

## **O 6. ENVIRONMENTAL IMPACTS OF GLASS BEVERAGE PACKAGING**

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**ABSTRACT:** Rapidly developing packaging sector is an important factor to enhance of the sustainability of the industry. Glass is one of the most extensively used materials for packaging, thanks to its skills and proprieties. This study aims to assess the potential environmental impacts of glass packaging. Life cycle environmental impacts of glass beverage packaging in the volume of 200 ml was evaluated. Life cycle assessment (LCA) study has been carried out in compliance with the ISO 14040 and 14044 standards. The scope of the study is from cradle to grave starting with the extraction of natural resources to final disposal of the product. LCA software tool CCaLC2 has been used for calculating six environmental impacts. In this study, the life cycle carbon footprint quantities of 200 ml glass bottles required to store 1000 L beverages were 370 kg CO<sub>2</sub>-eq/1000 L drinks. Approximately 63% of the life cycle carbon footprints of glass bottles are from energy usage, 20% are from raw material, 14% from transport, and 3% from use stages. Glass beverage packaging has the acidification potential, eutrophication potential and human toxicity potential 1,4 kg SO<sub>2</sub>-eq/1000 L, 506 g phosphate-q./1000 L and 86,2 kg DCB-eq./1000 L, respectively.

*Keywords: Life cycle analysis, sustainability, glass packaging, carbon footprint and environmental impact*