COMPARISON
FOR SCHOOL MILK PROGRAMS
OF PAPERBOARD VERSUS PLASTIC BOTTLES

Disposal

- Neither paperboard nor plastic milk containers degrade readily in modern sanitary landfills

Recyclability

Paperboard Milk Cartons

- Markets are very limited and few commercial or institutional recyclers accept post-consumer paperboard milk cartons for recycling because:
  - Polycoated layers in the milk carton construction provide barrier properties to retain milk freshness; however these coatings are a deterrent to recycling and the pulping process used to make new paperboard products
  - Residual milk in paperboard cartons is a contaminant to the recycling of other mixed paper typically collected from schools and other commercial accounts
  - Most paper mills cannot handle more than very small quantities of milk carton material, which must be blended in with other higher quality fiber sources to meet feedstock requirements in new paperboard production
  - Milk carton bales typically have very low market or negative market pricing when compared to other grades of recyclable paper – office mix, newspaper, magazine, and cardboard
- It is estimated that a very small percent of milk cartons are currently being recycled nationwide due to limited markets and low value
- Composting is an alternative to landfill disposal for milk carton material, where composting programs exist that accept this type of material

Plastic Milk Bottles

- Most processors are using natural (non-pigmented) high density polyethylene (HDPE) resin for the manufacturing of 8 oz. plastic milk bottles. Natural HDPE is the most recycled plastic resin nationally
- 27% of all HDPE bottles and 33% of all HDPE milk bottles are recycled nationally[1]
- Recycled natural HDPE consistently has the highest market value of any post-consumer plastic and is typically second to post-consumer aluminum cans in value on a per ton basis of all post-consumer recyclables collected (PET bottles, HDPE bottles, 1-7 plastics, aluminum cans, office paper, newspaper, glass containers, steel cans, mixed paper)
- Recycled natural HDPE from milk bottles is used to make a variety of recycled content products; notably included in this market demand are high value and long lasting products – children's playground equipment and composite decking
- Domestic demand for post-consumer natural HDPE significantly exceeds the current supply. Export markets add to the demand for natural HDPE bales

New Look of School Milk

COMPARISON
FOR SCHOOL MILK PROGRAMS
OF PAPERBOARD VERSUS PLASTIC BOTTLES

Resource Implications of Packaging

Paperboard Milk Cartons

- Milk cartons are made from virgin wood pulp, a renewable resource, which is bleached to whiten the fibers. This bleaching process can generate water pollutants

Plastic Milk Bottles

- HDPE milk bottles are largely made from petroleum and natural gas, as are most other plastic container packaging. Petroleum is also used for plastics production, including some types of bottles. Plastic packaging (bottles, film, foam) account for 1.4% of the nation's annual consumption of natural gas and petroleum[1]
- Light weighting of plastic bottles has reduced resin usage per container by 33% for milk containers[1]
- Recycling a ton of plastic bottles saves about 3.8 barrels of oil[1]

Plastic milk bottles are by far more readily recycled than paperboard milk cartons, and are increasingly being recovered and recycled in school/institutional recycling programs. There also is an existing infrastructure to process and market school generated HDPE milk bottles for most regions of the country where other HDPE containers, such as gallon milk bottles, laundry detergent bottles, etc., are being collected and recycled (i.e. residential curbside and drop-off programs). This should be considered in evaluating the merits of each packaging choice, especially if recycling is occurring in or is planned for the school district.

[1]Killinger, Jennifer. "Information Sheet" American Chemistry Council. March 2007 <http://www.americanchemistry.com/s_plastics/sec_content.asp?CID=1102&DID=5007>

For more information visit
www.NutritionExplorations.org

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