

Product Environmental Report

Galaxy S23

2023.02.01



At Samsung, we work to embed eco-conscious technology and innovation in all of our products. By considering sustainability at every step of the product life cycle, we aim to empower our customers to join us in our journey to build together a better tomorrow.

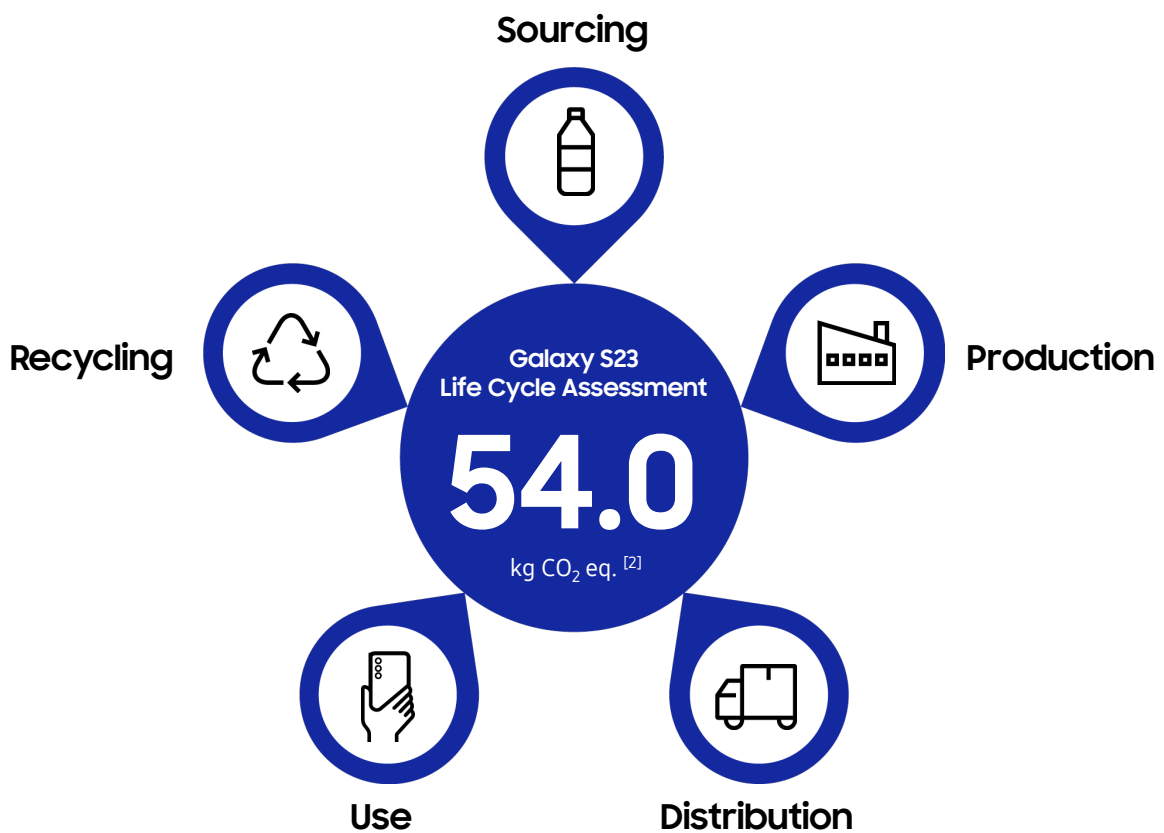


[1]

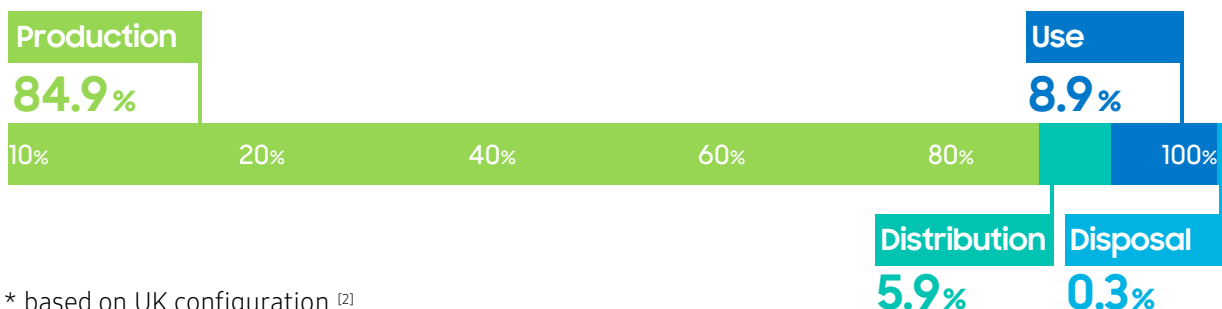
Product Carbon Footprint

To understand the environmental impacts of our products, at Samsung Electronics, we assess a product’s entire life cycle, including the sourcing, production, distribution, product use and recycling phases.

At the production stage, we are aiming to expand the development and application of recycled materials with a lower carbon footprint. At the distribution stage, we are working to minimize packaging volume and weight to reduce carbon emissions. Through initiatives like improving the energy efficiency of chargers, we are trying to improve the environmental impact at the use stage.



Galaxy S23 life cycle carbon emissions



* based on UK configuration [2]

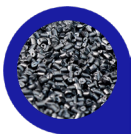
Sourcing



Across the product lifecycle, from raw material sourcing to disposal and recycling, we are doubling down on efforts toward creating a circular economy.

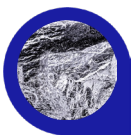
To build toward a circular system, we are using recycled materials and collecting e-waste to extract materials for reuse. By 2030, we aim for 50% of the plastic used in our DX products to incorporate recycled resin. By 2050, we will see this figure increase to 100%.

Samsung Galaxy S23 has a wider variety of recycled materials than any other Galaxy smartphone, including pre-consumer recycled aluminum and glass and post-consumer recycled plastics sourced from discarded fishing nets, PET bottles and water barrels.



Plastic

For the internal components of the Galaxy S23, 20% of the plastic parts by weight come from repurposed plastic sourced from discarded fishing nets and water barrels. For external antenna lines, 10% of the plastic parts by weight come from recycled PET bottles. For the back glass, 80 % of the deco film comes from recycled PET. ^[4]



Aluminum

28% of the aluminum used by weight is recovered scrap sourced from during the manufacturing processes, and used in the volume keys, side key, and SIM card tray components on the side of the device.



Glass

The Galaxy S23 is the first device to use Corning® Gorilla® Glass Victus® 2, which contains an average of 22% pre-consumer recycled glass for front screen and back cover.



Chemical Mgmt.

To prevent hazardous substances from entering our products, we inspect manufactured parts and raw materials rigorously through our chemical management system. ^[5]

Our Standards for the Control of Substances Used in Products^[6] are based on global regulations and standards, and we voluntarily established reduction plans for the use of potentially hazardous substances, such as polyvinyl chloride(PVC), brominated flame retardants(BFRs), beryllium, and antimony, as well as legally regulated substances.

Production



We are expanding the use of renewable energy at our business sites around the world.

Energy infrastructure and regulations which vary widely by jurisdiction require region-specific transition plans.



Renewable Energy

Safety and health certification at our production sites

100%

We plan to run all operations of the DX Division on renewable energy by 2027. ^[7]

All of our business sites where Galaxy S23 is produced have attained ISO14001(environmental management system) and ISO50001(energy management system) certifications. ^[8]

Company-wide, we plan to obtain a platinum-level Zero Waste to Landfill Certification, issued by safety certification organization Underwriters Laboratories(UL), for all global operations by 2025.



Distribution



To reduce the environmental impact of our product packaging, we are replacing plastic packaging and protective films with paper and recycled materials.

We are also reducing the volume and weight of packaging to mitigate Green House Gas emissions in the transportation and shipping process.



Eco Packaging

Our goal is to eliminate all single-use plastics in mobile product packaging by 2025. Since 2017, we have been exploring ways to eliminate single-use plastics in packaging by assessing every aspect of packaging design, down to the smallest details. ^[9]

Plastic in packaging **1.9%**

As a result, Galaxy S23 contains only 1.9% of plastic in terms of the total weight of packaging. ^[10]

Reduced plastic in packaging **96.8%**

Compared to Galaxy S7, we reduced the use of plastic in packaging for Galaxy S23 by 96.8%.

Recycled paper **100%**

We use 100% recycled paper for the Galaxy S23 packaging box. ^[11]



Use



Environmental experts support product development at Samsung Electronics so we can empower our customers to use our products more sustainably.

During the product development phase, our stress tests help ensure the longevity and consistent performance of our products. This enables users to enjoy our products for longer periods of time.



To reduce use-phase carbon emissions, we set our plan to reduce power consumption by 30% compared to products with the same specifications in 2019. ^[10] Our new products follow this plan.

* Galaxy S23 battery use time ^[12]

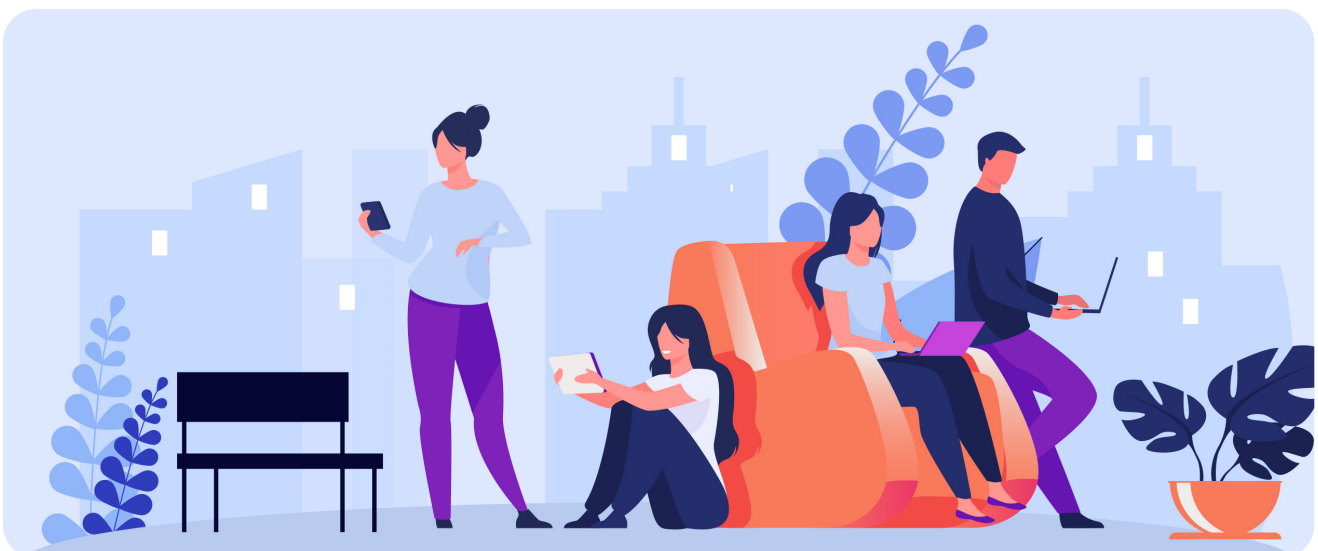


Repairability is one of our main priorities in product development. In August 2022, we expanded the number of authorized and independent service providers, started a self-repair program in the US and will continue to expand this program.

Security Update & OS Upgrade

5 yrs & 4 gens

Galaxy S23 has IP68 ^[13] water resistance and dust protection, and we provide four generations of OS upgrades and five years of security updates.



Recycling



To promote the circular economy and a low-carbon society, we are expanding responsible recycling globally.

Samsung's local recycling programs provide collection services tailored to each region for customers disposing e-waste, and we take back all electrical and electronic waste regardless of product brand.



Collection

Samsung Electronics has installed used mobile phone and accessory collection boxes at repair centers in 34 countries including the US, Brazil, and Spain, to take back e-waste from customers. We plan to expand the scope of our e-waste collection system from approximately 50 countries to about 180 countries by 2030.

Collected electronic goods are sorted, pre-processed, and shredded to be recycled as materials. Some of the materials like plastic are used for new product manufacturing. We also internally operate Requirements for Recycling Service Partners that specify compliance obligations related to EHS-related laws and regulations, supplier management, prohibition of illegal waste exportation, etc.



Endnotes

Disclaimer

1. UL certified only for the US configuration.
2. The Carbon Trust of the UK calculated greenhouse gases generated in the entire process from product production to disposal in accordance with the Carbon Footprint Evaluation Standard(PAS 2050) and obtained the 'CO₂ Measured' certification to evaluate product carbon emissions. Based on the certification results, Samsung Electronics continues to make efforts in the product development stage to improve the environmental characteristics of the product.
 - PAS 2050:2011 – Specification for the assessment of the life cycle greenhouse gas emissions of goods and services
 - Product Carbon Footprints : Requirements for Certification v2
 - Database : Footprint Expert v4.4, EcoInvent 3.8
3. System boundary of Life Cycle Assessment
 - Production : Pre-manufacturing(Parts and materials constituting the products and its transportation) and Product assembly by Samsung Electronics / Distribution : From Vietnam to UK / Use : 3 years use / Disposal : Waste treatment of parts and material
4. Recycled materials have undergone Environmental Claim Validation(ECV) by UL.
Method : Environmental Claim Validation Procedure for Recycled content, UL 2809 – Fifth Edition
 - PCM 20% : Top speaker module upper & lower, Bottom speaker module upper, Volume key, Side key
 - OBP 5% + PCM 15% : Bottom speaker module lower
 - Recycled PBT 10% : Front insert
 - Recycled PET 80 % : Deco film of the back glass
 - * OBP : Ocean Bound Plastic
 - * PCM : Post Consumer Material
 - * Recycled PBT : Recycled Polybutylene Terephthalate
5. Samsung hereby declares that all Samsung electronic devices are compliant with the following regulations:
 - Directive 2011/65/ EU on the Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment.
 - REACH SVHC Regulation(EC) No 1907/2006
 - The California's Electronic Waste Recycling Act of 2003
 - European Parliament and Council Directive 94/62/EC
 - EU Battery Directive 2006/66/EC
 - WEEE : Directive 2012/19/EC
 - ISO11469:2016 Plastics - Generic identification and marking of plastics products
6. Standards for the Control of Substances Used in Products
<https://www.samsung.com/us/sustainability/environment/environment-data/>
7. Samsung Electronics has joined RE100, in a collaborative effort to reduce indirect carbon emissions from power consumption, and aims to match electric power needs with renewable energy by 2050 for all operations globally. As part of this initiative, Samsung Electronics plans to run all operations outside of Korea as well as the DX Division on renewable energy within five years. The company's renewable energy sourcing methods will include, but not limited to, signing power purchase agreements(PPA), purchasing renewable energy certificates and participating in green pricing programs.
8. Our business sites are required to meet international standards for ISO14001(environmental management system) and ISO50001(energy management system) certifications. We also strive to ensure that our suppliers have robust occupational health and safety management systems in place by encouraging them to attain certification for international standards and reflect related outcomes in the comprehensive supplier evaluations. As of 2021, all business sites of Samsung Electronics have attained the certifications and 86% of suppliers subject to comprehensive evaluation of partner have acquired the certification.

Endnotes

9. History of Galaxy S Eco-Conscious Packaging

<https://news.samsung.com/us/infographic-history-of-galaxy-s-eco-conscious-packaging/>

10. To meet the request of some clients, plastic shrink vinyl or PP sealing sticker is applied to some packaging variations.

11. 100% recycled paper was applied to the product package unit box, excluding PP sealing sticker and shrink vinyl at the request of some clients, and pulp tray inside packaging. The Paper used in the package box has been verified by the Forest Stewardship Council as 100% recycled.

12. Galaxy S23 battery use time

Battery capacity (Typical)	Internet use time (LTE)	Internet use time (Wi-Fi)	Continuous call time
3,900mAh	Up to 20Hours	Up to 20Hours	Up to 35Hours

Typical value tested under third-party laboratory condition. Typical value is the estimated average value considering the deviation in battery capacity among the battery samples tested under IEC 61960 standard. The rated capacity declared by the battery manufacturer is 3,785mAh.

Battery use time is calculated based on the power measured in our laboratory based on the initial shipment status product. Battery use time can be updated and changed to measure in conditions similar to the consumer environment. The actual battery charging time, use time, and lifetime may vary depending on the network environment, the apps used, the amount of calls and messages, the frequency of charging, usage patterns, applications, and other factors.

<https://www.samsung.com/uk/support/battery/>

13. Based on test conditions for submersion in up to 1.5 meters of freshwater for up to 30 minutes. Not advised for beach or pool use.

Recycling

Samsung established waste collection systems in each region as we work tirelessly to enhance the collection and recycling of waste products. We also offer product take-back and recycling services for Samsung products in countries with local take-back legislation. We are always looking to expand to additional locations.

<https://www.samsung.com/us/sustainability/environment/environment-data/>

Eco-Management

Samsung Electronics set the foundation for eco-management as a philosophy for the 21st century through the commitments made in the Samsung Environmental Declaration in 1992. Since then, we have gone beyond mere passive adherence to environmental regulations and laws. We have put eco-management into action and are leading the way to a sustainable future by offering our customers eco-friendly products. We believe a healthy environment is essential to the future of society.

Corporate Sustainability Management

Samsung is constantly striving to deliver innovative products and services across the value chain. This is rooted in our core values in economy, society and environment. Therefore, we monitor the financial and non-financial impacts that we exert on society in order to maximize our positive impacts while minimizing any negative ones.

<https://www.samsung.com/global/sustainability/main/>