Duni Group product carbon footprint calculator (Food Packaging Solutions)

Duni Group has created a CO2 calculator for food packaging products in order to develop credible carbon footprints for internal and external communications. The carbon footprint has been designed to be relevant in a European context.

Methodology

Duni has selected international standards to follow when developing the CO2 calculator. Both primary and secondary data has been used in order to include all life-cycle stages. The following table highlights the methodological choices used in the carbon footprint tool.

Functional unit:	Per one product (gCO2e/pc)
Selected standards:	ISO 14040/14044 & ISO 14067
System boundary:	Cradle-Grave
Impact methodology:	IPCC 2021 GWP
End-of-life methodology:	Cut-off approach

Life cycle inventory

The life-cycle inventory consists of 5 stages: raw materials, manufacturing, upstream & downstream transport, and end-of-life.

Following activities are included in the calculations:

1. Raw material production for products, secondary and tertiary packaging materials.

2. Converting of all product and packaging materials

3. Upstream transport, warehousing, downstream transport

4. End-of-life (based on average European waste handling statistics).

Both biogenic and land-use-change emissions are included in the final carbon footprint of a product.

The following is the output of the Duni Group carbon footprint calculator

Product carbon footprint

		Art desc	BOX MEAL PP TR LID 240X150X20	
		Product life cycle emissions	**gCO2e/pc**	% of total
		Raw material emissions	65.49	55%
Article number	161181	Manufacturing emissions	27.96	24%
		Upstream transport & distribution emissions	6.32	5%
		Downstream transport emissions	3.64	3%
		EOL emissions	14.76	12%
		Cradle-to-gate carbon footprint	**99.77**	
		Cradle-to-grave carbon footprint	**118.16**	

Emissions breakdown

	gCO2e/pc
Cradle-to-grave emissions breakdown	
Biogenic emissions	1.72
LUC emissions	0.16
Fossil emissions	116.28
Cradle-to-gate emissions breakdown	
Biogenic emissions	1.72
LUC emissions	0.16
Fossil emissions	97.89

The table above is an output from Duni Group's Food Packaging Solutions carbon footprint calculator. The model has been assured by Carbon Trust. The model is in accordance with:

* ISO 14067:2018 - Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification and communication, and

* Product Carbon Footprints: Requirements for Assurance v3.0 (Carbon Trust)

** Model outputs do not constitute a verified product footprint*