the possibilities of recycling of a given product and indicates



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FIG.10. SYMBOLS INDICATING THE APPROPRIATE (CORRECT) DISPOSAL OF PACKAGING AFTER ITS USE



FIG.11. TRIMAN LOGO

where the packaging should be thrown away (to which stream of waste it should be directed).

In Italy, there has been introduced a duty of environmental marking of packaging. Since January 1, 2023, the packaging must be marked in the way compliant with the new national regulations.

The above examples show only some of the encountered challenges, connected with the lack of uniform legislation concerning packaging in the EU.

Summing up, it should be concluded that there is no possibility to pass into circular economy (GOZ) model without involvement of all stakeholders. The properties of packaging alone as being based on the principles of GOZ are not sufficient to ensure the profits to the environment; they have to be accompanied by the will of the consumers to buy the mentioned sustainable products. The correct eco-labelling may have a real impact on shaping of the consumer choices, consistent with the circular economy. The discussed situation may have place only when the marking is reliable, understandable and honest.

The support should come from transparent legislation, being coherent in the total EU. A step towards good direction would be facilitated by the regulation concerning voluntary environmental claims and the proposals contained in (PPWR Proposal Packing and Packing Waste Regulation). Hopefully, the matter of uniform marking of packaging product may be

regulated soon so as the environmental marking could be not only the excellent marketing gimmick but also a manifestation of real care of the environment.

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