Pixelbook Go

Product environmental report

Environmental sustainability at Google

At Google, operating in an environmentally sustainable way has been a core value from the beginning. As our business has evolved to include the manufacturing of electronic products, we've continually expanded our efforts to improve each product's environmental performance and minimize Google's impact on the world around us.

This report details the environmental performance of the Pixelbook Go over its full life cycle, from design and manufacturing through usage and recycling.

Product highlights

EPEAT registered with Silver rating for sustainability[2,3,4]

ENERGY STAR® for Computers, Versions 7.1 and 8.0

The Pixelbook Go is designed with the following key features to help reduce its environmental impact[1]:

- ⊘ EPEAT Silver

- ⊘ Mercury-free LED-backlit display

- ⊘ Arsenic-free glass

- ⊘ PVC-free

- ⊘ Brominated flame retardant-free

- ↻ 97% paper and fiber-based packaging

- ⚡ ENERGY STAR®

- ⚡ Power adapter with Level VI efficiency rating

Greenhouse Gas (GHG) emissions

The production, transportation, use, and recycling of electronic products generate GHG emissions that can contribute to rising global temperatures. Google conducts a life cycle assessment on products to identify materials and processes that contribute to GHG emissions, with the goal of minimizing these emissions.

Estimated GHG emissions for Pixelbook Go[5]

Total GHG emissions assuming a four-year use period:
195 kg CO_2 e

Production	Transportation	Customer use	Recycling
82%	4%	13%	1%
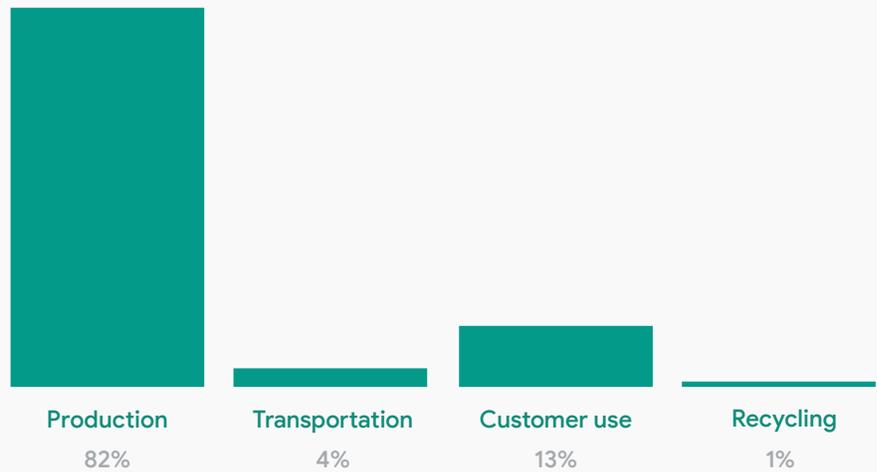
Energy efficiency

The Pixelbook Go uses an energy efficient DOE Level VI power adapter[6] and incorporates power-management software to maximize battery-charging efficiency and extend battery life during use.
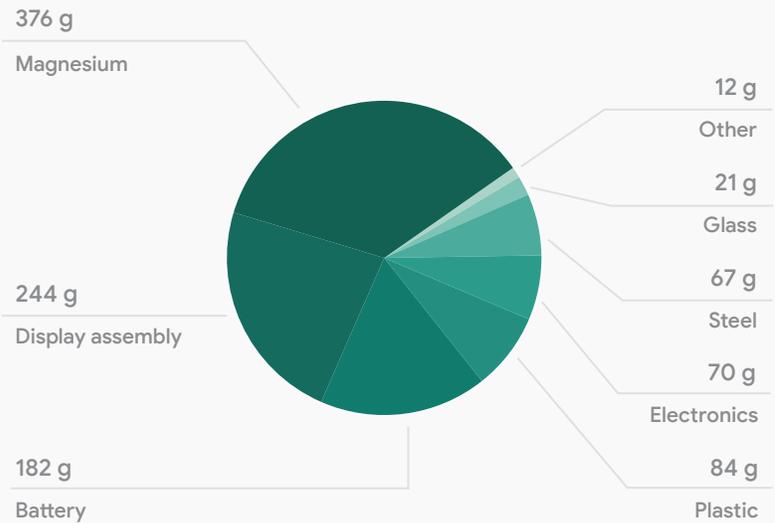
Energy efficiency of Pixelbook Go

Mode	115 V, 60 Hz	230 V, 50 Hz
Power adapter average efficiency[7]	83.7% at 5 V output 89.6% at 20 V output	82.5% at 5 V output 90.0% at 20 V output
Power adapter no-load power[8]	0.03 W	0.03 W
Off mode power	0.3 W	0.2 W
Sleep mode power	0.4 W	0.5 W
Long idle mode power (display off)	1.9 W	1.9 W
Long idle mode power (display on)	3.2 W	3.4 W
Annual energy use estimate[9]	12 kWh	13 kWh
Annual cost of energy estimate	US$1.56[10]	€2.86[11]

Material use

The Pixelbook Go is designed to be light and compact. Minimizing the size and weight of the Pixelbook Go allows materials to be used more efficiently, thereby reducing the energy consumed during production and shipping as well as minimizing the amount of packaging.

Materials used in Pixelbook Go

Total materials: 1056 g[12]

376 g
Magnesium

12 g
Other

21 g
Glass

67 g
Steel

70 g
Electronics

84 g
Plastic

244 g
Display assembly

182 g
Battery

Battery

⚡ Lithium-ion polymer

✓ Free of cadmium, lead, and mercury[1]

Restricted substances

Historically, many electronic devices contained materials such as lead, mercury, cadmium, and brominated flame retardants that pose environmental and health risks. We designed the Pixelbook Go to meet global regulations that restrict harmful substances, including the following:

✓ European RoHS Directive restrictions on lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), and four different phthalates (DEHP, BBP, DBP, DIBP)

✓ European Battery Directive restrictions on lead, mercury, and cadmium batteries

✓ European Packaging Directive restrictions on lead, mercury, cadmium, and hexavalent chromium in packaging

Voluntary substance restrictions

The Pixelbook Go also meets the following voluntary substance restrictions[1]:

- ✓ Mercury-free LED-backlit display
- ✓ Arsenic-free glass
- ✓ PVC-free
- ✓ Brominated flame retardant-free

Packaging

Packaging for the Pixelbook Go uses 97% paper and fiber-based materials. The chipboard material used in the box base and lid is made with 100% recycled content. We have designed the Pixelbook Go packaging to minimize its weight and volume, which helps conserve natural resources and allows more devices to be transported in a single shipping container.

Packaging materials for Pixelbook Go

(U.S. configuration retail packaging)

Material	Mass
Paper / fiber-based	945 g
Plastic	26 g
Total packaging	971 g

Ethical sourcing

Google and its subsidiaries are committed to ensuring that working conditions in our operations and in our supply chains are safe, that all workers are treated with respect and dignity, and that business operations are environmentally responsible and ethically conducted. Learn more about our expectations for manufacturing partners in the Google Supplier Code of Conduct, our 2019 Responsible Supply Chain Report, and our Conflict Minerals Policy.

Learn more

For more information about our environmental sustainability initiatives—including case studies, white papers, and blogs—please see our Sustainability website and our 2019 Environmental Report.

Learn how to recycle your used device in the Google Store Help section of our website.

Endnotes

1. Google defines its restrictions on harmful substances, including definitions for what Google considers to be "free of," in the Google Restricted Substances Specification.

2. This product is EPEAT registered in the US only. The packaging contains 85% recycled content for wood-based fiber packaging.

3. Life cycle water consumption: 1136 liters per Pixelbook Go; Life cycle primary energy from non-renewable resources: 2164 MJ per Pixelbook Go.

4. For the facilites responsible for the design of the EPEAT-registered notebooks/computers, there was a calculated 15% reduction in normalized-energy consumption for the last three years, and total annual water use of 996,257 hundred cubic feet. Water use covers calendar year 2018 water inventory for indoor, irrigation, and recycled water usage.

5. GHG emissions estimates are calculated in accordance with ISO 14040 and ISO 14044 requirements and guidelines for conducting life cycle assessments, and include the production, transportation, use, and recycling of the product, accessories, and packaging.

6. Level VI is the highest available efficiency rating for power adapters as defined in the International Efficiency Marking Protocol for External Power Supplies Version 3.0.

7. Average efficiency of power adapter when input and output power is measured at 25%, 50%, 75%, and 100% of rated output current and averaged. Tested in accordance with the U.S. Department of Energy Uniform Test Method for Measuring the Energy Consumption of External Power Supplies.

8. Power measured when the power adapter is plugged into an AC power source without being connected to the product. Tested in accordance with the U.S. Department of Energy Uniform Test Method for Measuring the Energy Consumption of External Power Supplies.

9. Estimated energy use is based on the calculated Typical Energy Consumption (TEC) method described in ENERGY STAR Program Requirements for Computers, Versions 7.1 and 8.0.

10. The average residential cost of energy for U.S. households is $0.13 per kWh (source: U.S. Energy Information Agency Feb 2019 report).

11. The average household cost of energy for consumers in the EU-28 was €0.22 per kWh in the first half of 2019 (source: Eurostat Statistics Explained).

12. Product material masses are for Pixelbook Go only. For the U.S. configuration, an additional 186 g of electronic accessories can be included in-box.