

# Life Cycle Assessment: Western Digital WD Blue® Hard Disk Drive (HDD)

## Product Description:

Model	3.5" WD Blue HDD WD20EZRZ
Product Type	Client HDD
Product Weight	594 gm
Packaging Weight	158 gm
Storage Capacity	2 Terabyte <sup>1</sup>
Disk Speed	5400 RPM
Recording Technology	Conventional Magnetic Recording (CMR)
Application	Client (Desktop PC)

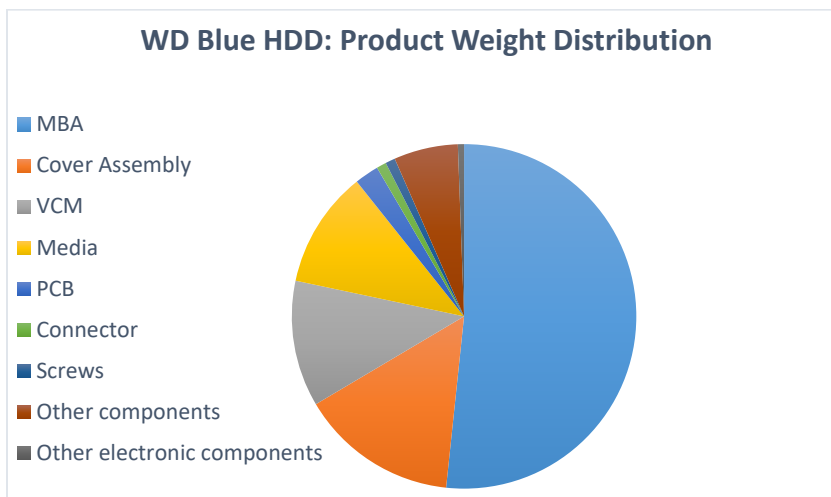


## LCA Calculation Basis:

Standard	ISO 14040:2006 and 14044:2006
LCA Software	GaBi ts [Version 10.0.0.71]
Impact Assessment Method	Life cycle impact assessment classification and characterization factors according to the Intergovernmental Panel on Climate Change (IPCC) 5 <sup>th</sup> Assessment Report for Global warming Potential (GWP), with 100 years of time horizon for kg CO <sub>2</sub> equivalent (carbon footprint)
Databases	GaBi 2020 LCI and Ecoinvent 3.6
System Boundary	The system boundaries include: <ul style="list-style-type: none"> <li>• Manufacturing (extraction of raw materials, upstream material preparation, electronic component manufacturing, subassembly manufacturing and final assembly of product)</li> <li>• Distribution to customer located in Japan</li> <li>• Five years of product use</li> <li>• End-of-life treatment according to waste management statistics in the customer country</li> </ul>
Validation of Study	Validated through 3 <sup>rd</sup> party critical review (EarthShift Global, LLC)

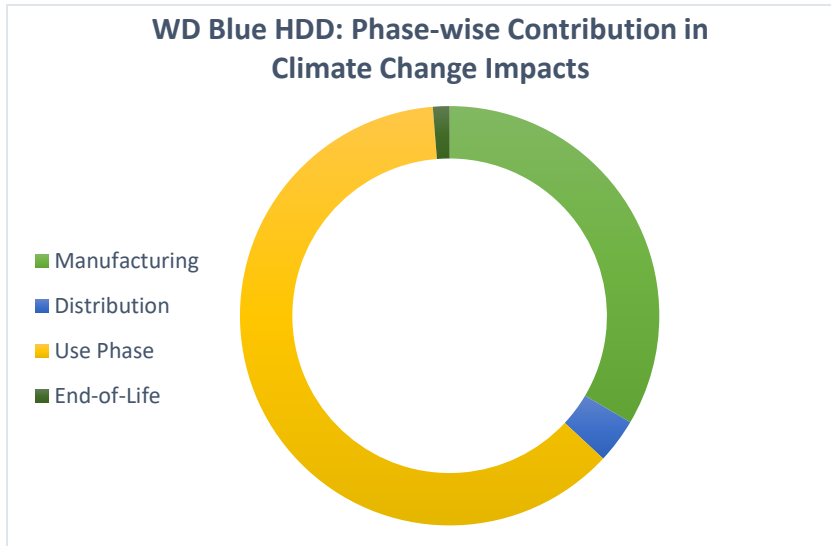
## Components Used:

The pie chart shows weight contribution of various components of the WD Blue HDD. Motor base assembly (MBA) contributes 52% of the weight, followed by cover assembly [15%], voice coiled motor (VCM) [12%], and media [11%]. The remaining 10% of the weight is from other components.



## Breakdown of Carbon Footprint by Life Cycle Stages<sup>ii</sup>:

Climate change impacts are dominated by the device use phase [62%], followed by manufacturing [34%], distribution [3%] and end-of-life [1%]. Use phase impacts are primarily attributable to energy consumed by the product during its useful life. Manufacturing impacts are driven largely by resource consumption during the product assembly & sub-assembly processes, which distribution phase impacts are focused on transportation of the product from the manufacturing location to the customer location.



<sup>i</sup> One terabyte (TB) is equal to one trillion bytes. Actual user capacity may be less due to operating environment.

<sup>ii</sup> \*Absolute climate change impact values & contribution details for each phase will be available upon request