



Annual treatment with DuraTouch® incl. drug and needles

Carbon Footprint Report

September 2025 (version 1.1)

Contents

| | |
|--------------------------------------|----|
| 1. Background | 3 |
| 2. Methodology | 4 |
| 2.1 Drug substance | 5 |
| 2.2 Delivery system | 5 |
| 2.3 Needles | 5 |
| 3. Carbon footprint | 6 |
| 3.1 European market | 6 |
| 3.2 US market | 9 |
| 3.3 Japanese market | 11 |
| 3.4 Comparison to other measurements | 12 |
| 4. Plastic footprint | 12 |
| References | 17 |

1. Background

Novo Nordisk's environmental strategy, Circular for Zero, and the certified ISO14001 Environmental Management System, drive continuous improvements in our environmental performance by setting high ambitions and integrating environmental considerations into daily business activities. Here, life cycle assessment/product carbon footprint is an integrated part of our product development process.

This document presents the Product Carbon Footprint of one year treatment with DuraTouch® in combination with a range of drug substances (API), including the use of NovoFine® needles and Penfill® cartridges, hereafter referred to as the [drug product's brand name] Penfill® DuraTouch® carbon footprint, e.g. Actrapid® Penfill® DuraTouch® carbon footprint.

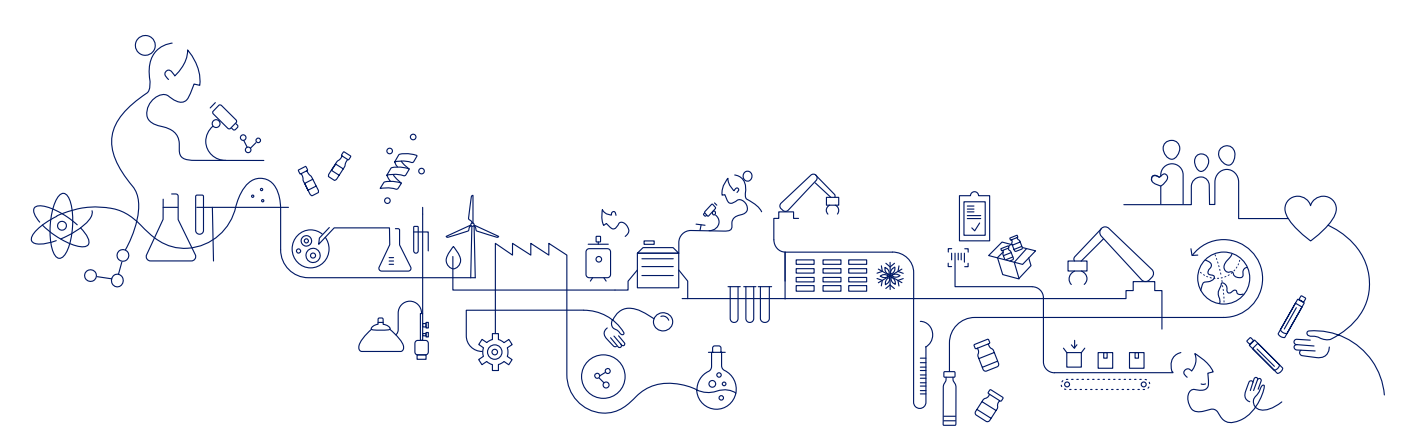
DuraTouch® is a newly developed reusable device that is intended to be used for different treatment schemes within e.g. diabetes and obesity. The marketing of DuraTouch® will be rolled out in 6 selected markets from the first half of 2025, expected to be followed by expansion to other markets. Since DuraTouch® is still not in full production, full-scale data was not available for the assessment of the device, which is therefore based on some general assumptions regarding production site, energy consumption and distribution. For details, see the full LCA report on DuraTouch® (DuraTouch® carbon footprint, Novo Nordisk, Jul 2024).

The carbon footprint for the yearly treatment is based on full third-party verified carbon footprint reports for the different drug substances, delivery solutions (device or oral) and needles included in this report.

The data presented in this document supports marketing claims and Q&As about the product carbon footprint. The data should not be used for comparison with competitor products or for claims related to 'green' or 'environmentally friendly' products.

2. Methodology

The carbon footprint of a product is calculated by adding the greenhouse gas emissions (in kg CO₂ equivalents) from different stages of the product life cycle. The product carbon footprint of one year of treatment is calculated by adding the contributions from the drug substance, the delivery system and the needle¹.



The Novo Nordisk carbon footprint calculations follow the Greenhouse Gas Accounting Sector Guidance for Pharmaceutical Products and Medical Devices², which is built on international life cycle assessment standards. The reports are third-party reviewed by PricewaterhouseCoopers Advisory.

The carbon footprint calculations are based on production data from 2022 and cover relevant drug substances, delivery system and needles as shown in Table 1. For each brand, the carbon footprints are calculated for the use in three major markets: Europe, the US and Japan. The calculations are made using Excel and the life cycle assessment tool *LCA for Experts*³.

Table 1. Products involved in the calculations for one year of treatment with DuraTouch®.

| Drug substance | Delivery system** | Cartridge** | Needle** |
|---|--|---|--|
| <ul style="list-style-type: none">Insulin analogues | <ul style="list-style-type: none">DuraTouch® | <ul style="list-style-type: none">Penfill®Excipients* (incl.WFI) | <ul style="list-style-type: none">NovoFine®NovoFine® Plus |

Notes:

* Excluded due to proven low impact on carbon emissions, except for water (for injection).

** Including both secondary & tertiary packaging.

¹ Including the primary, secondary and tertiary packaging for delivery system, cartridge and needles. Primary packaging is considered part of the cartridge and needle, respectively.

² Greenhouse Gas Accounting Sector Guidance for Pharmaceutical Products and Medical Devices, GHG Protocol Product Life Cycle Accounting and Reporting Standard, November 2012. At: http://ghgprotocol.org/sites/default/files/ghgp/Summary-Document_Pharmaceutical-Product-and-Medical-Device-GHG-Accounting_November-2012_0.pdf.

³ Formerly GaBi.

2.1 Drug substance

The Defined Daily Dose (DDD) is the assumed average maintenance dose per day for a drug used for its main indication in adults. The DDD for insulin analogues (aspart, degludec, detemir or human insulin) is 40 international units (IU), corresponding to a weekly dose of 280 units, according to the WHO, see Table 2.

Table 2 Overview of defined dose of drug substance for the different products.

| Brand name | Frequency | Drug substance |
|--|-----------|---|
| Insulin analogue: Actrapid®, Fiasp®, Insulatard®, Levemir®, Mixtard®, NovoMix®, NovoRapid®, Ryzodeg ⁴ and Tresiba®. | Daily | 40 IU aspart, degludec, detemir or human insulin. |

2.2 Delivery system

DuraTouch® is a reusable pen with an assumed lifetime of 2 years.

DuraTouch® is compatible with a variety of Novo Nordisk's drug products delivered in Penfill®, see Table 3.

Table 3 Overview of drug product strength based on substance concentration and primary packaging size.

| Brand name | Drug substance content | Cartridge (Penfill ^(R)) [mL] | Strength |
|-------------------------------------|------------------------|--|-----------|
| [Insulin analogue] U100 Dura Touch® | 300 IU | 3 | 100 IU/mL |

Due to the physical design of the cartridge, a small volume of drug product is lost between the neck and the shoulders. The filling volume is adjusted to account for this loss with an additional 2.4% drug product volume. This has been considered as well for the estimation of the carbon footprint.

2.3 Needles

Novo Nordisk offers a series of needles for combination with our delivery systems. In this assessment, three different needles, namely, NovoFine®, NovoFine® Plus, and NovoFine® Plus (co-pack), are included for the EU and US markets. For the Japanese market only NovoFine® Plus is available.

NovoFine® Plus needles are sold in packs of 100 pcs in EU and US markets and packs of 70 pcs in JP market. NovoFine® Plus (co-pack) are assumed co-packed with one DuraTouch® and 4 needles as a representative for a co-pack.

Novo Nordisk recommends discarding the needle after use. However, market research shows that many patients use the needle several times⁵. To reflect an average patient, the one-year treatment scenario is based on the use of one needle per day, which can be considered a conservative estimate.

⁴ 40 IU with the distribution of 70% degludec, 30% aspart

⁵ Roper U.S. Diabetes 2014 Patient Study. Insulin devices market. GFK, November 2014

3. Carbon footprint

This section presents the carbon footprints for specific treatments (assumptions described in Section 2) with DuraTouch® in combinations with a range on drug substances (delivered in Penfill®) and needles in the three representative markets, Europe, US and Japan. The contribution to the carbon footprints from drug substance, delivery system, cartridge and needles are shown as well as the total carbon footprint per patient per year.

To put the results into perspective, the resulting carbon footprints has been recalculated into the distance driven by an average car (see Section 3.4).

The carbon footprint has inherent uncertainties and should be regarded as an indicative level and not as a precise measure. The uncertainties relate to the data collected from Novo Nordisk production, the data on carbon footprint for of each of the processes (e.g. plastic granulate production), carbon footprint impact factors and the key assumptions (e.g. distribution patterns). Moreover, the calculations consider that Novo Nordisk sources renewable energy through certificates, which results in a lower carbon footprint than if average electricity was used.

3.1 European market

Table 4. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **European** market with DuraTouch® and NovoFine®

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.4 | 8.9 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.3 | 8.8 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.4 | 8.9 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 14.1 | 14.6 |
| Mixtard®Penfil® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.4 | 8.9 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.3 | 8.8 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 8.3 | 8.8 |

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|--|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 9.1 | 9.5 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.6 | 0.2 | 9.4 | 9.8 |

Table 5. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **European** market with DuraTouch® and NovoFine® Plus.

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|--|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.9 | 8.3 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.8 | 8.3 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.9 | 8.3 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 13.6 | 14.1 |
| Mixtard®Penfil® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.9 | 8.3 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.8 | 8.3 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 7.8 | 8.3 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 8.5 | 9.0 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.0 | 0.2 | 8.9 | 9.3 |

Table 6. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **European** market with DuraTouch® and NovoFine® Plus (co-pack).

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus (co-pack) [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.3 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.2 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.3 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 13.7 | 17.0 |
| Mixtard®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.3 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.2 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 7.9 | 11.2 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 8.6 | 11.9 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.2 | 0.04 | 4.5 | 0.2 | 2.1 | 3.0 | 8.9 | 12.2 |

3.2 US market

Table 7. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **US** market with DuraTouch® and NovoFine®.

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.1 | 10.6 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.0 | 10.6 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.1 | 10.6 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 15.9 | 16.4 |
| Mixtard®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.1 | 10.6 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.0 | 10.6 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.0 | 10.6 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 10.8 | 11.3 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.4 | 0.05 | 3.3 | 0.3 | 5.3 | 0.2 | 11.1 | 11.6 |

Table 8. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **US** market with DuraTouch® and NovoFine® Plus

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|--|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.6 | 8.1 |

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|--|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.5 | 8.1 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.6 | 8.1 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 13.4 | 13.9 |
| Mixtard®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.6 | 8.1 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.5 | 8.1 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 7.5 | 8.1 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 8.3 | 8.8 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.4 | 0.05 | 3.3 | 0.3 | 2.8 | 0.2 | 8.6 | 9.1 |

Table 9. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **US** market with DuraTouch® and NovoFine® Plus (co-pack).

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus (co-pack) [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus (co-pack) [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|--|--|--|-----------|--|-----------|---|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 17.4 | 20.7 |
| Mixtard®Penfil® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 11.6 | 14.9 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 12.3 | 15.6 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.4 | 0.05 | 3.3 | 0.3 | 6.8 | 3.0 | 12.6 | 15.9 |

3.3 Japanese market

Table 10. Carbon footprint for the drug substance, delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of one patient in the **Japanese** market (NovoFine plus 70pcs).

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|---|--|--|-----------|--|-----------|--|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| Actrapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.3 |
| Fiasp®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.2 |
| Insulatard®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.3 |
| Levemir®Penfill® DuraTouch® | 6.9 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 14.3 | 15.0 |
| Mixtard®Penfil® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.3 |

| Brand name | Drug substance [kg CO ₂ -eq./year] | DuraTouch® [kg CO ₂ -eq./year] | | Penfill® [kg CO ₂ -eq./year] | | NovoFine® plus [kg CO ₂ -eq./year] | | One year treatment [kg CO ₂ -eq./year] | |
|--------------------------------------|--|--|-----------|--|-----------|--|-----------|--|-----------------|
| | | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| NovoMix®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.2 |
| NovoRapid®Penfill® DuraTouch® | 1.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 8.5 | 9.2 |
| Ryzodeg®Penfill® DuraTouch® | 1.8 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 9.2 | 9.9 |
| Tresiba®Penfill® DuraTouch® | 2.1 | 0.2 | 0.04 | 4.1 | 0.4 | 3.1 | 0.3 | 9.5 | 10.3 |

3.4 Comparison to other measurements

To put this into perspective for a non-expert, the carbon footprint of the yearly treatment (including API, delivery system, needle (NovoFine®Plus) and packaging) has been recalculated into a distance driven by an average new car at the European market in 2023⁶.

One year of treatment with [drug substance brand name] DuraTouch® corresponds to driving 79-141 km in an average new car in Europe. For a more detailed comparison, select a specific treatment in Table 11.

Table 11. The distance (km) travelled in an average new car in Europe that would result in the same carbon footprint as one year treatment of a patient with the specified treatment.

| Brand name | EU | US | JP |
|---------------------------------------|---------------------|---------------------|---------------------|
| | <i>Km travelled</i> | <i>Km travelled</i> | <i>Km travelled</i> |
| Actrapid®Penfill® DuraTouch® | 78 | 76 | 87 |
| Fiasp®Penfill® DuraTouch® | 78 | 76 | 87 |
| Insulatard®Penfill® DuraTouch® | 78 | 76 | 87 |
| Levemir®Penfill® DuraTouch® | 133 | 131 | 141 |
| Mixtard®Penfil® DuraTouch® | 78 | 76 | 87 |
| NovoMix®Penfill® DuraTouch® | 78 | 76 | 87 |
| NovoRapid®Penfill® DuraTouch® | 78 | 76 | 87 |

⁶ European Environment Agency (2023) . Average carbon dioxide emissions per km from new passenger cars, [CO2 emissions performance of new passenger cars in Europe](#) | [European Environment Agency's home page](#)

| Brand name | EU | US | JP |
|------------------------------------|---------------------|---------------------|---------------------|
| | <i>Km travelled</i> | <i>Km travelled</i> | <i>Km travelled</i> |
| Ryzodeg®Penfill® DuraTouch® | 85 | 83 | 93 |
| Tresiba®Penfill® DuraTouch® | 88 | 86 | 96 |

4. Plastic footprint

The plastic footprint is defined by Novo Nordisk as the amount of plastic⁷ used by a patient or an organisation during a specific treatment. The footprint includes any plastic placed on the market by Novo Nordisk, regardless of its origin (virgin, recycled, fossil or non-fossil). The footprint is calculated both with and without secondary and tertiary packaging.

This section presents the plastic footprint for specific treatments (assumptions described in Section 2) with DuraTouch® in combinations with a range on drug substances (delivered in Penfill®) and needles in the three representative markets, Europe, US and Japan. The contribution to the plastic footprints from the delivery system, cartridge, needle and packaging are shown as well as the total plastic footprint per patient per year.

Table 12 Plastic footprint for the delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient with *DuraTouch* combined with NovoFine® with and without packaging.

| Brand name | DuraTouch® [g plastic/year] | | Penfill® [g plastic/year] | | NovoFine® [g plastic/year] | | One year treatment [kg plastic/year] | |
|---|--------------------------------|-----------|------------------------------|-----------|-------------------------------|-----------|---|-----------------|
| | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| | All | EU/US | All | EU/US | All | EU/US | All | EU/US |
| Actrapid®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| Fiasp®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| Insulatard®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| Levemir®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| Mixtard®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| NovoMix®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| NovoRapid®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |
| Ryzodeg®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |

⁷ Rubber not included

| Brand name | DuraTouch® [g plastic/year] | | Penfill® [g plastic/year] | | NovoFine® [g plastic/year] | | One year treatment [kg plastic/year] | |
|--|--------------------------------|-----------|------------------------------|-----------|-------------------------------|-----------|---|-----------------|
| | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| | All | EU/US | All | EU/US | All | EU/US | All | EU/US |
| Tresiba®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 394 | 2 | 0.42 | 0.47 |

Table 13. Plastic footprint for the delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient with *DuraTouch®* combined with NovoFine® Plus with and without packaging.

| Brand name | DuraTouch® [g plastic/year] | | | Penfill® [g plastic/year] | | | NovoFine® plus [g plastic/year] | | | One year treatment [kg plastic/year] | | |
|---|--------------------------------|-----------|-----|------------------------------|-----------|-----|------------------------------------|-----------|----|---|-----------------|------|
| | Delivery system | Packaging | | Cartridge | Packaging | | Needle | Packaging | | Excl. packaging | Incl. packaging | |
| | All | EU/US | JP | All | EU/US | JP | All | EU/US | JP | All | EU/US | JP |
| Actrapid®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Fiasp®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Insulatard®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Levemir®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Mixtard®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| NovoMix®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| NovoRapid®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Ryzodeg®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |
| Tresiba®Penfill® DuraTouch® | 12 | 0.2 | 0.2 | 15 | 50 | 100 | 402 | 2 | 28 | 0.43 | 0.48 | 0.56 |

Table 14. Plastic footprint for the delivery system, cartridge (including primary packaging), needle (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient with *DuraTouch* combined with NovoFine® Plus (co-pack) with and without packaging.

| Brand name | DuraTouch® [g plastic/year] | | Penfill® [g plastic/year] | | NovoFine® Plus (co-pack) [g plastic/year] | | One year treatment [kg plastic/year] | |
|---|--------------------------------|-----------|------------------------------|-----------|--|-----------|---|-----------------|
| | Delivery system | Packaging | Cartridge | Packaging | Needle | Packaging | Excl. packaging | Incl. packaging |
| | All | EU/US | All | EU/US | All | EU/US | All | EU/US |
| Actrapid®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Fiasp®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Insulatard®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Levemir®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Mixtard®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| NovoMix®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| NovoRapid®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Ryzodeg®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |
| Tresiba®Penfill® DuraTouch® | 12 | 0.2 | 15 | 50 | 402 | 20 | 0.43 | 0.50 |

References

Insulin analogues carbon footprint, Novo Nordisk, Mar 2024

DuraTouch® carbon footprint, Novo Nordisk, Jul 2024

Penfill® carbon footprint, Novo Nordisk, Dec 2024

NovoFine® carbon footprint, Novo Nordisk, Nov 2024, vs. 3.1

Assumptions and background for carbon footprint assessments, Novo Nordisk, Apr 2025

Novo Nordisk A/S

Novo Allé

DK-2880 Bagsværd

Denmark

Telephone +45 4444 8888

www.novonordisk.com