

Examining the Effects of Waste Prevention, Material Substitution, Recycled Content, and Recyclability on the Environmental Profiles of Packaging for Mail-Order Non-Breakable Goods: A State Government's Application of Life Cycle Inventory Analysis

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Solid waste policy in Oregon is based on a hierarchy of preferred options: prevent, reuse, recycle, compost, recover energy, and landfill. Historically, most waste reduction efforts sponsored by the public sector have focused on recycling and composting, and have overlooked prevention and reuse. The Oregon Department of Environmental Quality (DEQ) has recently begun to address this imbalance by introducing a number of new initiatives intended to reduce waste at the source. One of these initiatives addresses packaging materials, which comprise approximately 20% of all materials disposed of in garbage in Oregon. In 2002, the Oregon DEQ began a project to work with businesses on voluntary, non-regulatory strategies to reduce packaging waste.

Several of the businesses participating in DEQ's packaging project are catalog/Internet retailers and ship millions of packages to customers each year. Options for packaging non-breakable goods include:

- Corrugated box with or without void fill. Void fill options include expanded polystyrene or bio-based (vegetable starch) loosefill, polyethylene "air pillows", sheets of kraft paper or newsprint, and shredded waste paper.
- Padded and unpadded polyethylene shipping bag.
- Padded and unpadded kraft paper shipping bag.
- Padded and unpadded multi-material shipping bags (paper/plastic combinations).

To better understand the relative environmental burdens of these options, DEQ has commissioned Franklin Associates Ltd. to conduct a cradle-to-grave life cycle inventory analysis of these packaging materials. The purpose of the study is not to set policy but rather to inform packaging users of the relative environmental profiles of different packaging options. Awareness of life-cycle environmental burdens among the general population of packaging users appears to be simplistic and focused on down-stream impacts, e.g. "recyclable packaging is good; non-recyclable packaging is bad." The study analyzes recyclability, recycled content and waste prevention through material substitution for various packaging options, as well as the relative significance of transportation energy in the product life cycle. The study is co-funded by Metro, the regional solid waste authority of the Portland area, and the U.S. EPA is providing support for the critical review.

This presentation will address the policy basis for DEQ's interest in waste prevention and life cycle analysis, the methodology, challenges, and key findings of the study, and how DEQ and partnering businesses may use the study results.