

Carbon footprint assessment of Breezhaler[®] dry powder inhaler.

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Delivery of respiratory inhalers makes a significant contribution to the carbon footprint (CFP) of healthcare. Consistent with Novartis' commitment to reduce the environmental impact of its products, the inhaler used in its asthma combinations is available in the hydrofluoroalkane / chlorofluorocarbon (HFA/CFC)-free Breezhaler[®] device.

Cradle to grave CFP studies of two Breezhaler[®] inhaled combinations have been completed: one containing indacaterol acetate (IND) and mometasone furoate (MF); and the other IND, MF and glycopyrronium bromide (GLY).

The CFP is verified as compliant with the Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard Sector Guidance for Pharmaceuticals and Medical Devices.

The study boundary excludes the benefits of the drugs and an optional sensor in terms of asthma exacerbations, rescue medication and adherence.

CFPs are appraised for Germany, France, UK and Japan and in 30-day (both products) and 90-day packs (IND/GLY/MF).

In Germany, inhaler CFPs range from 0.184 kg CO₂eq per month for IND/GLY/MF (90-day, no sensor) to (0.481 kg CO₂eq per month) for IND/GLY/MF (30-day, with sensor). Of the 30-day devices, IND/GLY/MF (no sensor) has the lowest CFP (0.359 kg CO₂eq per month).

Active pharmaceutical ingredients, inhaler raw materials and packaging make the largest contributions to the CFP, sensor raw materials dominating where used. Excipients, distribution and end of life stages all make minimal contributions to the carbon footprint for all of the device models.

Overall, when considering inhalation therapy environmental impacts, the assessed Breezhaler[®] portfolio has a low CFP, consistent with the literature on DPIs.