Executive Summary - Ultrastar® DC HC570

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:

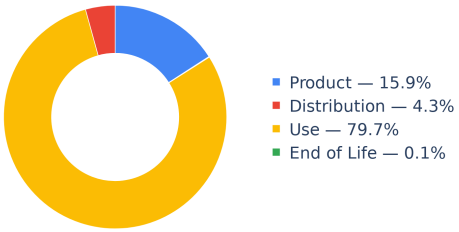
The product under study is the Ultrastar DC HC570, manufactured in Thailand. This product is a 3.5-inch, 22 TB enterprise-class nearline hard disk drive for data center storage systems.

Functional Unit:

The functional unit for the study is the use of a Ultrastar DC HC570 for 5 years. Results are provided per functional unit and per 1 TB-year.

Summary:

The total carbon footprint for this product is **183.58 kgCO_2e**, with the highest impact attributed to the use phase. The assessment is Cradle to Grave and as such does include emissions from Distribution, Use and End of Life. Key inputs, like electricity during use phase and raw materials and manufacturing processes in the product phase contribute notably to the overall emissions.



Lifecycle Stage	**Total Emissions (kgCO_2e)**	**Total Emissions (kgCO_2e/TB-yr)**
Product	29.18	0.265
Distribution	7.80	0.071
Use[1]	146.34	1.330
End of Life	0.25	0.002

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)**	**Total Emissions (kgCO_2e/TB-yr)**
Raw Materials	Consumed Raw Materials	19.13	0.174
Manufacturing	Manufacturing Inputs & Assembly	9.97	0.091
Packaging	Packaging Inputs and Materials	0.08	0.001

Compliance and Data Assurance

Sluicebox has been independently evaluated by TÜV for ISO 14040 and ISO 14044. In this LCA report, all values comply with ISO standards, ensuring that the life cycle assessment 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.