

**TRANSLATION:**

The translation of this peer review is provided by [climatop](#) with the aim of reflecting in the most accurate way the original German text. In case of interpretation difficulties, please consult the original, valid German text.

Peer reviewer:

**Carbotech AG**

Eulerstrasse 68  
CH-4051 Basel  
+41 61 206 95 25  
[www.carbotech.ch](http://www.carbotech.ch)

**Peer review of the study****Balancing of greenhouse gas emission from hand drying****Initial situation and mission**

For this project the organisation myclimate has evaluated the environmental and climate impacts of hand drying methods on behalf of Dyson. Thereby, emissions of the whole life cycle were considered. The aim of the study was to determine if hand drying with the Dyson Airblade™ hand dryer causes significantly lower climate relevant emissions than those of other comparable products available on the market, but also than those of other common hand drying methods such as the usage of paper towels or textile roller towels. In addition, products with low climate relevant emissions should also have a total environmental impact being at least not higher than the impacts of other hand drying methods. If the products from Dyson fulfil those requirements, they could be recommended for a labelling with the label climatop. The Carbotech AG was charged with the performance of a concomitant critical peer review.

**Criteria and procedure of the peer review**

Calculations of life cycle assessments are complex, because of the large amount of data that needs to be collected, processed and evaluated for its impacts on the climate respectively the ecosystem. A review of all data and calculations is neither usefully feasible nor reasonable, because nowadays there are large amounts of base data from renowned databases on one side and software tools on the other side that are being used for such calculations. It is admissible to rely on the calculations when using a certain selection of data and calculation methods. The experience shows that the critical points of such calculations are the definitions of the constraints, the goal of the study, the system boundaries etc. Accordingly, these points have to be checked carefully when performing a review. According to ISO 14040ff, the process of a peer review should ensure, that

- the applied methods are corresponding with the international standard,
- the applied methods are scientifically and technically sound and applicable,
- the used data are appropriate and reasonable for the aims of the study,
- the conclusions consider the goals and limitations of the study,
- the report is transparent and consistent.

Within this review all of these points were examined and the results were reviewed for their plausibility.

The review was made concomitant to the study, the most important decisions, such as the definition of the functional unit or the system boundaries, as well as intermediate results and their plausibility were discussed. The results of those discussions were considered in the calculations and in the final report.

This review is based on one hand on those discussions and on the other hand on the final report from the 24<sup>th</sup> February 2009.

## **Statement to the final version of the study**

### **Aims and constraints**

The chosen constraints such as the functional unit, system boundaries and the considered indicators are adequate for the imposed goal. It was clearly defined what was and what was not considered.

Although the aim of the study was to evaluate the climate relevant emissions, other ecological impacts were considered using the Swiss method of ecological scarcity (Environmental Impact Points, UBP 06). This was considered as desirable, as the experience shows that results from climate impacts are often not consistent with environmental impacts in general. With those additional considerations the foundation for a climate and environmental friendly labelling with climatop is given.

### **Methods and data**

The methods used within the study are scientifically comprehensive and consistent with the aims and constraints of the study.

For this comparison of the apparatuses from Dyson with comparable apparatuses and other hand drying methods, along with the climate relevant emissions, also other relevant environmental impacts were considered. The different analysed methods are highly depending on the behaviour of the user. The defined assumptions are plausible and their corresponding basis was well documented. The assumptions were supported with corresponding sensitivity analyses and therefore the plausibility of the results was increased. For the same reason, two different scenarios for the power mixes (Switzerland and UCTE) were calculated.

The handling of the allocation question in relation to side products and waste is consistent and corresponds to the usual practice.

The essential data collected by the author of the study were tested for their plausibility. A high traceability is given by the transparent assignment of the primary data to the data fromecoinvent used for the calculation. Samples from those assignments were tested and considered as reasonable.

The label should be valid for the whole European area. To ensure this validity, the representativeness of the chosen data respectively hand drying devices for this geographic scope had to be assured. For example, the chosen electric hand dryer, which was compared to the Dyson Airblade<sup>TM</sup>, had to be representative for the whole European market regarding relevant factors such as the energy consumption. Similarly one had to represent the European market for the paper or tissue towels. For the paper towels, a best case and a worst case scenario were chosen, to cover the whole variety of paper towels available in Europe. This procedure was considered as reasonable. However, it would have been desirable to have a discussion on the used relatively specific data for the tissue towels regarding their representativeness for the European market.

### **Results and discussion**

The results were reviewed for their plausibility, thereby the transparent description of the different steps of the life cycle were adjuvant. Using samples, the data entered into the software and the calculated results were tested. Based on these tests and the examination of the input data I came to the conclusion that the results regarding the effects on the climate and the environment in general are correct. It was remarkably positive that uncertainties were described. This facilitates a comparison of the different results.

The results answer the initially defined questions.

### **Summary**

The results regarding the climate and environmental impacts are plausible and according to the performed checks they can be considered as correct. The procedure is scientifically correct and corresponds to the initially defined objectives. The geographic validity of the climatop label for the Dyson Airblade™ hand dryers for European circumstances was carefully evaluated, as well as the stability of the results regarding different user behaviours. Furthermore, the discussion of the relevant influence factors as well as the analysis of the different power mix scenarios for Switzerland and Europe was remarkably positive. The resulting recommendations for climatop are comprehensible and coherent.

Basel, 30<sup>th</sup> March 2009