Annual treatment with Mim8 Dragonfly incl. drug and needle

Carbon Footprint Report

October 2025 (version 1.0)

Contents

Commentary

This report was finalized and approved before the official launch of the reference products. As a result, a brand name was not assigned in line with the rest of the Novo Nordisk treatment portfolio. The term [Mim8 Dragonfly] is consistently used in this report to identify the relevant device prefilled with the relevant drug.

Table 1. Report version and reference product name.

Report version	Product Name	Note
1.0	Mim8 Dragonfly	Product pre-launch.

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.

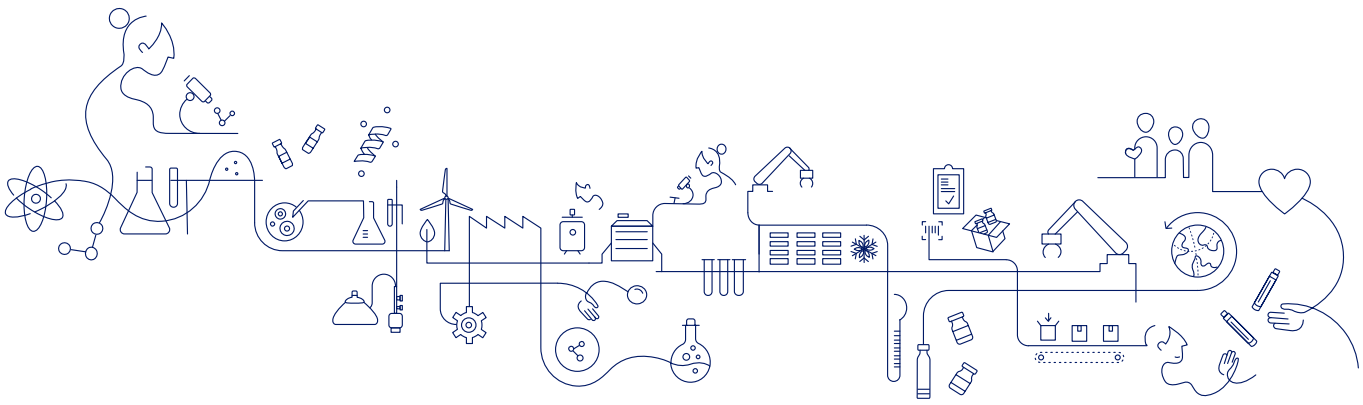
This document presents the Product Carbon Footprint of one year treatment with Mim8 Dragonfly. Dragonfly (also referred to as *Denecimig DV3407 pen-injector*) is a newly developed single-use pre-filled device designed specifically as delivery system for Mim8. Mim8 is new drug product intended for subcutaneous prophylactic treatment of haemophilia A patients without and with inhibitory antibodies to FVIII. Mim8 Dragonfly are designed for weekly, bi-weekly or monthly injections. The Dragonfly device contains a 1.5 ml cartridge (*EMK0544 Cartridge 1.5 ml*) containing the drug product. The device is co-packed with one NovoFine® Plus 29G 4mm needle.

The carbon footprint for the annual treatment is based on full third-party verified carbon footprint reports for the drug substance and delivery solution (device and needle) 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 CO_2 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 and the delivery system[1].



The Novo Nordisk carbon footprint calculations follow the Greenhouse Gas Accounting Sector Guidance for Pharmaceutical Products and Medical Devices[2], which is built on international life cycle assessment standards. The reports are third-party reviewed by PwC Advisory.

The Mim8 Dragonfly is scheduled for launch in 2026. The carbon footprint calculations for Mim8 are based on production data for Mim8 from 2022. Dragonfly is not yet in production. The carbon footprint of Dragonfly is therefore based on the specific bill of material (available) for the device and production data for a similar product (FlexPen®) for year 2022.

The calculations cover the relevant drug substance and delivery system (incl. needle) as shown in Table 2. The carbon footprint is 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].

[1] Including the primary, secondary and tertiary packaging for the delivery system. Primary packaging is considered part of the prefilled device (the cartridge in the Dragonfly).

[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.

Table 2. Products involved in the calculations for one year of treatment with Mim8 Dragonfly.

Drug substance	Delivery system
• Mim8	• Dragonfly • NovoFine® Plus 29G 4mm needle • Excipients* (incl. WFI)

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

2.1 Drug substance

The defined doses for Mim8 in Table 3 are reflecting relevant doses for prophylactic treatment of patients with haemophilia A at different dosing frequencies and depending on body weight.

Table 3 Overview of defined dose of drug substance for Mim8.

Body weight range	Dosing frequency		
	Once per month	Once bi-weekly	Once pr week
<15 kg	9 mg	4 mg	1.6 mg
15-44 kg	20 mg	9 mg	4 mg
≥45 kg	46 mg	20 mg	9 mg

The following description and assessment of Carbon Footprint and Plastic Footprint will focus on yearly treatment of an average patient weighting 70 kg.

2.2 Delivery system

The Mim8 Dragonfly is a prefilled single shot fixed dose device and is co-packed with one NovoFine® Plus needle. In this assessment the delivery system covers the device, cartridge and needle.

Mim8 Dragonfly will be available in three different versions tailored to the specific frequencies. Table 4 shows the drug substance dosage and the concentration (strength) of the formulation for the different products for treatment of a patient weighting 70 kg.

Table 4 Overview of drug product strength based on substance concentration and primary packaging size.

Product name	Frequency	Drug substance dosage	Cartridge [ml]	Strength
Mim8 Dragonfly	Monthly	46 mg	1.5[4]	57.5 mg/mL
Mim8 Dragonfly	Bi-weekly	20 mg	1.5[4]	25 mg/mL
Mim8 Dragonfly	Weekly	9 mg	1.5[4]	11.25 mg/mL

[4] The Mim8 drug product dosage is 0.8 ml per dose. The cartridge is underfilled with 1 ml/cartridge for all frequencies.

3. Carbon footprint

This section presents the carbon footprints for specific treatments (assumptions described in Section 2) with Mim8 Dragonfly in the three representative frequencies (monthly, bi-weekly and weekly) and markets (Europe, US and Japan). The contributions to the carbon footprints from drug substance and delivery system are shown as well as the total carbon footprint per patient per year.

To put the results into perspective, the resulting carbon footprints have been recalculated into the distance driven by an average new passenger car (see Section 3.6).

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 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.

3.3 European market

Table 5. Carbon footprint for the drug substance, delivery system (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient weighting 70 kg in the **European** market with Mim8 Dragonfly. *Note that* Mim8 *Dragonfly includes prefilled cartridge and one NovoFine® Plus 29G 4mm needle (co-pack). Cartridge and needle are therefore already a part of the delivery solution and should not be included separately.*

Product name	**Frequency**	**Drug substance** [kg CO_2-eq./year]	**Dragonfly** [kg CO_2-eq./year]		**One year treatment** [kg CO_2-eq./year]	
			Delivery system	**Packaging**	**Excl. packaging**	**Incl. packaging**
Mim8 Dragonfly	Monthly	0.7	1.6	1.6	2.4	4.0
Mim8 Dragonfly	Bi-weekly	0.7	3.6	3.5	4.3	7.7
Mim8 Dragonfly	Weekly	0.6	7.1	7.0	7.7	14.7

3.4 US market

Table 6. Carbon footprint for the drug substance, delivery system (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient weighting 70 kg in the **US** market with Mim8 Dragonfly. *Note that Mim8 Dragonfly includes prefilled cartridge and one NovoFine® Plus 29G 4mm needle (co-pack). Cartridge and needle are therefore already a part of the delivery solution and should not be included separately.*

Product name	Frequency	Drug substance [kg CO_2-eq./year]	Dragonfly [kg CO_2-eq./year]		One year treatment [kg CO_2-eq./year]	
			Delivery system	Packaging	Excl. packaging	Incl. packaging
Mim8 Dragonfly	Monthly	0.7	4.5	1.7	5.2	7.0
Mim8 Dragonfly	Bi-weekly	0.7	9.8	3.8	10.5	14.3
Mim8 Dragonfly	Weekly	0.6	19.6	7.5	20.2	27.7

3.5 Japanese market

Table 7. Carbon footprint for the drug substance, delivery system (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient weighting 70 kg in the **Japanese** market with Mim8 Dragonfly. *Note that Mim8 Dragonfly includes prefilled cartridge and one NovoFine® Plus 29G 4mm needle (co-pack). Cartridge and needle are therefore already a part of the delivery solution and should not be included separately.*

Product name	Frequency	Drug substance [kg CO_2-eq./year]	Dragonfly [kg CO_2-eq./year]		One year treatment [kg CO_2-eq./year]	
			Delivery system	Packaging	Excl. packaging	Incl. packaging
Mim8 Dragonfly	Monthly	0.7	4.5	1.3	5.2	6.5
Mim8 Dragonfly	Bi-weekly	0.7	9.8	2.8	10.5	13.3
Mim8 Dragonfly	Weekly	0.6	19.5	5.7	20.1	25.8

3.6 Comparison to other measurements

To put this into perspective for a non-expert, the carbon footprint of the yearly treatment (including API, delivery system and packaging) has been recalculated into a distance driven by an average new car at the European market in 2023[5].

One year of treatment with Mim8 Dragonfly corresponds to driving 37-261 km in an average new car in Europe. For a more detailed comparison, select a specific treatment in Table 8.

Table 8. The distance (km) travelled in an average new car in Europe that would equal the carbon footprint of one year's treatment of a patient weighting 70 kg with the specified treatment.

Product name	**Frequency**	**EU**	**US**	**JP**
		Km travelled	*Km travelled*	*Km travelled*
Mim8 Dragonfly	Monthly	37	66	61
Mim8 Dragonfly	Bi-weekly	73	134	125
Mim8 Dragonfly	Weekly	138	261	243

[5] European Environment Agency (2023). Average carbon dioxide emissions per km from new passenger cars (106.4 g CO_2 eq/km), CO_2 emissions performance of new passenger cars in Europe | European Environment Agency's home page

4. Plastic footprint

The plastic footprint is defined by Novo Nordisk as the amount of plastic[6] 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 plastic 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 Mim8 Dragonfly in three representative frequencies (monthly, bi-weekly and weekly) and markets (Europe, US and Japan). The contribution to the plastic footprints from the delivery system (including primary packaging) and packaging (secondary and tertiary) is shown as well as the total plastic footprint per patient per year.

Table 9 Plastic footprint for the delivery system (including primary packaging) and packaging (secondary and tertiary) required for one year's treatment of a patient weighting 70 kg with *Mim8 Dragonfly*. The footprint is shown with and without packaging. *Note that Mim8 Dragonfly includes prefilled cartridge and one NovoFine® Plus 29G 4mm needle (co-pack). Cartridge and needle are therefore already a part of the delivery solution and should not be included separately.*

Product Name	**Frequency**	**One year treatment (all markets)** [g plastic/year]		
		Delivery system	**Packaging**	**Total incl. packaging**
Mim8 Dragonfly	Monthly	210	5	215
Mim8 Dragonfly	Bi-weekly	458	10	468
Mim8 Dragonfly	Weekly	915	21	936

[6] Rubber not included

References

Dragonfly carbon footprint, Novo Nordisk, July 2025

Carbon footprint Mim8, Novo Nordisk, July 2025

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

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