Google Daydream View
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 Google Daydream View over its full life cycle, from design and manufacturing through usage and recycling.

Product highlights

The Daydream View VR headset is designed with the following key features to help reduce its environmental impact:
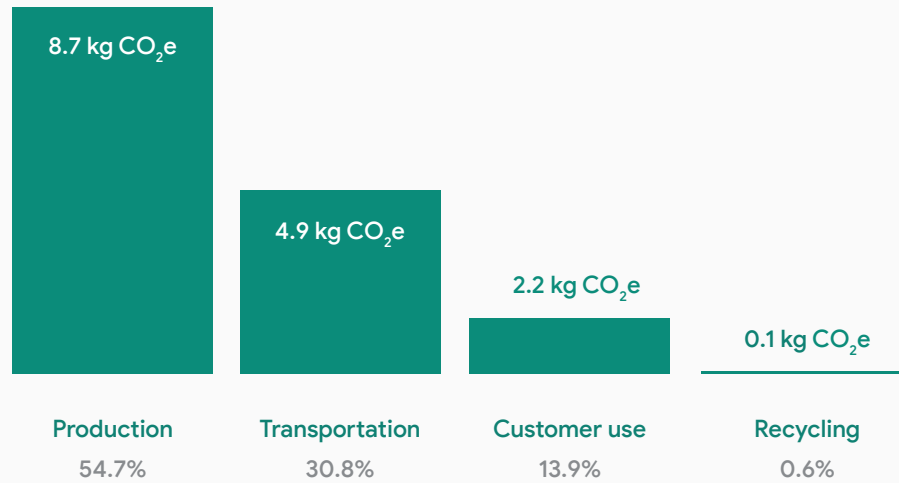
- ⊘ PVC-free

- ⊘ Brominated flame retardant-free

- ↻ 97% paper and fiber-based packaging

- ⚡ Controller standby power less than 0.2 W

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 Daydream View[1]

Total GHG emissions over four-year life cycle: 15.9 kg CO_2e

8.7 kg CO_2e	4.9 kg CO_2e	2.2 kg CO_2e	0.1 kg CO_2e
Production 54.7%	Transportation 30.8%	Customer use 13.9%	Recycling 0.6%

Energy efficiency

The Daydream View controller incorporates power-management software to maximize battery-charging efficiency and extend battery life during use.

Energy efficiency of Daydream View

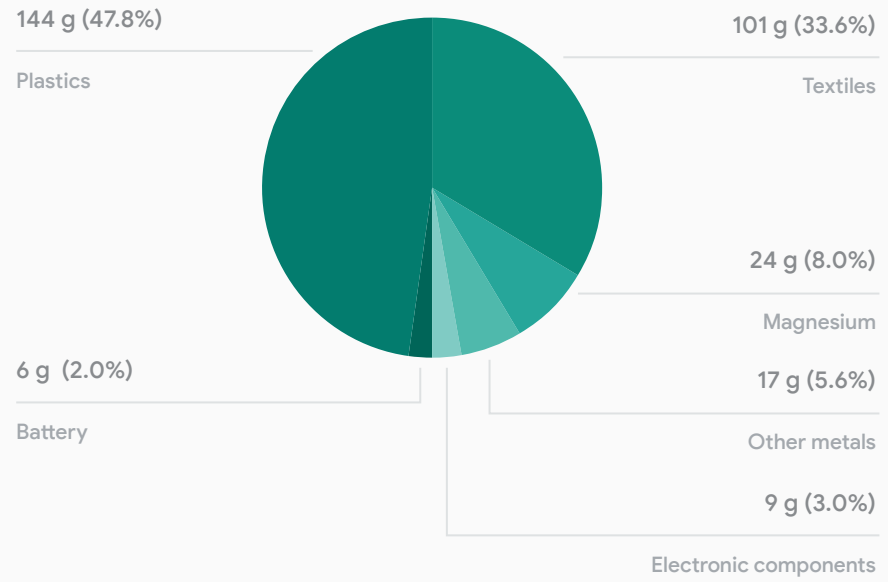| Mode	115 V, 60 Hz	230 V, 50 Hz
Standby power (battery maintenance mode)[2]	0.11 W	0.11 W
Annual energy use estimate[3]	2.6 kWh	2.5 kWh
Annual cost of energy estimate	US$0.34[4]	€0.53[5]

Daydream View controller battery

⚡ Lithium-ion polymer

✓ Free of cadmium, lead, and mercury

Material use

Daydream View is designed to be light and comfortable. Minimizing the size and weight of Daydream View and its controller 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 Daydream View (Including headset and controller)

Total materials: 301 g

144 g (47.8%)
Plastics

101 g (33.6%)
Textiles

24 g (8.0%)
Magnesium

17 g (5.6%)
Other metals

6 g (2.0%)
Battery

9 g (3.0%)
Electronic components

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 Daydream View to meet global regulations that restrict harmful substances, including the following:

- ⊘ European RoHS Directive restrictions on lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)

- ⊘ European Battery Directive restrictions on lead, mercury, and cadmium in batteries

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

Voluntary substance restrictions

Daydream View also meets the following Google voluntary substance restrictions:

- ⊘ PVC-free
- ⊘ Brominated flame retardant–free

Packaging

Packaging for Daydream View uses 97% paper and fiber-based materials. We have designed the 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 Daydream View

(U.S. configuration retail packaging)

Material	Weight
Paper	300 g
Plastics	9 g
Total packaging	309 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 2016 Creating a 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 Environment website and our Environmental Report: 2017 Progress Update.

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

Endnotes

1. 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.

2. Power is measured with controller in standby mode with fully charged battery and attached to a Google USB power adapter (sold separately). Testing is done in accordance with the U.S. Department of Energy Uniform Test Method for Measuring the Energy Consumption of Battery Chargers.

3. Estimated energy use is based on one hour of controller use per day and charging with a dedicated Google USB power adapter (sold separately). Testing is done in accordance with the U.S. Department of Energy Uniform Test Method for Measuring the Energy Consumption of Battery Chargers. Energy use of the mobile phone used with the Daydream View headset is not included in this estimate.

4. The average residential cost of energy for U.S. households is $0.13 per kWh (source: U.S. Energy Information Agency May 2017 report).

5. The average household cost of energy for consumers in the European Union was €0.211 per kWh in the second half of 2015 (source: Eurostat Statistics Explained).