Carbon Reduction Plan 2025

Supplier name: Willingsford Ltd

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Willingsford Ltd.

Willingsford is a UK-based medical device company that has developed and is manufacturing an effective treatment for wounds (1–8). Existing wound treatment approaches are primarily based on antibiotics and antiseptics, but it has repeatedly been shown that they are ineffective (9,10). However, despite their limited efficacy, they remain standard care (11).

Antimicrobials indirectly impact greenhouse gas levels by releasing carbon from soil storage and by preventing its absorption into aquatic storage (12,13). A recent study (14) found that primary spread of antibiotics from livestock led to an average reduction in soil carbon storage of 1.55 kg per sq. meter soil surface. Using these data, it was possible to determine that a standard course of antibiotics results in a reduction in carbon soil storage of 9.8 tonnes CO_2 (15). An acute pressure injury the first year is on average treated with 1.46 prescriptions of antibiotics (16). This means that its treatment on average leads to a reduction in carbon storage equivalent to 14.4 tonnes CO_2. A study showed that the wound treatment MPPT from WF on average can heal an acute pressure injury with the use of two bottles of its product (5). MPPT does not exert any antimicrobials actions, which means that an impact on soil carbon storage can be avoided. Replacing the use of antibiotics with MPPT will therefore lead to a reduction in atmospheric carbon equivalent to 14.4 tonnes of CO_2 minus the CO_2 required to manufacture two bottles of MPPT.

Willingsford is a new company, there is an urgent medical need for its products, and the use of its products means that wound treatment approaches resulting in the release of carbon from soil storage can be avoided. Increased manufacturing activities will necessarily result in increased carbon emission, so in order to highlight the increased efficacy in manufacturing in relation to carbon use, the carbon budget will also include carbon emission per standard bottle of MPPT used as well as the level of carbon emission that is avoided by the use of MPPT.

Commitment to achieving Net Zero

Willingsford Ltd. is committed to achieving NetZero emissions by 2050.

Baseline Emissions Footprint - 2023

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

Willingsford has since its inception in 2010 focused on environmental issues, recycling, and on minimising energy use. It has not previously recorded its carbon budget and 2023 will therefore act as the baseline year. However, prior to this baseline year, considerable efforts had already been allocated towards ensuring that the company is sustainable in its actions.

Year 2024

Table 1 shows the emission levels for each of the three scope categories in 2024 and Table 2 compares the levels to the baseline year (2023). There has been a slight increase in absolute levels but relative to per unit of treatment, i.e. one bottle, there has been a 25.9% reduction in carbon emission, which is highly satisfactory. This demonstrates that the goal of an increased yield has been achieved.

When taking the reduced impact on soil carbon storage into consideration, which is gained when avoiding the use of antimicrobials in wound care, an increase of 24.4% in the amount of CO_2 that can be returned from the air to the soil has been achieved relative to the baseline year due to a greater use of MPPT. The carbon footprint is therefore positive, i.e. more carbon is removed than generated.

Year emissions: 2024	
EMISSIONS	**TOTAL (tCO_2e)**
Scope 1	**1.0**
Scope 2	**1.0**
Scope 3	**4.7**
(Included Sources: upstream and downstream transportation and distribution, waste generated in operations, business travel, employee commuting**)**	
Total Emissions	**6.72**

Table 1. Emission levels 2024

EMISSIONS TOTAL (tCO_2e)	**2023**	**2024**		
Scope 1	**1.0**	**1.0**		
Scope 2	**1.0**	**1.0**		
Scope 3	**4.4**	**7**		
Total Emissions	**6.4**	**6.7**		

Table 2. Emissions levels across years.

	2023	2024		
Emission per bottle (kg)	**4.38 kg**	**3.48 kg**		
Emission off-set (tonnes) based on wound treated	**10,475**	**13,858**		
Reduction in CO_2-emission per bottle relative to baseline		**25.9%**		
Increased CO_2 bound in soil sinks relative to baseline		**24.4%**		
Carbon footprint, i.e. emission off-set minus emission per bottle (tonnes CO_2)	**10,469**	**13,852**		

Table 3. Changes in emissions levels.

Emissions reduction targets

In order to continue towards our goal of achieving Net Zero and environmental sustainability, we have adopted the following carbon reduction and environmental sustainability targets:

- Increasing the yield of manufacturing
- Ensure that the distribution companies used by WF have clear plans in place to reduce their emissions
- Continued focus on low-energy technologies and biologically recyclable materials
- Increase the reuse of packaging materials where possible.
- Assisting patients and healthcare groups in the introduction of MPPT to allow them to reduce their carbon emission as well.

In the 2024 report, it was projected to reduce the carbon emission per bottle by 15% 2029. This goal has been reached as the reduction between 2023 and 2024 was 25.9%. This is a considerable achievement and efforts to gain further reductions will continue. The actual progress and the targeted progress are shown in Fig. 1.

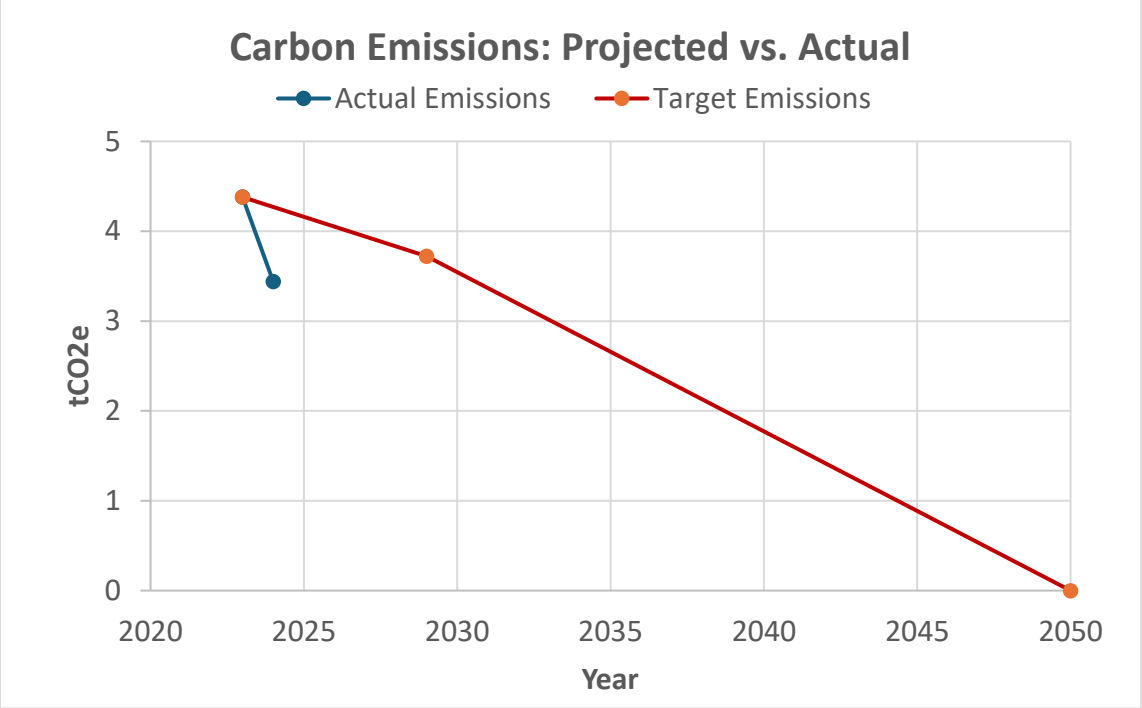

Figure 1. Projected vs. actual reductions in emission on a per bottle basis.

Carbon Reduction Projects

Completed Carbon Reduction Initiatives

Prior to the introduction of Carbon Monitoring, activities have focused on reducing the environmental burden as many activities affect carbon storage and release.

First, the use of MPPT in wound treatment only relies on the use of plain water, natural cotton gauze swabs, and a tape adhesive without plastic components. The only non-natural component is the adhesive, which is sought replaced by a more natural alternative. No chemicals or plastics are used.

Second, in relation to packaging, the bottles are of recyclable HDPE and packaging materials consists of natural wool, ice-packs consisting of plain water and recyclable HDPE, and boxes of card-board and paper tape which can be recycled. Packaging and cold-chain transport components are reused where possible.

Third, the manufacturing process has been adapted to avoid antimicrobials, toxic chemicals and to minimise the use of plastics.

Fourth, the manufacturing site uses solar panels and a heat exchange ventilation system to minimise emissions.

Planned Carbon Reduction Initiatives

Going forward, we plan to include additional categories in the Scope 3 calculations to identify additional areas of improvement.

Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard[1] and uses the appropriate Government emission conversion factors for greenhouse gas company reporting[2].

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard[3].

The focus on carbon emission per bottle and the impact on soil carbon storage is in line with the findings of a new publication in Frontiers in Public Health (15)

This Carbon Reduction Plan has been reviewed and signed off by the board of directors.

Signed on behalf of Willingsford Ltd:

Frank Sams-Dodd, Managing Director

Date: August 4, 2025

[1] https://ghgprotocol.org/corporate-standard
[2] https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
[3] https://ghgprotocol.org/standards/scope-3-standard

Willingsford Healthcare

References

1. Bilyayeva O, Viacheslav V. Neshta, Golub AA, Sams-Dodd F. Comparative Clinical Study of the Wound Healing Effects of a Novel Micropore Particle Technology: Effects on Wounds, Venous Leg Ulcers, and Diabetic Foot Ulcers. Wounds. 2017 Aug;29(8):1–9.

2. Bilyayeva O, Neshta V v., Golub A, Sams-Dodd F. Effects of SertaSil on wound healing in the rat. J Wound Care. 2014 Aug 2;23(8):410–6.

3. O'Sullivan O, Hayton L, Findlay-Cooper K, Phillip R. Novel micropore particle technology for spinal cord injury chronic wound healing: a new paradigm? BMJ Mil Health. 2020 Aug 4;169(2):184–9.

4. Ryan E. The use of a micropore particle technology in the treatment of acute wounds. J Wound Care. 2017 Jul 2;26(7):404–13.

5. Sams-Dodd J, Belci M, Bandi S, Smith D, Sams-Dodd F. Stable closure of acute and chronic wounds and pressure ulcers and control of draining fistulas from osteomyelitis in persons with spinal cord injuries: non-interventional study of MPPT passive immunotherapy delivered via telemedicine in community care. Frontiers in Medicine [Internet]. 2024 [cited 2024 Jan 5];10. Available from: https://www.frontiersin.org/articles/10.3389/fmed.2023.1279100

6. Sams-Dodd J, Sams-Dodd F. Micropore Particle Technology Promotes Wound Healing, Whereas Polyhexamethylene Biguanide Causes Tissue Degeneration: A Case Report. Wounds [Internet]. 2020 Mar 12 [cited 2022 Oct 19];32(3). Available from: https://www.hmpgloballearningnetwork.com/site/wounds/case-report-and-brief-review/micropore-particle-technology-promotes-wound-healing

7. Sams-Dodd J, Sams-Dodd F. Time to Abandon Antimicrobial Approaches in Wound Healing: A Paradigm Shift. Wounds. 2018 Nov 1;30(11):345–52.

8. Smith D, Ridler M. Survey of user-experiences in the spinal cord injured-community with MPPT for treating wounds and pressure ulcers and for controlling soft tissue infection caused by osteomyelitis. Front Rehabil Sci. 2024 Jun 20;5.

9. FDA. FDA executive summary. Classification of wound dressings combined with drugs. Prepared for the Meeting of the General and Plastic Surgery Devices Advisory Panel September 20–21, 2016 [Internet]. FDA; 2016. Available from: https://www.fda.gov/media/100005/download

10. Verma KD, Lewis F, Mejia M, Chalasani M, Marcus KA. Food and Drug Administration perspective: Advancing product development for non-healing chronic wounds. Wound Repair Regen. 2022 May;30(3):299–302.

11. Hussey L, Stocks SJ, Wilson P, Dumville JC, Cullum N. Use of antimicrobial dressings in England and the association with published clinical guidance: interrupted time series analysis. BMJ Open. 2019 Sep 17;9(9):e028727.

12. Nissen TV. Effects of Antibiotics on Carbon Dioxide Production in Soil. Nature. 1954 Jul;174(4422):226–7.

13. Pereira R, Ashton I, Sabbaghzadeh B, Shutler JD, Upstill-Goddard RC. Reduced air–sea CO2 exchange in the Atlantic Ocean due to biological surfactants. Nature Geosci. 2018 Jul;11(7):492–6.

14. Roy S, Naidu DGT, Bagchi S. Functional substitutability of native herbivores by livestock for soil carbon stock is mediated by microbial decomposers. Global Change Biology. 2023 Apr;29(8):2141–55.

15. Sams-Dodd J, Sams-Dodd F. The contribution of antimicrobials and antimicrobial resistance to climate change and a possible way to reverse it whilst still offering high quality healthcare—a conceptual analysis. Front Public Health [Internet]. 2025 Jul 15 [cited 2025 Jul 15];13. Available from: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1644086/full

16. Guest JF, Fuller GW, Vowden P, Vowden KR. Cohort study evaluating pressure ulcer management in clinical practice in the UK following initial presentation in the community: costs and outcomes. BMJ Open. 2018 Jul 25;8(7):e021769.