

Correction

# Correction: Meister et al. Assessing Long-Term Medical Remanufacturing Emissions with Life Cycle Analysis. *Processes* 2023, 11, 36

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## Error in Tables

In the original publication, ref. [1] there was a mistake in Tables 3 and 4 as published. During write-up, the exponent values were presented as positive instead of negative (e.g.,  $10^3$  instead of  $10^{-3}$ ). The corrected Tables 3 and 4 appear below. The authors state that the scientific conclusions are unaffected. This correction was approved by the Academic Editor. The original publication has also been updated.



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**Table 3.** *Virgin life stages and materials.* The materials are based on [10] and supplemented with primary data from our collaborators, medical device remanufacturers AMDR and Innovative Health. The data quality was assessed with the rubric in Table 2, and the region marks the Ecoinvent production geography.

Stage/Material	Quantity	Source	Quality	Time Range	Region	Description
<b>Production</b>						
						<b>Component production from raw resources and assembly.</b>
polyamide	$3.20 \times 10^{-3}$ kg	Adjusted [10]	Fair	2011–2021	GLO	Pre-product for the shaft.
ethylene glycol	$1.25 \times 10^{-3}$ kg	Adjusted [10]	Fair	2011–2021	RER	Pre-product for the shaft.
polyethylene LD	$3.00 \times 10^{-4}$ kg	[10]	Good	2011–2021	GLO	Shaft stiffener.
polysulfone	0.10810 kg	Adjusted [10]	Fair	2012–2021	GLO	Plug and handle.
polyurethane	$0.80 \times 10^{-3}$ kg	[10]	Good	2018–2021	RER	Curvature and loop.
electricity	0.026 kWh	Adjusted Table 4	Fair	2014–2021	US-WECC	Component assembly.
<b>Sterilisation</b>						
						<b>Gas sterilisation.</b>
carbon dioxide	$2.82 \times 10^{-3}$ kg	[10]	Good	2011–2021	RER	Sterilisation gas ingredient.
ethylene oxide	$1.80 \times 10^{-4}$ kg	[10]	Good	2018–2021	GLO	Sterilisation gas ingredient.
electricity	0.360 kWh	[10]	Good	2014–2021	US-WECC	Process electricity.
<b>Packaging</b>						
						<b>Manual packaging.</b>
polyethylene HD	$2.00 \times 10^{-2}$ kg	[10]	Good	2011–2021	GLO	Primary (sterile) packaging.
carton box	$1.40 \times 10^{-1}$ kg	Adjusted [10]	Fair	2011–2021	GLO	Secondary packaging.
<b>Transport</b>						
						<b>Transport from manufacturer to user.</b>
container ship	0.11890 kg $\times 18,760$ km	<a href="#">Ports.com</a> <sup>1</sup>	Fair	2007–2021	GLO	USA-UK sea route.
lorry	0.11890 kg $\times 250$ km	<a href="#">Google maps</a> <sup>1</sup>	Fair	2011–2021	RER	UK final distribution.
<b>Use</b>						
						<b>Materials consumed by device.</b>
electricity	0.050 kWh	AMDR, IH, [41]	Very Good	2014–2021	GB	1 h of use, 50 watts.
<b>Incineration</b>						
						<b>End-of-life waste disposal.</b>
plastic incineration	0.11890 kg	[10]	Good	2006–2021	CH	Municipal (100%).

<sup>1</sup> Accessed on 25 November 2022.

**Table 4.** *Remanufacturing life stages and materials.* The materials are based on [10] and supplemented with primary data from our collaborators, medical device remanufacturers AMDR and Innovative Health. The data quality was assessed with the rubric in Table 2 and region marks the Ecoinvent production geography.

Stage/Material	Quantity	Source	Quality	Time Range	Region	Description
<b>Transport ×2</b>						<b>Transport from remanufacturer to user and back.</b>
container ship	0.11890 kg × 18,760 km	Ports.com <sup>1</sup>	Fair	2007–2021	GLO	USA-UK sea route.
lorry	0.11890 kg × 250 km	Google maps <sup>1</sup>	Fair	2011–2021	RER	UK final distribution.
<b>Reman.</b>						<b>Dissassembly, reman., re-assembly, and testing.</b>
hydrogen peroxide	0.03020 kg	[10]	Good	2018–2021	RER	Detergent ingredient.
sodium bicarbonate	$1.46 \times 10^{-2}$ kg	[10]	Good	2011–2021	GLO	Detergent ingredient.
sodium cumensulph.	$3.50 \times 10^{-4}$ kg	[10]	Good	2015–2021	GLO	Detergent ingredient.
tap water	7.00000 kg	[10]	Good	2012–2021	Europe	Process water.
water, ultrapure	5.00000 kg	Adjusted [10]	Fair	2009–2021	CA-QC	Process water.
electricity	0.207 kWh	[10]	Good	2014–2021	US-WECC	Process electricity.
<b>Incineration</b>						<b>End-of-life waste disposal.</b>
plastic incineration	0.01784 kg	AMDR, IH	Good	2006–2021	RoW	Municipal (15% rejection rate).
<b>Sterilisation</b>						<b>Gas sterilisation.</b>
carbon dioxide	$2.82 \times 10^{-3}$ kg	[10]	Good	2011–2021	RER	Sterilisation gas ingredient.
ethylene oxide	$1.80 \times 10^{-4}$ kg	[10]	Good	2018–2021	RER	Sterilisation gas ingredient.
electricity	0.360 kWh	Adjusted [10]	Good	2014–2021	US-WECC	Process electricity.
<b>Packaging</b>						<b>Manual packaging.</b>
polyethylene HD	$2.00 \times 10^{-2}$ kg	[10]	Good	2011–2021	GLO	Primary (sterile) packaging.
carton box	$1.40 \times 10^{-1}$ kg	Adjusted [10]	Fair	2011–2021	GLO	Secondary packaging.
<b>Use</b>						<b>Materials consumed by device.</b>
electricity	0.050 kWh	AMDR, [41]	Very Good	2014–2021	GB	1 h of use, 50 watts.

<sup>1</sup> Accessed on 25 November 2022.

## Reference

- Meister, J.A.; Sharp, J.; Wang, Y.; Nguyen, K.A. Assessing Long-Term Medical Remanufacturing Emissions with Life Cycle Analysis. *Processes* **2023**, *11*, 36. [[CrossRef](#)]

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