Nest Mini (2nd gen)
Product environmental report
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 Nest Mini (2nd gen) over its full life cycle, from design and manufacturing through usage and recycling.

Google Nest Mini is designed with the following key features to help reduce its environmental impact:

- PVC-free¹
- Brominated flame retardant-free¹
- External enclosure contains 41% post-consumer recycled plastic²
- 98% paper and fiber-based packaging
- 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 Nest Mini

Total GHG emissions assuming four years of use: 40 kg CO₂ e

Energy efficiency

Nest Mini uses an energy efficient DOE Level VI power adapter.

Energy efficiency of Nest Mini (2nd gen)

<table>
<thead>
<tr>
<th>Mode</th>
<th>115 V, 60 Hz</th>
<th>230 V, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power adapter average efficiency</td>
<td>84.7%</td>
<td>85.0%</td>
</tr>
<tr>
<td>Idle power</td>
<td>1.22 W</td>
<td>1.29 W</td>
</tr>
<tr>
<td>Active mode (music) power</td>
<td>2.48 W</td>
<td>2.59 W</td>
</tr>
<tr>
<td>Annual energy use estimate</td>
<td>12 kWh</td>
<td>13 kWh</td>
</tr>
<tr>
<td>Annual cost of energy estimate</td>
<td>US$1.56</td>
<td>€2.86</td>
</tr>
</tbody>
</table>
Nest Mini is designed to be small. Minimizing the size and weight of Nest Mini 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 Nest Mini

Total materials: 181 g

Recycled materials

- External enclosure contains 41% post-consumer recycled plastic

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 Nest Mini 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 Packaging Directive restrictions on lead, mercury, cadmium, and hexavalent chromium in packaging
Voluntary substance restrictions

Nest Mini also meets the following voluntary substance restrictions:

- PVC-free¹
- Brominated flame retardant-free¹

Packaging

Packaging for Nest Mini uses 98% paper and fiber-based materials. We have designed Nest Mini 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 Nest Mini (U.S. configuration retail packaging)

<table>
<thead>
<tr>
<th>Material</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper / fiber-based</td>
<td>193 g</td>
</tr>
<tr>
<td>Plastic</td>
<td>3 g</td>
</tr>
<tr>
<td>Total packaging</td>
<td>196 g</td>
</tr>
</tbody>
</table>

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. External enclosure consists of housing, fabric, and foot.

3. 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.

4. 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.

5. 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.

6. Estimated energy use is based on two hours per day of using the digital assistant and/or playing music at a moderate volume.

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

8. 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).

9. Product material masses are for Nest Mini only. For the U.S. configuration, an additional 78 g of electronic accessories can be included in-box.