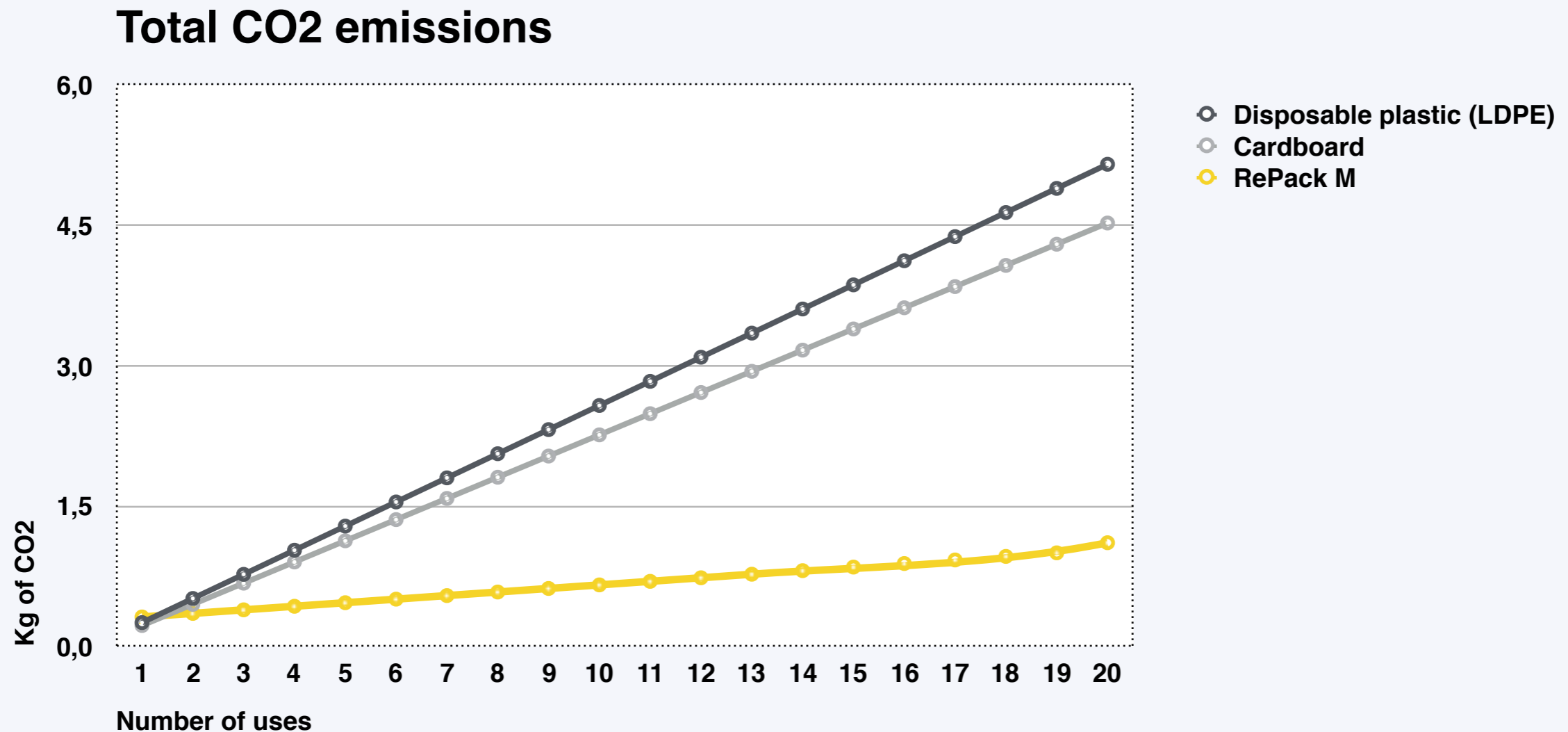
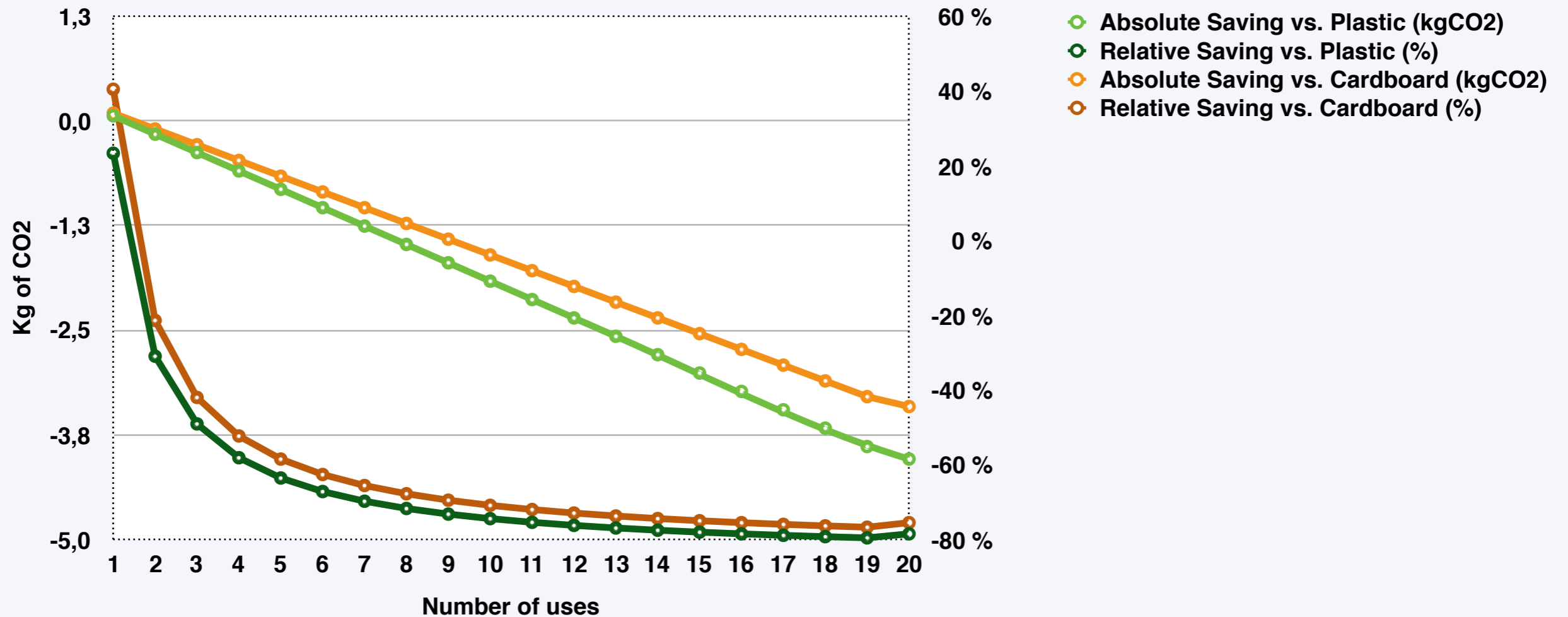


# RePack has significantly less CO<sub>2</sub> Emissions than disposable plastic and cardboard packagings.



# RePack reduces the carbon footprint by up to 80% compared to disposable packagings.

## Relative and Absolute CO2 Savings



# Break-even in carbon footprint after second reuse, already.

## Carbon footprint of manufacturing

Reusable RePack M	0,32 kg CO <sub>2</sub>
Disposable plastic	0,26 kg CO <sub>2</sub>
Disposable cardboard	0,23 kg CO <sub>2</sub>

Benefit of the model comes in returning RePack to reuse which has a carbon impact of 0,038 kg of CO<sub>2</sub> and avoided emissions from new packaging.

## Total carbon footprints for 20 uses

Reusable RePack M	1,11 kg CO <sub>2</sub>
Disposable plastic	5,15 kg CO <sub>2</sub>
Disposable cardboard	4,52 kg CO <sub>2</sub>

*Break-even in carbon footprint occurs after second use already!*

### Assumptions:

RePack M weight 118 grams  
 Disposable plastic 75 grams  
 Disposable cardboard 150 grams

Uses	RePack M	Disposable plastic (LDPE)			Cardboard		
	Emission kg of CO <sub>2</sub>	Emission kg of CO <sub>2</sub>	Saving abs. kg of CO <sub>2</sub>	Saving rel. %	Emission kg of CO <sub>2</sub>	Saving abs. kg of CO <sub>2</sub>	Saving rel. %
1	0,32	0,26	0,06	23%	0,23	0,09	40%
2	0,36	0,51	-0,16	-31%	0,45	-0,10	-21%
3	0,39	0,77	-0,38	-49%	0,68	-0,28	-42%
4	0,43	1,03	-0,60	-58%	0,90	-0,47	-52%
5	0,47	1,29	-0,82	-64%	1,13	-0,66	-58%
6	0,51	1,54	-1,04	-67%	1,36	-0,85	-63%
7	0,55	1,80	-1,26	-70%	1,58	-1,04	-66%
8	0,58	2,06	-1,48	-72%	1,81	-1,22	-68%
9	0,62	2,32	-1,69	-73%	2,03	-1,41	-69%
10	0,66	2,57	-1,91	-74%	2,26	-1,60	-71%
11	0,70	2,83	-2,13	-75%	2,49	-1,79	-72%
12	0,74	3,09	-2,35	-76%	2,71	-1,98	-73%
13	0,77	3,35	-2,57	-77%	2,94	-2,16	-74%
14	0,81	3,60	-2,79	-77%	3,16	-2,35	-74%
15	0,85	3,86	-3,01	-78%	3,39	-2,54	-75%
16	0,89	4,12	-3,23	-78%	3,62	-2,73	-75%
17	0,93	4,37	-3,45	-79%	3,84	-2,92	-76%
18	0,96	4,63	-3,67	-79%	4,07	-3,10	-76%
19	1,00	4,89	-3,89	-80%	4,29	-3,29	-77%
20	1,11	5,15	-4,04	-78%	4,52	-3,41	-75%

# RePack reduces up to 96% of total packaging waste!

## Waste per packaging

Reusable RePack M	0,118 kg
Disposable plastic	0,750 kg
Disposable cardboard	0,150 kg

While RePack will turn into waste after the 20<sup>th</sup> use, disposable packagings cause significant waste after each single use.

## Total waste after 20 uses

Reusable RePack M	0,110 kg
Disposable plastic	1,500 kg
Disposable cardboard	3,000 kg

*Breakeven in carbon footprint occurs after second use already!*

## Assumptions:

RePack M weight 118 grams  
 Disposable plastic 75 grams  
 Disposable cardboard 150 grams

Uses	RePack M	Disposable plastic (LDPE)			Cardboard		
	Waste kg	Waste kg	Saving abs. kg	Saving rel. %	Waste kg	Saving abs. kg	Saving rel. %
1	0,118	0,08	0,04	57%	0,15	-0,03	-21%
2	0,118	0,15	-0,03	-21%	0,30	-0,18	-61%
3	0,118	0,23	-0,11	-48%	0,45	-0,33	-74%
4	0,118	0,30	-0,18	-61%	0,60	-0,48	-80%
5	0,118	0,38	-0,26	-69%	0,75	-0,63	-84%
6	0,118	0,45	-0,33	-74%	0,90	-0,78	-87%
7	0,118	0,53	-0,41	-78%	1,05	-0,93	-89%
8	0,118	0,60	-0,48	-80%	1,20	-1,08	-90%
9	0,118	0,68	-0,56	-83%	1,35	-1,23	-91%
10	0,118	0,75	-0,63	-84%	1,50	-1,38	-92%
11	0,118	0,83	-0,71	-86%	1,65	-1,53	-93%
12	0,118	0,90	-0,78	-87%	1,80	-1,68	-93%
13	0,118	0,98	-0,86	-88%	1,95	-1,83	-94%
14	0,118	1,05	-0,93	-89%	2,10	-1,98	-94%
15	0,118	1,13	-1,01	-90%	2,25	-2,13	-95%
16	0,118	1,20	-1,08	-90%	2,40	-2,28	-95%
17	0,118	1,28	-1,16	-91%	2,55	-2,43	-95%
18	0,118	1,35	-1,23	-91%	2,70	-2,58	-96%
19	0,118	1,43	-1,31	-92%	2,85	-2,73	-96%
20	0,118	1,50	-1,38	-92%	3,00	-2,88	-96%

# How the calculation was made

Comparison is made between one RePack that is used its designed life cycle of 20 times. Other packages are designed to be used once. Comparison is made between one RePack and 20 disposable packages.

RePack is returned by postal return each time after use. Disposable packaging use case is from manufacturing to recycling on each cycle.

RePack's manufacturing carbon footprint is included in its first use. Once returned emissions accumulate from RePack returns until it is discarded at 20<sup>th</sup> use and waste treatment emissions are added to RePack's 20<sup>th</sup> use cycle.

Packaging weights: RePack M 118 grams. Plastic bag 75 grams. Cardboard 150 grams.

It is assumed all materials are recycled at the end of the lifecycle. According to PAS2050 emissions of recycled waste that is used new products should be excluded from the assessment (British Standards Institute 2011, 39). Therefore the emission factors for each waste type includes waste treatment only and any possible processing into new materials is excluded. For waste processing an emission factor of 0,07 kgCO<sub>2</sub> per kg of waste is therefore used (Finnish Environment Institute)

Emissions factors used in the calculation are presented in the following page.

## Emission factors used

<b>Item</b>	<b>kgCO<sub>2</sub>/kg</b>	<b>Source</b>
<b>Polypropene</b>	2,69	Carbon Methodology, WRAP
<b>LDPE</b>	2,50	Carbon Methodology, WRAP
<b>Cardboard</b>	1,04	Carbon Methodology, WRAP
<b>Return shipping</b>	0,038	International Postal Corporation <a href="https://www.ipc.be/en/programmes/sustainability/efficiency">https://www.ipc.be/en/programmes/sustainability/efficiency</a>
<b>Waste treatment</b>	0,07	Finnish Environment Institute, SYKE