

## International Packaging Regulations

### An Introduction to What You need to Know

In the present atmosphere of increasing global commerce, interest in environmental sustainability has mounted, as have the waste by-products of trade. To address environmental concerns relating to packaging waste, many countries have implemented environmental packaging requirements to allocate and distribute waste management costs, shift responsibility onto product manufacturers, and to decrease the environmental impact of packaging. Companies selling goods in foreign markets face an ever-growing range of international packaging regulations, including environmental design requirements and extensive packaging fee systems. These requirements differ greatly from the current regulations in the United States, but their impact on US goods sold abroad cannot be ignored.

With packaging regulations in place in a growing number of markets, (including some US states, Canada, Western and Eastern Europe, South Africa, Australia, Brazil, China, Japan, Taiwan, Tunisia, and South Korea) and regulations pending in many more, understanding where responsibility lies is crucial to ensuring worldwide compliance and sustained economic edge. In other words, awareness of international packaging fees and design requirements will improve the competitiveness of US exporters. Failure to adhere to the packaging requirements set out by US trading partners can lead to poor cost-competitiveness of goods imported from the US, enforcement measures, and poor public image, especially as environmental consciousness continues to grow.

### The Evolution of Packaging Regulations

The driving force behind packaging and product legislation is environmental concern over resource use, pollution, and waste management, coupled with the notion that businesses that manufacture and use packaging should bear some of the burden of managing packaging waste. As international commerce, Internet sales, and the trend toward products with short life-spans continue to develop, the volume of goods placed on the market (and subsequent waste from these products and their packaging) has increased dramatically, often faster than waste disposal capacity. According to the Organization for Economic Co-operation and Development (OECD), municipal solid waste increased 40% from 1980 to 1997 in OECD countries and private household consumption grew 37.5% during the same period<sup>1</sup>. Packaging waste is a growing waste stream in many countries, particularly those undergoing rapid socio-economic change. For example, the per-capita quantity of packaging in Poland and the Czech Republic is significantly lower than that of western European countries, but the waste stream is changing as the range of products marketed to consumers becomes more westernized<sup>2</sup>. But in Western Europe, the per-capita consumption of packaging is also increasing – one important factor is the growing proportion of single-person households, which favor smaller retail units, single-portion packs, and other convenience items over economy-size packages and bulk

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<sup>1</sup> Organisation for Economic Co-operation and Development, 2000.

<sup>2</sup> Eco-Kom, 2001; Reko-Pol 2001.

goods. These changes have generated a push towards reducing and recycling packaging. However, waste disposal solutions come at a price, and someone has to pay.

In many countries, the “polluter pays” principle and Extended Producer Responsibility (EPR) lie at the heart of packaging and product regulations. Traditionally, packaging waste has been managed through government-operated and -funded recycling and disposal programs. However, the costs of waste management (i.e. collection, disposal) are not reflected in the price of products. Internalizing these costs within the product chain by charging companies a fee on the packaging they place on the market ensures that these costs are considered and not borne solely by government and society (i.e., taxpayers) more generally. The goal of these systems is not to penalize industry, but rather to assign a portion of the costs to the members of the supply chain who can most directly influence the selection of designs, materials, processes, and other aspects of production and marketing. In this regard, packaging developers are encouraged to reduce packaging and other environmental costs. Packaging regulations force manufacturers to incorporate waste management costs into packaging costs, product design, and innovation.

### **A Briefing in Worldwide Fee Mechanisms Based on Packaging Types**

One thing is certain when it comes to fee programs around the world- no two systems are exactly alike. As of February 2005, 37 countries had fee requirements and new programs were emerging in Canada, Asia and Central Europe. Each system has a unique method of allocating recovery costs (by setting fees and defining categories), data and labeling requirements, and reporting standards. The extensive array of definitions, including material and material thresholds, what constitutes packaging and what types of packaging are covered, all vary dramatically across fee programs.

Most countries place responsibility for ensuring packaging collection and recycling on the packer/filler or importer, and stipulate that companies may fulfill their obligations individually or collectively. In response, industry associations have established collective systems to manage compliance on behalf of obligated companies, usually dividing the cost of providing collection and recycling services among their members according to the quantity of packaging they generate. In a few countries, the government continues to provide collection and recycling and charges a tax to industry based on the quantities of packaging placed on the market<sup>3</sup>.

It is also important to remember that fees may be paid by the importer of US products sold abroad without the knowledge of the manufacturer/brandowner. In this case, poor packaging design may result in high packaging fees, putting these goods at a competitive disadvantage. Therefore, is it essential for companies to be aware of fee structures, even though they might not be directly responsible for payment.

Generally, fees for a particular package are determined by the quantity of packaging (weight) and the type of material used. In some countries, the fee may exceed the actual cost of the packaging components. For example, a product packaged in a polyvinyl chloride (PVC) blister weighing 100 grams incurs a fee in Denmark of more than twenty-five cents (USD) for the PVC container, which far exceeds the cost of manufacturing the blister. It is important to understand fee structures in order to account for fees in the cost of goods, even if a company isn't paying the fee directly. Analysis may reveal opportunities to drastically reduce costs through changes in packaging design and material selection.

Across the board, individual material types have a major impact on packaging fees and thus can affect the cost of goods on the market. Material substitutions can lead to significant fee reductions, although the extent will vary across programs. In many countries, fees on plastics and composites can cost several times more per kilogram than other materials such as glass, paper, and metals. This is a reflection of the high cost of sorting plastics and composites, and the low market prices for the

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<sup>3</sup> These may be called fees, levies, taxes, eco-fees, waste taxes, etc. In the following, the term “fees” will be used generically to refer to packaging fees and taxes.

recovered materials. However, a few countries have assessed fees on a broader set of environmental criteria. For example, Denmark has set fees based on life-cycle analysis studies of common packaging materials. Below is a table that summarizes fees by material type in major countries:

**Table 1: Example 2004 fees per kg in USD<sup>4</sup>**

	<u>Paper</u>	<u>Plastic</u>	<u>Composites</u>
<b>Austria</b>	\$ 0.14	\$ 0.82	\$ 0.75
<b>Belgium</b>	\$ 0.02	\$ 0.29	\$ 0.48
<b>Ontario (CA)</b>	\$ 0.06	\$ 0.09	N/A
<b>France</b>	\$ 0.10	\$ 0.15	\$ 0.10
<b>Germany</b>	\$ 0.19	\$ 1.37	\$ 0.98
<b>Hungary</b>	\$ 0.03	\$ 0.07	\$ 0.08
<b>Japan</b>	\$ 0.18	\$ 0.69*	N/A
<b>Luxembourg</b>	\$ 0.04	\$ 0.28	\$ 0.39
<b>Norway</b>	\$ 0.14	\$ 0.20	N/A
<b>Portugal</b>	\$ 0.02	\$ 0.12	\$ 0.13
<b>Spain</b>	\$ 0.06	\$ 0.22	\$ 0.18
<b>Sweden</b>	\$ 0.06	\$ 0.30	N/A
<b>UK</b>	\$ 0.02	\$ 0.06	N/A

\*Plastic containers excluding PET

However, it is important to recognize that material definitions are not uniform and depend on the specific material thresholds set by each program. For example, the amount of paper fiber in a paper-based packaging component determines which fee applies to the component. If the component is a laminate (e.g. with a layer of wax, acetate, plastic, or metal), the percentage by weight of each constituent of the laminate is needed to determine which category of fees apply. For example, if a paper-based component consists of 68% paper fiber and 32% aluminum (such as a sandwich wrapper), then the component would fall into any of several material categories, depending on the country. In France, Japan, Taiwan, Sweden and the UK, this paper/aluminum component would be classified as a paper and assigned the appropriate paper packaging fee. However, in Austria, Germany, and South Korea, the component would be considered a composite and would incur a much greater fee than that of paper. Other countries (Belgium, Luxembourg) do not have a designated category to cover composite materials, so it would be reported as "other."

Akin to material categories and thresholds, the definition of what constitutes packaging and the scope of packaging that is subject to fees vary among country schemes. Some programs cover all packaging (sales, consolidation, and transport packaging), whereas others obligate only sales packaging. Programs in Canada (Ontario and Quebec) require companies to report and pay fees on sales packaging as well as any printed material such as catalogs and product documentation. Austria, Belgium, the Czech Republic, Greece, Ireland, Italy, and Hungary, to name a few, have fees for all types of packaging including transport packaging.

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<sup>4</sup> Please note that fees will vary with exchange rates.

There are also program differences relative to fees for each material type, due to the fact that the costs of recovery, the recycling infrastructure for each material, and the formulae used to allocate costs among materials are different in each country. Aluminum packaging components, for example, are given a credit in Ontario, Canada, incur fees higher than all plastic categories in Denmark, and are not subject to fees in Japan. The variation in fee mechanisms around the world makes it difficult to analyze fee cost drivers, let alone develop a reporting protocol. However, the general trend in most countries is that the more difficult a material is to recycle, the greater the fee is for that material.

## **Design Requirements around the Globe**

In addition to the cost and environmental impact associated with packaging waste, increased concern over consumer safety and protection has helped shape design and labeling requirements in different countries. Many countries have adopted regulations relating to misleading advertising of products as “environmentally friendly,” deceptive environmental labeling, and proper material coding. As of February 2005, more than 30 countries have environmental packaging design requirements including regulations on toxics in packaging, empty space and source reduction, recycled content, environmental labeling, and packaging prevention planning.

### *The European Directive*

The European Directive on Packaging and Packaging Waste, first passed in 1994 and amended in 2004, has some of the most comprehensive requirements focused on reducing packaging waste. In addition to providing the framework and recovery and recycling goals for many of the producer responsibility schemes discussed in the previous section, the Directive sets standards known as the Essential Requirements (ERs). All companies who sell products in European Union (EU) Member States must comply with the five areas outlined below:

- Source Reduction- Companies must demonstrate that they have reduced their packaging as much as possible and then identify the critical area (such as product protection, safety, consumer acceptance, etc.) which prevents further reduction in weight or volume of a packaging component.
- Recovery Standards- packaging components must be recoverable by at least one of three recovery routes (energy, organic, or material recovery) and must meet certain requirements specific to that recovery route.
- Reuse- optional, but a package must meet the requirements of the reuse standard if it is claimed as reusable.
- Heavy Metals Content- sets a concentration limit for lead, cadmium, mercury and hexavalent chromium in packaging (standards are similar to those in effect in nineteen US states).
- Reduction of Hazardous Substances in Packaging- substances classified as noxious (e.g. zinc) must be minimized if they could be released in emissions, ash, or leachate when packaging is land filled or burned.

All packaging placed on the EU market must be in compliance with the Essential Requirements. Products that are found not to comply may be removed from the market. US companies must incorporate the ERs into their packaging design systems and document how each standard was considered into its packaging design protocol. The assessment process to prove compliance with the ERs is similar to ISO14000 requirements in that it establishes a framework for evaluating the attributes of a packaging system (and identifying areas for improvement) with respect to the requirements of the law. The European standards have been developed to provide a common procedure for assessing and documenting compliance. The amended directive requires that all EU member states enforce the ERs by 2005.

### *Environmental Labeling Requirements*

Environmental labeling requirements include recycling symbols, ecolabels, material codes, licensed marks such as the Green Dot used to show participation in a recovery scheme, and many others. These labels, of which some are voluntary and others mandatory, provide information to the consumer. Material coding is required for plastics in Austria, Taiwan, and 39 US States, and for all materials in eleven other nations. In certain EU member states, South Korea, Japan, and Taiwan, there are also other country-specific mandatory labels. Design mandates focus on areas such as material restrictions, recycled content, empty space, and layers; specific requirements vary by country.

### *Material Restrictions and Recycled Content*

South Korea currently bans packaging press packed, coated or shrink-wrapped in PVC and several countries are expected to charge more for PVC packaging than other plastic material. Expanded polystyrene (EPS) is also on the material watch list, and South Korea has forbidden its use in packaging of toys, dolls, and composite products. Phase-out requirements apply to EPS in the packaging of electrical, office IT, and audio-visual appliances. An increasing number of countries are banning or phasing out specific materials that may cause harm to both the environment and human health. Denmark, Sweden, Norway, and Japan have restrictions on the use of phthalates (DEHP, DINP) in certain types of food packaging, as well as toys and other child care products. In addition to regulatory bans, many retailers around the globe (especially in Asia and Europe) refuse to accept products packaged in polyvinyl chloride (PVC).

Some US states have established minimum recycled content standards for plastic (CA, OR, WI), glass containers (CA, OR), plastic trash bags (CA), and newspapers (27 states). France and Denmark both provide a fee reduction for certain materials if the recycled content is greater than 50%. Unfortunately, in countries without such discounts, the use of recycled content may actually increase the weight or volume of a component, thus increasing fees.

### *Packaging Reduction and Empty Space Limits*

Various regulations also attempt to prevent excessive packaging through specific requirements, in addition to the incentives that result from fee structures. Several countries have implemented regulations regarding empty space and the permissible number of layers in a packaging system. South Korea has strict limits on empty space, allowing no more than 10-35% of a single product to be headspace or concealed empty space, or 25-40% of a “set” product (e.g. a gift box containing several packaged products). Australia has limits on the maximum allowable empty space that depend on the category of product and ranges from 25-40%. There is a limit of 40% empty space in Japan for cosmetic products and proposed legislation in other countries such as Taiwan. Similarly, both New Zealand and Canada have regulations that forbid deceptive packaging that mislead the consumer with respect to the quantity of product.

Many countries, such as Australia, Belgium, the Netherlands, Greece, Slovakia, Spain, and South Korea, require companies to submit a detailed packaging reduction plan. These plans must outline the long-term goals of the manufacturers to reduce their packaging. The European Commission may make packaging reduction plans a reporting requirement across Europe in the future. Reduction plan requirements vary greatly; some countries (Belgium, Greece, the Netherlands) require a company to develop a plan only if they are manufacturing or packing goods in that country, whereas others (Spain, Slovakia) require a plan if the quantity of packaging placed on the market exceeds a specific tonnage.

### **Data and Documentation to Demonstrate Compliance**

As the complexity and the number of packaging regulations expand, the burden is on manufacturers to keep abreast of regulations, calculate and report their obligations, and to prove compliance. Unfortunately, many companies become aware of these requirements the hard way, usually through fines and penalties, and sometimes involving legal proceedings and negative publicity. As greater

emphasis is placed on enforcement and audits, proper documentation has become essential, but not easy.

The effort and cost of managing compliance vary according to the data points required by each country, as well as the particulars of the company. A major aspect of compliance is ensuring that the company has the necessary data to support fee reporting and documentation of compliance. For example, a company with a few unique packaging systems sold in a limited number of countries will not require the same degree of complexity in their data as one that has a broad range of products that are sold worldwide. For these reasons, the time and energy spent on data maintenance varies a great deal, especially when considering data (such as recycled content, heavy metals certification, etc.) from across the supply chain.

Companies who are in the process of creating a compliance plan must be aware of the packaging data that are already being tracked for their products. In many cases, much of the data required for reporting may already be collected, but may be scattered across several different databases. A central database is crucial for maintaining packaging data and there are now commercial options equipped to handle and incorporate the wide spectrum of data and data formats.

Most countries require companies to report the tonnage of packaging waste placed on the market, but data requirements and the actual format for data reporting vary. In addition, many product manufacturers now require certification of packaging criteria (such as heavy metal content, fiber content, recycled material, etc.) from their suppliers. Such certification may be used to demonstrate compliance when a country requests an audit of packaging reports.

### **The Future Direction and Application of Packaging Requirements**

In recent years, the number of countries to propose environmental packaging regulation has increased significantly. The core ideas behind Extended Producer Responsibility (EPR) have grown in popularity, especially in Central and Eastern Europe. With the addition of 10 new EU member states, new packaging requirements are expected to emerge in the near future. Asia has also been a hotbed of regulatory activity, achieving some of the most complex packaging design requirements, with more on the way. It is important for producers to stay informed on new packaging developments and to incorporate them into package engineering to guarantee success and compliance in the future.

The implementation of a packaging development protocol will ensure compliance, and will also highlight opportunities for reduction of packaging waste, fees, and environmental impact. A packaging development protocol is one way for companies to establish a process for taking into account the Essential Requirements, material and recyclability issues, and fee structures during packaging design (or incorporate these considerations into their existing processes). Every possible attempt should be made to reduce packaging (or omit unnecessary packaging components) and to create resource efficient packaging, paying special attention to material and design choices. By including certification and environmental checks in the design approval process, the protocol can also form the basis for documentation of compliance and a packaging “due diligence” program. In other words, a successful and responsible producer not only remains well-informed about international packaging requirements, but also strives to apply them in all packaging design decisions.

In the midst of such far-reaching and varied regulation, packaging engineers retain control over the design of their products. Proactive awareness of worldwide packaging design and fee requirements proves to be beneficial in the long term. In many cases, adherence to the requirements through innovative effort not only ensures worldwide compliance, but provides an opportunity for environmental improvement and cost savings.

### **Where to go for more information:**

[EU Packaging Directive on the Management of Packaging and Packaging Waste](#)

(The Directive that forms the basis of packaging law in most European countries)

[Institute of Packaging Professionals \(IoPP\) Homepage](#)

(Packaging Industry Association)

[European Organization for Packaging and the Environment](#)

(Packaging Industry Association)

[Raymond Communications](#)

(Publisher of newsletters on packaging & recycling laws)

[Federal Trade Commission: Guides For The Use Of Environmental Marketing Claims](#)

(U.S. guidelines for environmental marketing & labeling)

[Toxics in Packaging Clearinghouse](#)

(Information on heavy metals limits in the U.S.)

**Environmental Packaging International (EPI)**

(Consultancy specializing in global packaging and product stewardship requirements)

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