ALVERO
office furniture rental

an LCA comparison of a rented Xenium office chair

LCA - renting vs buying

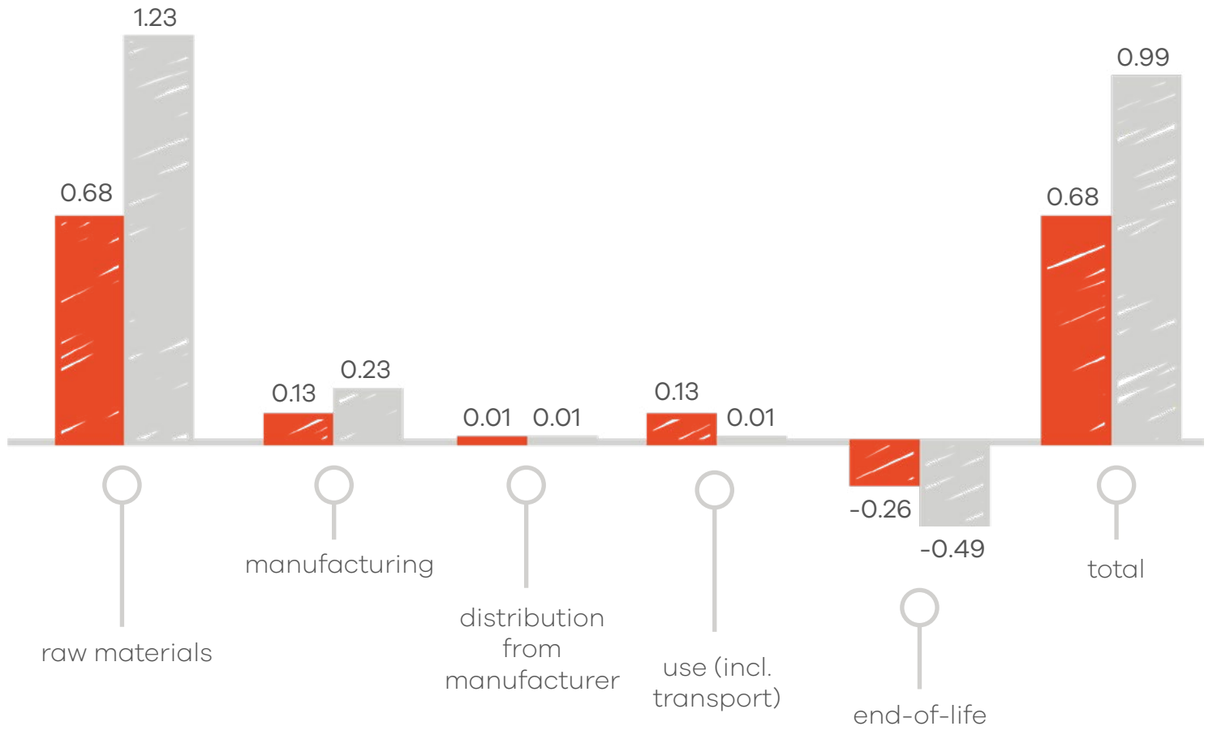
According to the LCA comparison, a rented Xenium office chair causes 31.3% fewer CO_2e emissions than a purchased office chair

This is caused by extending lifespan and effectively deploying furniture. See the table and bar chart below for a summary.

	buying	renting
life cycles	cradle-2-grave	cradle-2-grave
lifespan	10 years	20 years
number of users	1	9,2
user time	10 years	2 years
temporary storage between users	-	2 months
maintenance & refurbishment	-	every rental cycle
failure of chairs after rental cycle	-	1,5%
number of months effectively used over lifetime	114	206
average CO_2e emissions per chair over lifespan	111,60 KG CO_2e	138,64 KG CO_2e
KG CO_2e per chair, per month used	0,99 KG CO_2e	0,68 KG CO_2e

build-up of CO_2e emissions per month used

Bar chart
The build-up of CO_2e emissions over the various life cycles



renting (20 years)
buying (10 years)

explanation

- In the bar chart above, lifetime emissions are divided by the number of months the chair is used.
- Since the leased chair lasts for 20 years, it avoids buying a new chair after the first 10 years. This is reflected in the reduced raw materials and manufacturing emissions.
- During the user phase, there are more emissions for a rented chair. This is due to transport, repair and temporary storage.

carbon accounting implications

According to the Greenhouse Gas Protocol, you have to account for rental services differently in carbon accounting than purchased goods. With purchased goods, you write off the CO_2 emissions in one year, while with services you have to account for the CO_2 values per month used. As a result, you spread the CO_2 charges over actual consumption and you have to account for 92.7% fewer emissions in the first year of use.

See the table on the page opposite for more details.

disclaimer

Alvero also procures second-hand furniture, for which, according to the LCA method, significantly lower CO_2 emissions can be calculated over the rental period. This scenario was not included in the above LCA study to maintain parity in comparison with the buying scenario.

Should you have any questions, please contact Ardaan Spruijt (Operational Director) at Ardaan.Spruijt@alvero.nl

	buying	renting
life cycles	cradle-2-grave	cradle-2-grave
GHG category	scope 3.1 purchased goods	scope 3.1 purchased services
variables	number of goods GHG emissions/piece	number of goods GHG emissions / time unit rental period in months
depreciation	irrelevant	irrelevant
reference CO_2 values	SPD study manufacturer	LCA study rental company
calculation for a company buying/ renting 100 Xenium office chairs in 2022	number of goods: 100 GHG emissions/piece: 112.6 kg CO_2eq	number of goods: 100 GHG emissions / time unit: 0.68 kg CO_2eq rental period: 12 months
CO_2eq emissions 2022	11.260 kg CO_2eq	816 kg CO_2eq
CO_2eq emissions process	in the year of purchase	every year