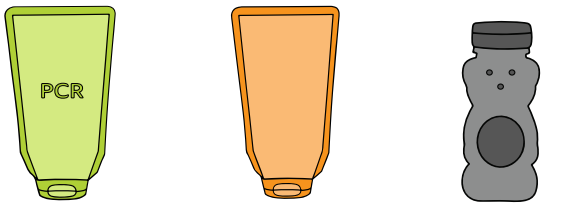
STREAMLINED LIFE CYCLE ASSESSMENT* HONEY PACKAGING CASE STUDY

HONEY PACKAGE COMPARISON

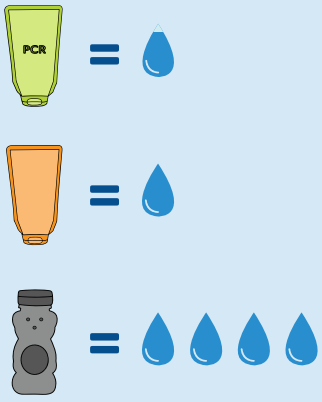
Honey has been packaged in PET bottles in a variety of shapes for a number of years, including the bear shape that's become ubiquitous in grocery stores. For this Life Cycle Assessment study with a cradle-to-grave boundary, a popular rigid honey packaging format was compared to the premade STANDCAP Pouch, an eco-friendly inverted flexible pouch.



PCR STANDCAP | STANDCAP | PET BOTTLE

Water Consumption

The higher water consumption for the PET bottle is driven by the amount of water needed to cool the molds in the stretch blow molding manufacturing process. The PCR format, which is formed by laminating multiple thin layers of film together, uses about two-thirds less water (-72.8%) in its manufacturing and conversion process.



Greenhouse Gas Emissions

The premade STANDCAP Pouch results in nearly half the GHG emissions (-46.2%) of the rigid bottle because of the difference in material usage. PCR utilization results in additional GHG reductions (-49.1%). The process of laminating and extruding layers of flexible material to produce the pouch uses minimal energy, whereas the bottle requires a greater amount of energy and heat during manufacturing.

Fossil Fuel Consumption

The premade STANDCAP Pouch uses over a third less fossil fuel (-38.0%) than the rigid PET bottle. As a further driver of fossil fuel use, the honey bottle evaluated in this study only contains 12 oz. of honey, while the flexible pouch contains 14 oz. The use of PCR results in additional fossil fuel reductions (-44.3%) as recycled materials are reincorporated back into a package.

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*All environmental impact metrics were developed using the streamlined life cycle assessment tool, EcoImpact-COMPASS®

END OF USE SUMMARY

SOURCE REDUCTION BENEFITS

According to the U.S. EPA Waste Hierarchy, the most preferred method for waste management is source reduction and reuse.

A major benefit of flexible packaging is the high product-to-package ratio that it offers.

RECOVERY BENEFITS

PCR STANDCAP

1x
amount of material ending up as municipal solid waste

STANDCAP

1x
amount of material ending up as municipal solid waste

PET BOTTLE

1.2x
amount of material ending up as municipal solid waste

High product-to-package ratio:

95.1% Product weight | **4.9%** Package weight

95.1% Product weight | **4.9%** Package weight

Low product-to-package ratio:ratio:

92.7% Product weight | **7.3%** Package weight

While many multi-material flexible packages are not yet recovered and recycled in any significant amount, they still result in a substantial reduction in the amount of material sent to landfill versus other types of packaging.

The premade STANDCAP Pouch has slight advantages in percent of product weight compared to the rigid PET bottle (**95.1%** vs. **92.7%**) and the amount of material discarded (**50,996g** vs. **62,136g** for 1,000 kg of honey) when considering current U.S. recycling rates.

IMPLICATIONS

The flexible premade STANDCAP Pouch has a number of positive sustainability attributes when compared to a rigid PET bottle for honey. These include lower fossil fuel and water use, GHG emissions and discarded material; and a higher overall product-to-package ratio.

FORMAT	FOSSIL FUEL CONSUMPTION (MJ-EQUIV)	GHG EMISSIONS (KG-CO^2 EQUIV)	WATER CONSUMPTION (L)	PRODUCT-TO-PACKAGE RATIO (%)	PKG LANDFILLED (G)/1,000 KG HONEY)
PCR STANDCAP POUCH	1.45 (-44.3%)	.07089 (-49.1%)	20.02 (-72.8%)	19.6:1 (95.1% : 4.9%)	50,996 (-17.9%)
STANDARD STANDCAP POUCH	1.61 (-38.0%)	.07503 (-46.2%)	23.08 (-68.6%)	19.6:1 (95.1% : 4.9%)	50,996 (-17.9%)
PET BOTTLE	2.60	.1394	73.82	12.7:1 (92.7% : 7.3%)	62,136

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*For more information and methodologies of assessments, please visit **www.flexpack.org** or **www.glenroy.com** to download Glenroy's "A Streamlined Life Cycle Assessment Comparison for the Glenroy Premade STANDCAP Pouch in the Sauces and Personal Care Market versus Rigid Packaging Options" report and refer to pages 19-22.*