EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-BF-23006E

Japan EPD Program by SuMPO
Sustainable Management Promotion Organization
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan
https://ecoleaf-label.jp/

Panasonic Connect Co., Ltd.

Toughbook FZ-G2 Series

Functional unit

Per unit of product

System boundary

■ final products　□intermediate products

Raw material acquision, Production, Distribution

Use & maintenance, End-of-Life

Main specifications of the product

Model name： Toughbook FZ-G2 series

CPU: Intel® Core™ i5-10310U processor, 1.70GHz or Intel® Core™ i7-10810U processor, 1.10GHz

Display: 10.1-inch WUXGA (1920 x 1200 dots), Capacitive multi-touch panel (AR processing) + digitizer

Weight: approx. 1.32 kg

Expected usage period: 4 years

*This product is sold for overseas and is for business use.

Company Information

Panasonic Operational Excellence Co., Ltd.

1006, Kadoma, Kadoma City, Osaka 571-8501, Japan

TEL:06-6908-1171

Registration#	JR-BF-23006E
PCR number	PA-520000-BF-04
PCR name	IT equipments
Publication date	9/29/2023
Verification date	9/11/2023
Verification method	Product-by-product
Verification#	JV-BF-23006
Expiration date	9/10/2028

PCR review was conducted by:

Approval date	8/15/2023
PCR review panel chair	Ken Yamagishi (Affiliation Sustainable Management Promotion Organization)

Third party verifier* Tetsuya Okuyama

The reviewer has 14 years of experience in the LCA field. The reviewer has reviewed 61 LCAs has conducted 184 LCAs as of the date of vericiation.
Independent verification of data & declaration in accordance with ISO14025

□internal　■external

*Auditor's name is stated if system certification has been performed.

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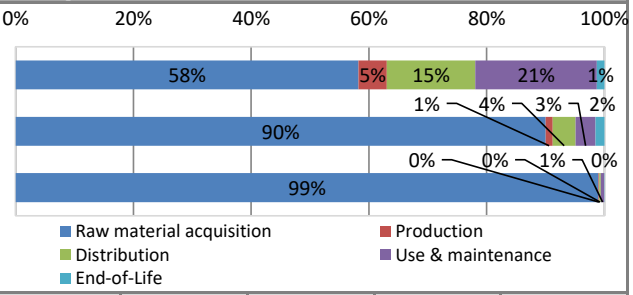
1. Results of life cycle impact assessment (LCIA)

Global warming IPCC2013 GWP100a	200	kg-CO2eq
Acidification	0.077	kg-SO2eq
Resources consumption	0.046	kg-Sbeq



Parameter \ stage	Unit	Total	Raw material acquisition	Production	Distribution	Use & maintenance	End-of-Life
Global warming IPCC2013 GWP100a	kg-CO_2eq	2.0E+02	1.2E+02	9.6E+00	3.0E+01	4.1E+01	2.6E+00
Ozone layer destruction	kg-CFC-11eq	6.8E-05	6.8E-05	8.0E-08	2.5E-10	2.5E-10	6.5E-09
Acidification	kg-SO_2eq	7.7E-02	6.9E-02	9.1E-04	3.0E-03	2.6E-03	1.2E-03
Urban area air pollution	kg-SO_2eq	5.0E-02	4.6E-02	3.6E-04	1.6E-03	7.9E-04	5.4E-04
Photochemical ozone	kg-C_2H_4eq	4.3E-03	1.3E-03	1.7E-05	2.9E-03	3.2E-05	5.6E-05
Toxic chemicals(cancer)	kg-C_6H_6eq	1.2E-02	1.2E-02	2.5E-06	9.9E-09	2.1E-06	1.3E-05
Toxic chemicals(chronic disease)	kg-C_6H_6eq	9.7E-05	9.5E-05	3.6E-07	1.5E-09	3.2E-07	1.9E-06
Aquatic toxicity	kg-C_6H_6eq	1.3E-01	1.2E-01	5.5E-04	2.2E-06	4.8E-04	3.0E-03
Biological toxity	kg-C_6H_6eq	5.2E+00	5.1E+00	1.3E-02	5.4E-05	1.2E-02	7.2E-02
Eutrophication	kg-PO_4^{3-}eq	4.6E-03	1.9E-04	4.4E-03	2.1E-13	3.6E-13	1.3E-05
Land use(Occupation)	m^2/year	1.6E+00	1.4E+00	7.0E-02	5.2E-02	8.3E-02	9.1E-03
Land use(Transformation)	m^2	2.9E-02	2.4E-02	1.4E-03	1.0E-03	1.7E-03	1.9E-04
Resources consumption	kg-Sbeq	4.6E-02	4.6E-02	5.5E-05	1.3E-04	2.7E-04	1.1E-05

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	1.1E+01	kg
Non-renewable energy resources	6.6E+01	kg
Non-renewable energy resources	2.8E+03	MJ
Renewable material resources	6.4E+00	kg
Renewable primary energy	1.1E+02	MJ
Consumption of freshwater	2.3E-01	m^3
Emissions, carbon dioxide (fossil), air, unspecified	1.7E+02	kg
Resources, crude oil, 44.7MJ/kg, ground, Non-renewable energy resources	2.3E+01	kg
Emissions, volatile organic compound, air, unspecified	6.6E-06	kg

3. Material composition

Material		Unit
Resin	31	%
Magnesium	18	%
Silicon	14	%
Copper	10	%
Glass	6.7	%
Other	6.2	%
Other metals	5.5	%
Aluminium	3.8	%
Iron	2.0	%
Elastomere	1.9	%
Stainless steel	0.7	%
Zinc	0.6	%
Nickel	0.4	%
Corrugated board, paper	0.0	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	2.6E+00	kg
Treated MSW for landfill	1.5E-02	kg
Treated industrial waste for landfill	2.6E+00	kg

*Data derived from LCA and not assigned to the impact categories of LCIA

5. Additional explanation

・Product name: FZ-G2
・Product type of scenario used: notebook personal computer, tablet terminal
・Measurement conditions: measurements were made according to the measurement method specified in the "Computers Specification Version 8.0".
・The estimated usage period was determined based on the statutory useful life for depreciation.
Main product specifications
-CPU type and clock frequency: Intel® Core™ i5-10310U processor, 1.70GHz or Intel® Core™ i7-10810U processor, 1.10GHz
-Main memory capacity: 16 GB
-Memory capacity: 512 GB (PCIe)
-Drive type: SSD
Display size and type: 10.1" WUXGA (1920 x 1200 dots) (16:10) Capacitive multi-touch panel (AR processing) + digitizer, Minimum brightness approx. 2 cd/m2, Maximum brightness approx. 1000 cd/m2 (average)
-Main unit weight: approx. 1.32 kg
-Assumed users of the target: Business use
-Disposal scenario: since this is a product for overseas market, it is difficult to set the amount of recycling. Therefore, the recycling rate was calculated as 0% in accordance with annex E: disposal and recycling scenarios of PCR.
-In this calculation, models with Intel® Core™ i5-10310U processor were calculated as the FZ-G2 series.

6-1. Supplementary environmental information

The product complies with the European RoHS Directive.
EU Declaration of Conformity, Document Number D21-MSBD-C001-02
https://www.ptc.panasonic.eu/compliance-documents?category=Select+product+name&type=
This product and its main components are manufactured in an ISO 14001 certified factory.
Certification ID, LRQA 10091194
https://holdings.panasonic/jp/corporate/sustainability/pdf/eco_isolist2021.pdf

7. Assumptions of secondary data used

IDEA v2.1.3 and program registration intensity v1.13.

8. Remarks

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- For data quantification, please refer to PCR and Rules on quantification and declaration.
- Comparative assertion is permitted only when Rules on quantification and declaration are satisfied.
(Reference URL : https://ecoleaf-label.jp/regulation/)