CO2 emission reduction mode of calculation

When applied to Sanofi's vaccines alone, improving how we work in packaging and supply estimates, could reduce carbon emissions by nearly 1500 tons each year. Here is how this calculation has been made.

CO2 emission reduction amounts to **~1500 T CO2e** coming from:

- Plastic Blister-Free Packaging for **~547 T CO2e**
- Vaccines Returning limitation for **~478 T CO2e**
- Compact packaging for **~457 T CO2e**

CO2e cause of reduction	CO2e reduction	Inputs		Assumptions	Sources
Plastic Blister-Free Packaging	**547 T CO2e**	Plastic grams per blister	~1.5-4g	New Packaging Value Proposition Model	Sanofi Spain - New Packaging Value Proposition Model
		Vaccine doses per year	23 mln	2022 data without COVID-19 Vx	Sanofi Spain
		Plastic g to CO2e equivalence	1 g of plastic = ~6 g of CO2e	1 g of plastic = ~6 g of CO2e	Plastic to CO2e equivalence
Vaccines Returning limitation	**478 T CO2e**	KG of CO2e per dose	~0.14 Kg CO2e	**Conservative** - Based on the average LCA assuming all vaccines are equal to Vaxigrip. E.g. Fluzone is 0.31 Kg CO2e per dose	Sanofi, internal LCA report 2022
		No cost (free) vaccine	10-15%	Based on the maximum amount of free returns to vaccine companies	Sanofi Spain

		returns rate			
		Vaccine doses per year	23 mln	2022 data without COVID-19 Vx	Sanofi Spain
Compact packaging	**457 T CO2e**	Influenza	~206 T	1 - Assuming all transportation takes place from the Val-de-Rueil production center to the final destination in the Madrid region 2 - Based on Sanofi's monopack for Vaxigrip, MenQuadfi, Hexaxim, Adacel, and Typhoid **3 - Sanofi's compact boxes versus regular Sanofi packaging** 4 - excluding COVID-19 Vx, 5 - Application of combined packaging volumes of Ped to Ped combo and Meningo for Multipack results, due to available data, 6 - Use of the weight of the cardboard packaging from regular packaging and compact box as input, application of the rule of three to Vaxigrip data to obtain the box weight for packaging without data.	Sanofi Spain

Calculation made by CVA Corporate Value Associates.