

# STREAMLINED LIFE CYCLE ASSESSMENT\* CONDIMENTS/SAUCES CASE STUDY

## CONDIMENTS/SAUCES PACKAGE COMPARISON

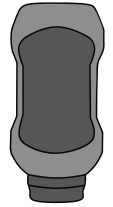
Condiments and sauces are most often sold in a rigid package. All five of the packages used to create the generic Condiment/Sauce pack standard were between 12 – 16 oz. For this streamlined LCA study, two rigid packaging formats were evaluated (0% and 30% PCR in the PET bottle) vs. the recyclable STANDCAP. A product weight of 14.9 oz. was used for the comparison.



RECYCLABLE  
STANDCAP



PET BOTTLE  
WITH PCR

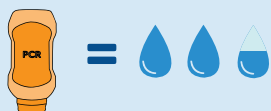


PET BOTTLE



### Water Consumption

The recyclable STANDCAP results in much lower water use (**-69.73%**) than the rigid PET bottle largely due to the laminating and extrusion process for film layers not requiring nearly the amount of water as need for cooling molds in the manufacturing process for rigid containers.



### Greenhouse Gas Emissions

The recyclable STANDCAP again shows a substantial reduction in emissions (**-51.77%**) vs. the rigid PET container due to its lighter weight material. Both the recyclable STANDCAP and PET bottle had closures made from injection molding with the recyclable STANDCAP fitment coming in heavier, but the pouch is significantly lighter than the rigid bottle (8.8g vs. 29.6g).



**0.0883**  
KG-CO2 EQUIV



**0.1574**  
KG-CO2 EQUIV



**0.183**  
KG-CO2 EQUIV



### Fossil Fuel Consumption

The recyclable STANDCAP uses over **41.74% less** fossil fuel as the rigid PET condiment/sauce container. While both packages use plastic for the majority of their construction, the recyclable STANDCAP is much lighter (22.32g vs. 39.32g) than the PET bottle, driving the lower fossil fuel use.



**2.08**  
MJ-EQUIV



**2.96**  
MJ-EQUIV



**3.57**  
MJ-EQUIV

## 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

#### RECYCLABLE STANDCAP



1x

amount of material ending up as municipal solid waste

#### PET BOTTLE WITH PCR



3x

amount of material ending up as municipal solid waste

#### PET BOTTLE



3x

amount of material ending up as municipal solid waste

High product-to-package ratio:

95.6%

Product weight

4.4%

Package weight

Low product-to-package ratio:

91.5%

Product weight

8.5%

Package weight

91.5%

Product weight

8.5%









Package weight

The rigid PET bottle results in over 30% more material being discarded at the end of life (72,215g vs. 50,130g of packaging for 1000 kg of product), even when taking into consideration estimated recycling rates for PET bottles (29%), vs the recyclable STANDCAP (13% recycling rate) (52,381g vs. 99,515g).

Even if the recyclable STANDCAP recycling rate was at 0%, it would still result in about 27% less material discarded than the rigid PET container.

## IMPLICATIONS

The results show that the recyclable STANDCAP has lower environmental impacts including fossil fuel usage, GHG emissions, and water usage in this scenario than the inverted PET container. The table below summarizes a variety of environmental attributes for the recyclable STANDCAP when compared to a generic rigid PET container – even with 30% PCR. In all of the attributes evaluated below, the recyclable STANDCAP holds an advantage vs. the rigid package.

FORMAT	 FOSSIL FUEL CONSUMPTION (MJ-EQUIV)	 GHG EMISSIONS (KG-CO <sub>2</sub> -EQUIV)	 WATER CONSUMPTION (L)	 PRODUCT-TO-PACKAGE RATIO (%)	 PKG LANDFILLED (G)/1,000 KG SYRUP
RECYCLABLE STANDCAP 	2.08 (-41.74%)	0.0883 (-51.77%)	32.23 (-69.73%)	21.6:1 95.6% : 4.4%	50,130 (-30.6%)
PCR BOTTLE 	2.96 (-17.09%)	0.1574 (-13.99%)	56.32 (-47.11%)	10.7:1 91.5% : 8.5%	72,215
PET BOTTLE 	3.57	0.183	106.49	10.7:1 91.5% : 8.5%	72,215



**FPA** Flexible Packaging Association  
Connecting. Advancing. Leading.



**TruRenu™ by GLENROY**  
Flexible. Sustainable. Revolutionary. [GLENROY.COM](http://GLENROY.COM)

For more information and methodologies of assessments, please visit [www.flexpack.org](http://www.flexpack.org) or [www.glenroy.com](http://www.glenroy.com) to download Glenroy's "A Streamlined Life Cycle Assessment Comparison for the Glenroy Recyclable STANDCAP vs. Rigid Package for Condiments / Sauces" report.