Inhaler coverage chart - Appendix

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Notes on updated table

This is an area of evolving research with new information becoming available over time which required an updated version of the table and the associated referencing document.

The following changes have been made in the Jul 2023 version:

- The methodology to calculate carbon footprint was cross referenced to include inhaler weight in line with the methodology used by Fraser Health in Kevin E. Liang, MD, CCFP, Jiayun Angela Yao, PhD, Philip Hui, MD, FRCPC, Darryl Quantz, MFPH, MPH, MSc. Climate impact of inhaler therapy in the Fraser Health region, 2016–2021. BCMJ, Vol. 65, No. 4, May, 2023, Page(s) 122-127

- The conversion factor between gCO2e and kilometers by car was updated to reflect the most recent available date on average fuel consumption for Canadian vehicle. A prior version of the table referencing document used an American conversion factor.

- There have been additions and subtractions to inhalers on the chart based on updated market availability as reported in the Health Canada database on July 19, 2023.

- Updated inhaler pricing for 2023.

- Typo correction.

Carbon footprint data (gCO2e)

Short-acting beta-agonists

Salbutamol

Ventolin HFA DIN 02241497 - Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	141
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 141 gCO2e x 200 = 28,200 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets this under the brand name Ventolin Evohaler in the UK – PrescQIPP data is for Evohaler. GSK's Ventolin-HFA pMDI marketed in Canada contains the same ingredients, number of doses and mechanism of action.
Conversion to km by car	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 28,200 gCO2e x 1 km/206 gCO2e = 136.9km

Airomir DIN 02232570 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg
Manufacturer	Bausch Health
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	48.6
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 48.6 gCO2e x 200 = 9,720 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature

	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Airomir is marketed by Teva in the UK. It is marketed by Bausch Health in Canada. Both have the same delivery mechanism, number of doses and ingredients. Assumed to be similar carbon footprint despite different manufacturer. Smaller carbon footprint per actuation compared to other Salbutamol MDIs is explained by smaller volume of propellant.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. Retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 9,720 gCO2e x 1 km/206 gCO2e = 47.2 km

APO-Salbutamol DIN 02245669 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg
Manufacturer	Apotex
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	141
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 141 gCO2e x 200 = 28,200 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	PrescQIPP data is for Ventolin Evohaler from GSK. Carbon footprint estimated to be equivalent for Apo-Salbutamol because it has the same device, ingredients, number of doses and propellant.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from

	https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 28,200 gCO2e x 1 km/206 gCO2e = 136.9km

SANIS-Salbutamol DIN 02419858 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg
Manufacturer	Sanis Health
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	141
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 141 gCO2e x 200 = 28,200 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	PrescQIPP data is for Ventolin Evohaler from GSK. Carbon footprint estimated to be equivalent for Apo-Salbutamol because it has the same device, ingredients, number of doses and propellant.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 28,200 gCO2e x 1 km/206 gCO2e = 136.9km

TEVA-Salbutamol DIN 02326450 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg
Manufacturer	Teva Canada
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	48.6
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 48.6 gCO2e x 200 = 9,720 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	PrescQIPP data is for Ventolin Evohaler from GSK. Carbon footprint estimated to be equivalent for Apo-Salbutamol because it has the same device, ingredients, number of doses and propellant.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 28,200 gCO2e x 1 km/206 gCO2e = 136.9km

Ventolin Diskus DIN 02243115 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 200 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	200
Type of propellant	None
Carbon emission per actuation (gCO2e)	10
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 10 gCO2e x 60 = 600 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets Ventolin Diskus as Ventolin Accuhaler in the UK. It has the same delivery mechanism, same number of doses and the same ingredients as Ventolin Diskus.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 600 gCO2e x 1 km/206 gCO2e = 2.9km

Terbutaline

Bricanyl Turbuhaler DIN 00786616 – Product monograph

Active ingredient, dose/actuation	Terbutaline 500 mcg
Manufacturer	AstraZeneca
Number of actuations per device	120
Type of propellant	none
Carbon emission per actuation (gCO2e)	4.1
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 4.1 gCO2e x 120 = 492 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 492 gCO2e x 1 km/206 gCO2e = 2.4 km

Salbutamol/Ipratropium

Combivent Respimat DIN 02419106 – Product monograph	
Active ingredient, dose/actuation	Salbutamol 100 mcg Ipratropium 20 mcg
Manufacturer	Boehringer Ingelheim
Number of actuations per device	120
Type of propellant	none
Carbon emission per actuation (gCO2e)	12.92
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 12.92 gCO2e x 120 = 1,550.4 gCO2e
Carbon emissions data retrieved from	Estimated from literature on manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	No carbon data available for Combivent Respimat. However, carbon data is available for Boehringer Ingelheim's other Respimat devices (Spiolto – 12.92 gCO2e/act, Spiriva 12.92 gCO2e/act). Carbon footprint assumed to be similar for Combivent Respimat.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,550 gCO2e x 1 km/206 gCO2e = 7.5 km

Ipratropium

Atrovent HFA DIN 02247686 – Product monograph	
Active ingredient, dose/actuation	Ipratropium 20 mcg
Manufacturer	Boehringer Ingelheim
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	73
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 73 gCO2e x 200 = 14,600 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 14,600 gCO2e x 1 km/206 gCO2e = 70.9 km

Budesonide

Pulmicort Turbuhaler DIN 00852074 – Product monograph	
Active ingredient, dose/actuation	Budesonide 100 mcg
Manufacturer	AstraZeneca
Number of actuations per device	200
Type of propellant	None
Carbon emission per actuation (gCO2e)	7
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 7 gCO2e x 200 = 1,400 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Pulmicort Turbohaler in the UK. It has the same active ingredient, delivery mechanism and number of doses as Pulmicort Turbuhaler.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,400 gCO2e x 1 km/206 gCO2e = 6.8 km

Pulmicort Turbuhaler DIN 00851752 – Product monograph	
Active ingredient, dose/actuation	Budesonide 200 mcg
Manufacturer	AstraZeneca
Number of actuations per device	200
Type of propellant	None
Carbon emission per actuation (gCO2e)	14
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 14 gCO2e x 200 = 2,800 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Pulmicort Turbohaler in the UK. It has the same active ingredient, delivery mechanism and number of doses as Pulmicort Turbuhaler.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 2,800 gCO2e x 1 km/206 gCO2e = 13.6 km

Pulmicort Turbuhaler DIN 00851760 – Product monograph	
Active ingredient, dose/actuation	Budesonide 400 mcg
Manufacturer	AstraZeneca
Number of actuations per device	200
Type of propellant	None
Carbon emission per actuation (gCO2e)	34
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 34 gCO2e x 200 = 6,800 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Pulmicort Turbohaler in the UK. It has the same active ingredient, delivery mechanism and number of doses as Pulmicort Turbuhaler.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 6,800 gCO2e x 1 km/206 gCO2e = 33.0 km

Fluticasone

Flovent HFA DIN 02244291 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 50 mcg

Manufacturer	GlaxoSmithKline
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets this under the brand name Flixotide Evohaler in the UK – PrescQIPP data is for Evohaler. GSK's Flovent-HFA pMDI marketed in Canada contains the same ingredients and mechanism of action.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

Apo-Fluticasone HFA DIN 02294745 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 50 mcg
Manufacturer	Apotex
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

Comments	PMS-Fluticasone has the same active ingredient, propellant and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

PMS-Fluticasone HFA DIN 02503115 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 50 mcg
Manufacturer	PharmaScience
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	PMS-Fluticasone has the same active ingredient, propellant and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

Flovent HFA DIN 02255292 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 125 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e

Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets this under the brand name Flixotide Evohaler in the UK – PrescQIPP data is for Evohaler. GSK's Flovent-HFA pMDI marketed in Canada contains the same ingredients and mechanism of action.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

Apo-Fluticasone 125 HFA DIN 02526557– Product monograph	
Active ingredient, dose/actuation	Fluticasone 125 mcg
Manufacturer	Apotex
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Apo-Fluticasone has the same active ingredient, propellant and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from

	https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

PMS-Fluticasone 125 HFA DIN 2503123– Product monograph	
Active ingredient, dose/actuation	Fluticasone 125 mcg
Manufacturer	Pharmascience
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	No direct carbon footprint data available for Pharmascience. PMS-Fluticasone has the same active ingredient, propellant, and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

Flovent HFA 250 DIN 02244293 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from:

	https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets this under the brand name Flixotide Evohaler in the UK – PrescQIPP data is for Evohaler. GSK's Flovent-HFA pMDI marketed in Canada contains the same ingredients and mechanism of action.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

PMS-Fluticasone 250 HFA DIN 02503131 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 mcg
Manufacturer	Pharmascience
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	PMS-Fluticasone has the same active ingredient, propellant and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

APO-Fluticasone HFA 250 DIN 02510987 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 mcg
Manufacturer	Apotex
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	158
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 158 gCO2e x 120 = 18,960 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Apo-Fluticasone has the same active ingredient, propellant and delivery mechanism as GSK Flixotide Evohaler. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 18,960 gCO2e x 1 km/206 gCO2e = 92 km

Flovent Diskus DIN 02237245 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	14
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 14 gCO2e x 60 = 840 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

Comments	GSK markets Flixotide Accuhaler in the UK. It has the same maker, ingredients and delivery mechanism and is marketed by the name Flovent Diskus in Canada.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 840 gCO2e x 1 km/206 gCO2e = 4.1 km

Flovent Diskus DIN 02237246 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	14
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 14 gCO2e x 60 = 840 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets Flixotide Accuhaler in the UK. It has the same maker, ingredients and delivery mechanism and is marketed by the name Flovent Diskus in Canada.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 840 gCO2e x 1 km/206 gCO2e = 4.1 km

Flovent Diskus DIN 02237247 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	14
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 14 gCO2e x 60 = 840 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data

	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets Flixotide Accuhaler in the UK. It has the same maker, ingredients and delivery mechanism and is marketed by the name Flovent Diskus in Canada.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 840 gCO2e x 1 km/206 gCO2e = 4.1 km

Aermony Respclick DIN 02467895 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 55 mcg
Manufacturer	Teva Canada
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	No comparable device available in literature. Carbon footprint estimate used is average carbon per dose for DPI as estimated from the literature by PrescQIPP.
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Aermony Respclick DIN 02467909 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 113 mcg
Manufacturer	Teva Canada
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	No comparable device available in literature. Carbon footprint estimate used is average carbon per dose for DPI as estimated from the literature by PrescQIPP.
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Aermony Respclick DIN 02467917 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 232 mcg
Manufacturer	Teva Canada
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	No comparable device available in literature. Carbon footprint estimate used is average carbon per dose for DPI as estimated from the literature by PrescQIPP.
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from:

	Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Arnuity Ellipa DIN 02446561 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	25
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 25 gCO2e x 30 = 750 gCO2e
Carbon emissions data retrieved from	Estimate based on literature for similar devices
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets 5 different types of Ellipta devices in the UK with different active ingredients. Each of them has a carbon footprint ranging between 24-26 gCO2e per actuation. Carbon footprint estimated on this basis. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 750 gCO2e x 1 km/206 gCO2e = 3.6 km

Arnuity Ellipa DIN 02446588 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 200 mcg

Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	25
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 25 gCO2e x 30 = 750 gCO2e
Carbon emissions data retrieved from	Estimate based on literature for similar devices
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets 5 different types of Ellipta devices in the UK with different active ingredients. Each of them has a carbon footprint ranging between 24-26 gCO2e per actuation. Carbon footprint estimated on this basis. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 750 gCO2e x 1 km/206 gCO2e = 3.6 km

Ciclesonide

Alvesco DIN 02285606 – Product monograph	
Active ingredient, dose/actuation	Ciclesonide 100 mcg
Manufacturer	Covis Pharma
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	101.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 101.75 gCO2e x 120 = 12,210 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Covis Pharma markets this inhaler under the same brand name, with the same ingredients and the same delivery mechanism, but a slightly different dose (Ciclesonide 80 mcg/act). Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 12,210 gCO2e x 1 km/206 gCO2e = 59.3 km

Alvesco DIN 02285614 – Product monograph	
Active ingredient, dose/actuation	Ciclesonide 200 mcg
Manufacturer	Covis Pharma
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	101.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 101.75 gCO2e x 120 = 12,210 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Covis Pharma markets this inhaler under the same brand name, with the same ingredients and the same delivery mechanism, but a slightly different dose (Ciclesonide 160 mcg/act). Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 12,210 gCO2e x 1 km/206 gCO2e = 59.3 km

Mometasone

Asmanex Twisthaler DIN 02438690 – Product monograph	
Active ingredient, dose/actuation	Mometasone 100 mcg
Manufacturer	Organon Canada
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 30 = 562.5 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains trace lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 563 gCO2e x 1 km/206 gCO2e = 2.7 km

Asmanex Twisthaler DIN 02243595 – Product monograph	
Active ingredient, dose/actuation	Mometasone 200 mcg
Manufacturer	Organon Canada
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from:

	Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains trace lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Asmanex Twisthaler DIN 02243596 – Product monograph	
Active ingredient, dose/actuation	Mometasone 400 mcg
Manufacturer	Organon Canada
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains trace lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Beclomethasone

QVAR DIN 02242029 – Product monograph	
Active ingredient, dose/actuation	Beclomethasone 50 mcg
Manufacturer	Bausch Health

Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	101.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 101.75 gCO2e x 200 = 20,350 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	QVAR in the UK contains beclometasone. Despite the different spelling, the molecular structure is identical. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 20,350 gCO2e x 1 km/206 gCO2e = 98.8 km

QVAR DIN 02242030 – Product monograph	
Active ingredient, dose/actuation	Beclomethasone 100 mcg
Manufacturer	Bausch Health
Number of actuations per device	200
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	101.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 101.75 gCO2e x 200 = 20,350 gCO2e
Carbon emissions data retrieved from	Estimate by PrescQIPP based on literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763

Comments	QVAR in the UK contains beclometasone. Despite the different spelling, the molecular structure is identical. Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 20,350 gCO2e x 1 km/206 gCO2e = 98.8 km

Formoterol

Oxeze Turbuhaler DIN 02237225 – Product monograph	
Active ingredient, dose/actuation	Formoterol 6 mcg
Manufacturer	AstraZeneca
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	6
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 6 gCO2e x 60 = 360 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Oxis Turbohaler in the UK. The Canadian formulation has the same manufacturer, ingredients and delivery mechanism. Assumes similar carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 360 gCO2e x 1 km/206 gCO2e = 1.8 km

Oxeze Turbuhaler DIN 02237224 – Product monograph	
Active ingredient, dose/actuation	Formoterol 12 mcg
Manufacturer	AstraZeneca
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	6.17
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 6.17 gCO2e x 60 = 370 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature

	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Oxis Turbohaler in the UK. The Canadian formulation has the same manufacturer, ingredients and delivery mechanism. Assumes similar carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 370 gCO2e x 1 km/206 gCO2e = 1.7 km

Salmeterol

Serevent Diskus DIN 02231129 – Product monograph	
Active ingredient, dose/actuation	Salmeterol 50 mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	12
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 12 gCO2e x 60 = 720 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets this as Serevent Accuhaler in the UK. It has the same manufacturer, ingredients and delivery mechanism as Serevent Diskus. Assumes similar carbon footprint. Contains lactose

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 720 gCO2e x 1 km/206 gCO2e = 3.5 km

Long-acting muscarinic-antagonists

Glycopyrronium

Seebri Breezhaler DIN 02394936 – Product monograph	
Active ingredient, dose/actuation	Glycopyrronium 50 mcg
Manufacturer	Novartis
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 30 = 563 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	In the UK, Seebri Breezhaler contains Glyropyrronium 44 mcg/actuation. Assumes similar carbon footprint. Contains lactose, gelatin
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 563 gCO2e x 1 km/206 gCO2e = 2.7 km

Tiotropium

Spiriva Handihaler DIN 02246793 – Product monograph	
Active ingredient, dose/actuation	Tiotropium 18 mcg
Manufacturer	Boehringer Ingelheim
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	9.4
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 9.4 gCO2e x 30 = 282 gCO2e

Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon footprint calculation includes the Handihaler device Contains lactose, gelatin
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 282 gCO2e x 1 km/206 gCO2e = 1.4 km

Spiriva Respimat DIN 02435381 – Product monograph	
Active ingredient, dose/actuation	Tiotropium 2.5 mcg
Manufacturer	Boehringer Ingelheim
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	12.9
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 12.9 gCO2e x 60 = 774 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon footprint calculation includes the Respimat device. Refillable cartridges are available for the UK Respimat devices; not yet available in Canada.

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 775 gCO2e x 1 km/206 gCO2e = 3.8 km

Aclidinium

Tudorza Genuair DIN 02409720 – Product monograph	
Active ingredient, dose/actuation	Aclidinium 400 mcg
Manufacturer	AstraZeneca
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	8.67
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 8.67 gCO2e x 60 = 520 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	AstraZeneca markets this as Eklira Genuair in the UK. Carbon footprint data is for Eklira Genuair, which has the same ingredients and delivery mechanism. The dose of aclidinium is slightly smaller (Aclidinium 322 mcg/actuation). Assumes similar carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 520 gCO2e x 1 km/206 gCO2e = 2.5 km

Umeclidinium

Incruse Ellipta DIN 02423596 – Product monograph	
Active ingredient, dose/actuation	Umeclidinium 62.5 mcg
Manufacturer	GlaxoSmithKline

Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	24
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 24 gCO2e x 30 = 720 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Data available for the UK version Incruse Ellipta. It has the same manufacturer, active ingredients and delivery mechanism. The dose of umeclidinium in the UK is marginally different (Umeclidinium 55 mcg/actuation). We assume a similar carbon footprint. Contains lactose.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 720 gCO2e x 1 km/206 gCO2e = 3.5 km

Fluticasone/Salmeterol

Advair HFA DIN 02245126 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 125 Salmeterol 25
Manufacturer	GlaxoSmithKline
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	162
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 162 gCO2e x 120 = 19,440 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Evohaler. It has the same manufacturer, ingredients, number of doses and delivery mechanism as Advair HFA. Assumes same carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 19,440 gCO2e x 1 km/206 gCO2e = 94.4 km

Advair HFA DIN 02245127 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 Salmeterol 25
Manufacturer	GlaxoSmithKline
Number of actuations per device	120
Type of propellant	HFA-134a
Carbon emission per actuation (gCO2e)	162
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 162 gCO2e x 120 = 19,440 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from:

	PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Evohaler. It has the same manufacturer, ingredients, number of doses and delivery mechanism as Advair HFA. Assumes same carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 19,440 gCO2e x 1 km/206 gCO2e = 94.4 km

Advair Diskus DIN 02240835 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100 Salmeterol 50
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. It has the same manufacturer, ingredients, number of doses and delivery mechanism as Advair HFA. Assumes same carbon footprint.

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

Advair Diskus DIN 02240836 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 Salmeterol 50
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. It has the same manufacturer, ingredients, number of doses and delivery mechanism as Advair HFA. Assumes same carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

Advair Diskus DIN 02240837 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 500 Salmeterol 50
Manufacturer	GlaxoSmithKline
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device

	= 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint data provided by manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. It has the same manufacturer, ingredients, number of doses and delivery mechanism as Advair HFA. Assumes same carbon footprint.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

PMS-Fluticasone/Salmeterol DIN 02494507 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100 Salmeterol 50
Manufacturer	Pharmascience
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated based on similar device
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. PMS-Fluticasone/Salmeterol has the same number of doses, active ingredients and delivery mechanism. Assumes similar carbon footprint.

	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

PMS-Fluticasone/Salmeterol DIN 02494515 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 Salmeterol 50
Manufacturer	Pharmascience
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated based on similar device
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. PMS-Fluticasone/Salmeterol has the same number of doses, active ingredients and delivery mechanism. Assumes similar carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

PMS-Fluticasone/Salmeterol DIN 02494523 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 500 Salmeterol 50
Manufacturer	Pharmascience

Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 15 gCO2e x 60 = 900 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated based on similar device
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon data is for Severent Accuhaler. PMS-Fluticasone/Salmeterol has the same number of doses, active ingredients and delivery mechanism. Assumes similar carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 900 gCO2e x 1 km/206 gCO2e = 4.4 km

Wixela Inhub DIN 02495597 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100 Salmeterol 50
Manufacturer	Mylan
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from:

	Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	No comparable device in UK. Average carbon per actuation is used as estimated by the Wilkins paper (this is the value PrescQIPP uses when primary manufacturer data is unavailable). Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Wixela Inhub DIN 02495600 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 250 Salmeterol 50
Manufacturer	Mylan
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	No comparable device in UK. Average carbon per actuation is used as estimated by the Wilkins paper (this is the value PrescQIPP uses when primary manufacturer data is unavailable). Contains lactose

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Wixela Inhub DIN 02495619 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 500 Salmeterol 50
Manufacturer	Mylan
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 60 = 1,125 gCO2e
Carbon emissions data retrieved from	Carbon footprint estimated from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	No comparable device in UK. Average carbon per actuation is used as estimated by the Wilkins paper (this is the value PrescQIPP uses when primary manufacturer data is unavailable). Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 1,125 gCO2e x 1 km/206 gCO2e = 5.5 km

Fluticasone/Vilanterol

Breo Ellipta DIN 02408872 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 100mcg

	Vilanterol 25mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	26
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 26 gCO2e x 30 = 780 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets Fluticasone/Vilanterol under the brand name Relvar Ellipta in the UK. It has the same active ingredients and the same delivery mechanism, but the dose is slightly smaller (Fluticasone 92mcg/Vilanterol 22mcg per actuation). Assumes same carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 780 gCO2e x 1 km/206 gCO2e = 3.8 km

Breo Ellipta DIN 02444186 – Product monograph	
Active ingredient, dose/actuation	Fluticasone 200mcg Vilanterol 25mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	26
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 26 gCO2e x 30 = 780 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	GSK markets Fluticasone/Vilanterol under the brand name Relvar Ellipta in the UK. It has the same active ingredients and the same delivery mechanism, but the dose is slightly smaller (Fluticasone 184mcg/Vilanterol 22mcg per actuation). Assumes same carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 780 gCO2e x 1 km/206 gCO2e = 2.8 km

Budesonide/Formoterol

Symbicort DIN 02245385 – Product monograph	
Active ingredient, dose/actuation	Budesonide 100mcg Formoterol 6mcg
Manufacturer	AstraZeneca
Number of actuations per device	120
Type of propellant	none
Carbon emission per actuation (gCO2e)	4.83
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 4.83 gCO2e x 120 = 579.6 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 580 gCO2e x 1 km/206 gCO2e = 2.8 km

Symbicort DIN 02245386 – Product monograph	
Active ingredient, dose/actuation	Budesonide 200mcg Formoterol 6mcg
Manufacturer	AstraZeneca
Number of actuations per device	120
Type of propellant	none
Carbon emission per actuation (gCO2e)	6.67
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 6.67 gCO2e x 120 = 800.4 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 800 gCO2e x 1 km/206 gCO2e = 3.9 km

Mometasone/Formoterol

Zenhale DIN 02361752 – Product monograph	
Active ingredient, dose/actuation	Mometasone 100mcg Formoterol 5mcg
Manufacturer	Organon Canada
Number of actuations per device	120
Type of propellant	HFA-227ea
Carbon emission per actuation (gCO2e)	290
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device

	= 290 gCO2e x 120 = 34,800 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Zenhale contains HFA-227ea which is 2-3 times more potent than HFA-134a. No carbon footprint data is available for Zenhale from Organon Canada. ICS/LABA pMDI combinations with HFA227ea by different manufacturers (fluticasone/formoterol by Napp Pharmaceuticals, budesonide/formoterol MDI by AstraZeneca UK) report carbon footprint between 285-295gCO2e per actuation. Assumed similar average carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 134,800 gCO2e x 1 km/206 gCO2e = 168.9 km

Zenhale DIN 02361760 – Product monograph	
Active ingredient, dose/actuation	Mometasone 200mcg Formoterol 5mcg
Manufacturer	Organon Canada
Number of actuations per device	120
Type of propellant	HFA-227ea
Carbon emission per actuation (gCO2e)	290
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 290 gCO2e x 120 = 34,800 gCO2e
Carbon emissions data retrieved from	Estimate based on available literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/

	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Zenhale contains HFA-227ea which is 2-3 times more potent than HFA-134a. No carbon footprint data is available for Zenhale from Organon Canada. ICS/LABA pMDI combinations with HFA227ea by different manufacturers (fluticasone/formoterol by Napp Pharmaceuticals, budesonide/formoterol MDI by AstraZeneca UK) report carbon footprint between 285-295gCO2e per actuation. Assumed similar average carbon footprint. Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 134,800 gCO2e x 1 km/206 gCO2e = 168.9 km

Mometasone/Indacaterol

Atectura Breezhaler DIN 02498693 – Product monograph	
Active ingredient, dose/actuation	Mometasone 80 mcg Indacaterol 150 mcg
Manufacturer	Novartis
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	13
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 13 gCO2e x 30 = 390 gCO2e
Carbon emissions data retrieved from	Carbon footprint data from manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 390 gCO2e x 1 km/206 gCO2e = 1.9 km

Atectura Breezhaler DIN 02498707 – Product monograph	
Active ingredient, dose/actuation	Mometasone 160 mcg Indacaterol 150 mcg
Manufacturer	Novartis
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	13
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 13 gCO2e x 30 = 390 gCO2e
Carbon emissions data retrieved from	Carbon footprint data from manufacturer
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 390 gCO2e x 1 km/206 gCO2e = 1.9 km

Atectura Breezhaler DIN 02498685 – Product monograph	
Active ingredient, dose/actuation	Mometasone 320 mcg Indacaterol 150 mcg
Manufacturer	Novartis
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	13
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 13 gCO2e x 30 = 390 gCO2e
Carbon emissions data retrieved from	Carbon footprint data from manufacturer

	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 390 gCO2e x 1 km/206 gCO2e = 1.9 km

Umeclidinium/Vilanterol

Anoro Ellipta DIN 02418401 – Product monograph	
Active ingredient, dose/actuation	Umeclidinium 62.5mcg Vilanterol 25mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	14
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 24 gCO2e x 30 = 720 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 720 gCO2e x 1 km/206 gCO2e = 3.5 km

Ultibro Breezhaler DIN 02418282 – Product monograph	
Active ingredient, dose/actuation	Glyropyrronium 50 mcg Indacaterol 110 mcg
Manufacturer	Novartis
Number of actuations per device	30
Type of propellant	none
Carbon emission per actuation (gCO2e)	18.75
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 18.75 gCO2e x 30 = 563 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from:

	PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: Wilkinson AJK, Braggins R, Steinbach I , et al. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open 2019;9:e028763. doi:10.1136/bmjopen-2018-028763
Comments	Contains lactose
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 563 gCO2e x 1 km/206 gCO2e = 2.7 km

Aclidinium/Formoterol

Duaklir Genuair DIN 02439530 – Product monograph	
Active ingredient, dose/actuation	Aclidinium 400 mcg Formoterol 12 mcg
Manufacturer	AstraZeneca
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	9.17
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 9.17 gCO2e x 60 = 550 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Carbon footprint data was done for Duaklir Genuair commercially available in the UK. The dose is slightly different than the Canadian inhaler (UK version contains Aclidinium 340/Formoterol 12). Contains lactose

Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 550 gCO2e x 1 km/206 gCO2e = 2.7 km

Tiotropium/Olodaterol

Inspiolto Respimat DIN 02439530 – Product monograph	
Active ingredient, dose/actuation	Tiotropium 2.5 mcg Olodaterol 2.5 mcg
Manufacturer	Boehringer Ingelheim
Number of actuations per device	60
Type of propellant	none
Carbon emission per actuation (gCO2e)	12.92
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 12.92 gCO2e x 60 = 775 gCO2e
Carbon emissions data retrieved from	Carbon footprint data estimated by PrescQIPP from literature
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Boehringer Ingelheim markets this product under the brand name Spiolto Respimat in the UK. The carbon footprint data is for Spiolto Respimat. It contains the same ingredients and delivery mechanism as Inspiolto Respimat.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 775 gCO2e x 1 km/206 gCO2e = 3.8 km

Fluticasone/Umeclidinium/Vilanterol

Trelegy Ellipta DIN 02474522 – Product monograph	
Active ingredient, dose	Fluticasone 100mcg Umeclidinium 62.5mcg Vilanterol 25mcg
Manufacturer	GSK
Number of actuations per device	30
Carbon emission per actuation gCO2e	26
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 26 gCO2e x 30 = 780 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 780 gCO2e x 1 km/206 gCO2e = 3.8 km

Trelegy Ellipta DIN 02515776 – Product monograph	
Active ingredient, dose	Fluticasone 200mcg Umeclidinium 62.5mcg Vilanterol 25mcg
Manufacturer	GlaxoSmithKline
Number of actuations per device	30
Carbon emission per actuation gCO2e	26
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device = 26 gCO2e x 30 = 780 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from:

	https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 780 gCO2e x 1 km/206 gCO2e = 3.8 km

Budesonide/Formoterol/Glycopyrronium

Breztri Aerosphere DIN 02518058 – Product monograph	
Active ingredient, dose	Budesonide 182 mcg Glycopyrronium 8.2 mcg Formoterol 5.8 mcg
Manufacturer	AstraZeneca
Number of actuations per device	120
Carbon emission per actuation (gCO2e)	116.67
Carbon emission per inhaler gCO2e	= Carbon emission per device/number of actuations per device = 14,000 gCO2e/120 = 116.67 gCO2e
Carbon emissions data retrieved from	Carbon footprint data received directly from manufacturer in correspondence with author K.L. Carbon footprint was provided at 13.5-14.5 kgCO2e per device.
Comments	
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 14,000 gCO2e x 1 km/206 gCO2e = 68 km

Mometasone/Glycopyrronium/Indacaterol

Enerzair Breezhaler DIN 02501244 – Product monograph	
Active ingredient, dose	Mometasone 150 mcg Glycopyrronium 50 mcg Indacaterol 160 mcg
Manufacturer	Norvartis Pharmaceuticals
Number of actuations per device	30
Carbon emission per actuation (gCO2e)	15
Carbon emission per inhaler gCO2e	= Carbon emission per actuation x number of actuations per device

	= 15 gCO2e x 30 = 450 gCO2e
Carbon emissions data retrieved from	Manufacturer's carbon footprint data
	Values retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Attachment 1. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
	Carbon calculation methodology retrieved from: PrescQIPP Community Interest Company. Bulletin 295: Inhaler Carbon Footprint. Retrieved from: https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/
Comments	Novartis Pharmaceuticals UK lists 2 different Enerzair Breezhaler devices (with sensor 17 gCO2e/actuation and without sensor 13 gCO2e/actuation). Average of both used for the purposes of our chart because Canadian product monograph doesn't specify sensor.
Conversion to km by car retrieved from	Carbon footprint conversion factor of 206gCO2e/km for average Canadian vehicle in 2017. retrieved from most recent Fuel Economy in Major Car Markets, Appendix C.2 p.87 on July 19, 2023 from https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf = 450 gCO2e x 1 km/206 gCO2e = 2.2 km

Carbon footprint data (km by car)

The conversion of carbon footprint was done using the value for average fuel consumption of a Canadian gas-powered vehicle in 2017, retrieved Jul 19, 2023 from Appendix C.2 p.87 https://iea.blob.core.windows.net/assets/66965fb0-87c9-4bc7-990d-a509a1646956/Fuel_Economy_in_Major_Car_Markets.pdf

International Energy Agency (IEA), 2019, (Fuel Economy in Major Car Markets: Technology and Policy Drivers 2005-2017). Licence: Creative Commons Attribution CC BY-NC-ND 3.0 IGO for all parts of the work except chapters 4 and Annex B, and International Energy Agency (IEA)/International Council on Clean Transportation (ICCT), 2019, (Fuel Economy in Major Car Markets: Technology and Policy Drivers 2005-2017). Licence: Creative Commons Attribution CC BY-NC-ND 3.0 IGO for chapters 4 and Annex B of the work.

Coverage data

All coverage data obtained through drugsearch.ca and cross-referenced with BC Pharmacare Special Authority.

Plan C refers to patients who are recipients of BC income assistance. It provides 100% coverage for eligible prescription costs.

Plan W refers to patients under the First Nations Health Benefits. It provides 100% coverage for eligible prescription costs.

Cost data

All cost data was obtained through drugsearch.ca on July 19, 2023 and cross-referenced by calling two different pharmacies for confirmation.

The cost data includes dispensing fee and assumes no added coverage through special authority or third-party coverage.