

## Packaging Evaluation

This questionnaire has been adapted from the Institute of Packaging Professionals' ([www.iopp.org](http://www.iopp.org)) "Packaging Reduction, Recycling & Disposal Guidelines". It is intended to help companies evaluate options to minimize the impact of their packaging on the environment. This checklist is designed for use with more complex or custom-engineered packaging. Users of non-customized stock packaging (such as corrugated boxes, void fills and shipping bags) may find a [shorter checklist](#) to be sufficient.

This checklist is written as a series of "yes/no" questions. However, as many products require special treatment, there are no right or wrong answers. All functions of the packaging must be considered, as well as the total lifetime environmental impact. While a package's environmental impact is a significant component of the package design and evaluation process, so is the ability of the package to protect the product from damage. The final design of a package must attempt to consider the needs of the environment, the package user and the final consumer.

### ***How To Use The Guidelines***

These Guidelines were developed to help companies consider environmental implications during the package structural design process. There are no formulas presented by which to judge how "environmentally friendly" a package is. Rather, questions are presented to help packaging professionals address waste and materials considerations as related to their particular packaging situations.

It should be noted that for every answer that suggests a negative effect on the environment, there should be concrete reasons why the package causes this effect. These can then be reviewed to determine if the negative impact on the environment is unavoidable or if changes can be made to lessen or remove it. These areas of potential improvement are noted with the words "Explore Further".

### ***Waste Prevention (Source Reduction)***

Waste prevention involves reducing the amount of materials used in the package design. Waste prevention opportunities may exist at the level of primary (container) and secondary packaging, as well as transport packaging.

Of all the environmental considerations packaging professionals must evaluate, none more directly affects municipal solid waste than waste prevention. This is the EPA's and the State of Oregon's highest priority solid waste management option and should be the first and most important consideration. A package which achieves significant waste prevention goals may actually have a lower environmental impact than a heavier package for which more recycling opportunities are available. Among questions packaging professionals should ask are:

Land Quality Division  
Solid Waste Policy  
and Program  
Development Section  
811 SW 6th Avenue  
Portland, OR 97204  
Phone: (503) 229-5913  
1 (800) 452-4011  
Fax: (503) 229-6977  
[www.oregon.gov/DEQ/](http://www.oregon.gov/DEQ/)

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David Allaway  
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1. Can the package or any of its components be eliminated entirely (i.e. does the product really need an individual package or can it be sold as is or in bulk)?
  - Yes, the package can be eliminated.** *Explore Further*
  - Yes, a component of the package can be eliminated.** *Explore Further*
  - No, neither the package nor any of its components can be eliminated.
2. **A.** Can waste prevention be achieved by packaging geometry or structural design changes (e.g., lower packaging surface area to product volume ratio)?
  - Yes**  No  
*Explore Further***B.** Can overall packaging volume be reduced by using different packaging?
  - Yes**  No  
*Explore Further***C.** Can overall packaging weight be reduced by using different packaging?
  - Yes**  No  
*Explore Further*
3. **A.** Is it possible to reduce tertiary (transport) packaging by increasing primary or secondary packaging while still achieving a net overall reduction?
  - Yes**  No  
*Explore Further***B.** Is it possible to reduce or eliminate secondary packaging either outright, or by increasing primary or tertiary (transport) packaging while still achieving a net overall reduction?
  - Yes**  No  
*Explore Further***C.** Is it possible to reduce primary packaging by increasing secondary or tertiary packaging while still achieving a net overall reduction?
  - Yes**  No  
*Explore Further*
4. Can waste prevention be achieved by replacing a number of smaller packages with a single larger, more efficient package size (e.g., family-size or bulk containers rather than individual portion packages)?
  - Yes**  No  
*Explore Further*
5. Are customer suggestions on waste prevention possibilities for secondary and tertiary packaging throughout the distribution system solicited and encouraged?
  - Yes**  No  
*Explore Further*
6. Can waste prevention be achieved by changing the distribution process or transportation modes?
  - Yes**  No  
*Explore Further*
7. Through product design changes (e.g., liquid concentrates, improved product ruggedness), can the package be redesigned to use less material without compromising the product?
  - Yes**  No  
*Explore Further*

## **Reusability**

In the solid waste field, a clear distinction is made between “reuse” and “recycling”. “Reuse” means using a material multiple times, typically for its original intended use, without the pulping or melting processes associated with recycling. An example of packaging reuse is when a manufacturer receives parts from a vendor in corrugated cartons, and then uses these cartons again to ship products to customers. Alternatively, packaging may be reused by a third party, such as a mailing services store that accepts used polystyrene loosefill from the public and then provides it to customers for their use. Often times, reuse has greater energy savings and environmental benefits than recycling, and thus is generally considered to be a higher priority than recycling, but a lesser priority than waste prevention.

8. **A.** Is the package or any of its components designed to be safely and conveniently refilled or reused by the consumer or someone else?

Yes

**No**

*Explore Further*

- B.** If yes, is this promoted to customers?

Yes

**No**

*Explore Further*

9. **A.** Is there a system in place to collect and reuse these used packages?

Yes

**No**

*Explore Further*

- B.** If not, is there active development of such a system?

Yes

**No**

*Explore Further*

## **Recyclability and Recycled Content**

Recycling of a package or using recycled material in a package is generally considered the third most desirable alternative for reducing the environmental impact of the package, after prevention and reuse.

But using a material that can be technically recycled may not be preferable to other means of reducing environmental impact if there is not a commercially viable recycling system in place. Too often, the term “recyclable” is confused with “collectible,” and there is a very big difference between the two. Some materials that are technically recyclable have only limited recycling opportunities for households and businesses, and these opportunities might not be cost-effective or convenient. Further, recycling programs vary between communities, so the presence of convenient recycling opportunities in one area doesn’t guarantee that recycling opportunities exist elsewhere.

Recycling is an issue that involves individuals outside the packaging community as well as those within it. Suppliers, users, environmental groups, government personnel, consumers, and legislators can work together to establish and coordinate recycling programs and help create real markets for recycled materials.

As a practical matter, to be recyclable a material must have an existing, economically practical, and functional commercial recycling system through which it can be processed. If there is not such a system in place, but the technology and market exist to have one, then all parties involved can work together to develop such a system if it is economically feasible.

10. **A.** Is the package practically recyclable (i.e., is there a system in place to recycle the package)?

Yes

**No**

*Explore Further*

- B.** If so, are a symbol and instructions used on the package to encourage recycling?

Yes

**No**

*Explore Further*

11. Can the material be identified on the package (e.g., the plastic resin recycling code) to aid collection and recycling?

Yes

**No**

*Explore Further*

12. **A.** If the technology does exist to collect and recycle post-consumer packaging, are systems in place to collect and recycle the packaging?

Yes

**No**

*Explore Further*

**B.** If not, is the development of such systems being actively pursued - either alone or in conjunction with industry, government officials or academia?

Yes

**No**

*Explore Further*

13. **A.** Are recycling systems established for the packaging material in all the regions in which the package will be sold or distributed?

Yes

**No**

*Explore Further*

**B.** If not, is participation in the creation of such regional recycling systems being pursued?

Yes

**No**

*Explore Further*

14. **A.** Is there a viable commercial market for these post-consumer recycled packaging materials?

Yes

**No**

*Explore Further*

**B.** If not, are any projects or programs to increase demand for this recycled material being initiated--either alone or in conjunction with industry, government officials or academia?

Yes

**No**

*Explore Further*

15. **A.** Are each of the package's components made from single materials, or are there components that are made from multiple materials (i.e. laminated or co-extruded)?

Single material

**Multi-material**

*Explore Further*

**B.** If the package is multi-material:

i) Do the materials need to be further separated to increase their recycling value or to avoid impeding the recycling process?

**Yes**

No

*Explore Further*

ii) Can the materials be easily separated for recycling?

Yes

**No**

*Explore Further*

iii) Can multi-material packaging be replaced with a single-material packaging that is easier to recycle?

**Yes**

No

*Explore Further*

iv) Are current recycling systems set up to handle these multi-material packages?

Yes

**No**

*Explore Further*

v) If there is not a recycling system in place to process the multi-material package, and you can't change to a single-material package, is your company pursuing the development of such a system-either alone or in conjunction with industry, government officials or academia?

Yes

**No**

*Explore Further*

vi) Is this combination of materials the most environmentally sound structural design possible without compromising product integrity?

Yes

**No**

*Explore Further*

**16. A.** Does the primary, secondary and/or tertiary package currently use recycled material?

Yes

**No**

*Explore Further*

**B.** If so, is there a symbol and statement on the package to indicate that recycled material has been used?

Yes

**No**

*Explore Further*

**17. A.** Have the effects of using recycled materials been thoroughly considered?

Yes

**No**

*Explore Further*

**B.** Will the use of recycled materials require an increase in the overall volume or weight of the package to maintain an acceptable level of package performance?

**Yes**

No

*Explore Further*

**C.** Has the impact of recycled material use on your manufacturing/production processes been researched (e.g., will recycled materials run on your existing machinery)?

Yes

**No**

*Explore Further*

**18. A.** Are programs in place to require incoming packaging from suppliers to be reusable, recyclable, and/or to contain recycled content?

Yes

**No**

*Explore Further*

**B.** If not, is there active development of such programs?

Yes

**No**

*Explore Further*

## ***Disposal***

When a package finally reaches the end of its lifecycle, it must be disposed of properly. This is a problem that each geographic region must handle according to its own needs and resources. However, the package should be designed to facilitate its safe, and if possible, easy disposal. This may require instructions on the proper disposal method. Cooperation between industry and governments must be pursued to ensure that proper disposal is achieved.

**19. A.** Has the package and its components (i.e., inks, dyes, pigments, stabilizers, solders and adhesives) been made without the inclusion of toxic materials, such as heavy metals including cadmium, lead, mercury, and hexavalent chromium?

Yes

**No**

*Explore Further*

**B.** If the package material currently uses toxic materials, can they be removed without compromising the package's functions?

**Yes**  **No**

*Explore Further*

**20. A.** Can the package be landfilled safely without leaching hazardous by products or otherwise causing harm to the environment?

**Yes**  **No**

*Explore Further*

**B.** If no, can the package be designed to avoid problems in landfill disposal?

**Yes**  **No**

*Explore Further*

**21.** Can the package be made smaller and/or designed to be compacted by consumers or waste management companies so that it takes up less collection/ landfill space?

**Yes**  **No**

*Explore Further*

**22. A.** Can the package be incinerated safely to recover the energy value of the packaging materials without harmful ash residue or emissions?

**Yes**  **No**

*Explore Further*

**B.** If no, can the package be designed to avoid problems in incineration?

**Yes**  **No**

*Explore Further*

**23. A.** Some consumers may burn their garbage in fireplaces or burn barrels. Have you evaluated the environmental impact of your packaging material being burned in this way?

**Yes**  **No**

*Explore Further*

**B.** Can you reduce the impact through material selection?

**Yes**  **No**

*Explore Further*

**C.** Have you labeled your packaging material to discourage on-site burning?

**Yes**  **No**

*Explore Further*

**24. A.** Some consumers may litter or dump their garbage, including packaging waste, in ravines, abandoned lots, public lands, or other areas. Have you evaluated the environmental impact of your packaging material being disposed in this way?

**Yes**  **No**

*Explore Further*

**B.** Can you reduce the impact through material selection?

**Yes**  **No**

*Explore Further*

**C.** Have you labeled your packaging material to discourage littering and dumping?

**Yes**  **No**

*Explore Further*

## ***Legislative Considerations***

Legislation which would directly impact packaging has been proposed in every part of the country. Many countries (other than the U.S.) have broad-reaching legislation regarding packaging waste. Examples include material bans, packaging fees/taxes, empty space limitations, and planning, design, and labeling requirements. ([Click here](#) for a summary.) This legislation varies from area to area and, therefore, must be carefully considered in conjunction with the proposed distribution of the product/package.

**25.** Will existing or proposed legislation (i.e. package taxes, bans, deposits, solid waste bills, etc.) affect the package?

- Yes, on the federal (US) level.** *Explore Further*
- Yes, on the state level.** *Explore Further*
- Yes, on the local level.** *Explore Further*
- Yes, when my product is sold in other countries.** *Explore Further*
- No.**

**Alternative formats** (such as large type, Braille) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5317