

Refillable PET Bottles

Target

The target was to develop **refillable bottles** that meet standard tests and withstand the durability test (washing cycles) **similar to the glass ones**.

Weight reduction versus previous developed bottles was a major driver of this development.

Refillable bottles are used mainly for CSD products and are popular in Germany, in North Europe and in Latin America.

Challenges & Development

- **Decrease the weight** from original first samples at 127 grams for 2 liters and 106 grams for 1.5 liters **down to 98 grams** for **both sizes**.
- Reach at least **20 bottle trips**. The refillable PET bottles are usually refilled approximately from 12-20 times (the average rate of re-use is 3.3 times a year). Of course, the higher the number of trips, the more economical is the cost of the container.
- Produce **refillable bottles** not only on single stage machine but also on reheat stretchblowmolding systems thus **using preforms available on the market**.
- Develop a bottle base capable to **withstand a high number of washes** while improving its blowing process.



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Results & Packaging Features

Two bottle sizes have been developed (2L & 1.5L with same preform and weight, 98 grams).

Blowing process to produce refillable bottles is slightly different as compared to standard bottles.

It is recommended to use particular mold alloy and design; the champagne base is strongly suggested.

WEIGHT RESULT:

2.0L refillable: from 127 to 98 g **-23%**

1.5L refillable: from 106 to 98 g **-8%**

Neck Finish: BPF 28mm

TOP LOAD:

Coca-Cola spec: 54.6Kg

SIPA 2L refillable: 75Kg **+37%** vs. CC spec

SIPA 1.5L refillable: 73Kg **+34%** vs. CC spec



Advantages

This packaging gives you the following advantages:

- Environmental friendly packaging.
- Bottles can be filled in existing glass filling lines without need of adjustments.
- Economically viable and cost competitive vs. one-way PET, provided a minimum number of trips are achieved.
- Cost effective alternative to glass bottles.
- Lighter and shatter-proof versus glass refillable bottles.

refill not **LANDFILL**