Executive Summary - Ultrastar® DC HC555 HDD

This study was calculated by Sluicebox, acting as the independent tool provider, using primary activity data supplied by Western Digital, the product owner and manufacturer of the product.

Product Specification:

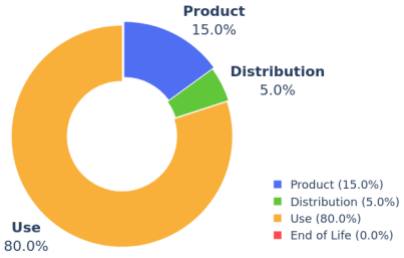
The product under study is the Ultrastar® DC HC555 HDD, a data storage solution engineered for the demanding environments of modern data centers. Built to handle large-scale data workloads, it provides the foundation for scalable, efficient, and secure data management.

Functional Unit:

The functional units for the study are one Ultrastar® DC HC555 HDD with an 18 terabyte (TB) capacity and lifetime of five years. Results are provided per functional unit and 1 TB-year.

Summary:

The total carbon footprint for this product is **178.8 kgCO_2e**, with the highest impact attributed to the use phase. Results on the other impact categories are available in the full ISO report.



Lifecycle Stage	Total Emissions (kgCO_2e per unit)	Total Emissions (kgCO_2e/TB-yr)
Product	23.0	0.24
Distribution	9.4	0.1
Use[1]	146.3	1.6
End of Life	0.1	0.001

System Boundary and Analysis Scope:

The system boundary follows a cradle-to-grave approach. The system boundaries encompass emissions from raw material extraction and processing, manufacturing of individual components, product assembly, upstream transportation to the factory gate, product use (based on 5-year product warranty), and end-of-life treatment and disposal. Key inputs, like electricity during use phase and raw materials and manufacturing processes in the product phase contribute notably to the overall emissions This comprehensive approach ensures that all relevant emissions sources are accounted for, giving a picture of the product's embodied environmental impact with respect to carbon. By maintaining these boundaries, the report provides insights that can help guide strategic decisions on emission reductions across the product's life cycle.

Breakdown of Product Stage:

Input Name	Description	Total Emissions (kgCO_2e per unit)	Total Emissions (kgCO_2e /TB-yr)
Raw Materials	Consumed Raw Materials	8.2	0.1
Manufacturing	Manufacturing Inputs & Assembly	14.4	0.1
Packaging	Packaging Inputs and Materials	0.3	0.003

Compliance and Data Assurance:

Sluicebox has been independently evaluated by TUV for ISO 14040 and ISO 14044. In this PCF summary, all values comply with ISO standards, ensuring that the carbon footprint calculations meet international requirements for product-level greenhouse gas (GHG) emissions assessments. This data can support sustainability reporting and regulatory compliance efforts, providing transparency and accuracy essential for meeting current and future environmental regulations.

[1] Use phase emissions are modeled based on conventional energy usage in HDD applications. Actuals will vary depending on RE/CFE usage.