

**SAMSUNG**

# Together for tomorrow

Reimagining a better planet with Smart Signage



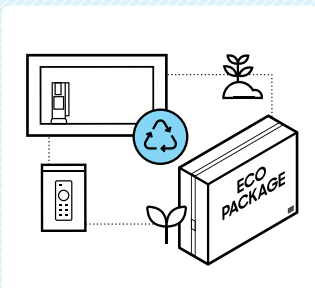
## At a glance

With the advancement of industrial technology, we are now benefiting from a more prosperous civilization than ever before. However, we must recognize that every choice comes with considerations and consequences. Experts warn of the environmental problems as a result of this advancement, which occur during resource extraction and future resource depletion risks, raising issues about various environmental problems such as global warming and disposal of hazardous substances.

These environmental issues are increasingly highlighted and digital signage is no exception. There is a growing movement to favor environmentally friendly products. Now, when selecting signage, eco-conscious factors are another important criterion in how a purchasing decision is made.

Samsung is aware of this ongoing issue and has prepared and implemented a variety of countermeasures. In particular, due to the typically long usage time and lifespan of Samsung Smart Signage products, we are considering various eco-conscious factors and assessing every process from initial production to disposal after use. We are developing products that use recycled materials to minimize waste of resources, have certified energy efficiency grades and meet industry standards for the handling of hazardous substances.

In addition, we are striving to satisfy eco-conscious requirements by strengthening our entire range of processes, through manufacturing, packaging, usage, and disposal. Samsung's efforts toward the environment have been officially verified through the acquisition of recognized international certifications, such as passing the electronic product environmental assessment and obtaining a carbon dioxide reduction certification.



### Resource conservation

**“Optimize resource consumption using recycled materials”**

Through our efforts toward efficient resource circularity, we seek ways to efficiently use resources through technological innovation in product manufacturing and unboxing. Whether it is using recycled materials or reusing unavoidably generated waste or end-of-life products, Samsung will spare no effort in finding ways to utilize resources while making better products.



### Energy efficiency

**“Reduce power consumption with advanced technology”**

Samsung has achieved high energy efficiency by reducing power consumption for more eco-conscious product operation. This innovation in designing energy efficient products is just one of the ways we are addressing climate change, with Samsung's advanced technology receiving certified energy label recognition, validating our eco-conscious efforts to ensuring longer product lifecycles.



### Non-hazardous substances

**“No use of materials toxic to the environment”**

Samsung complies with global guidelines and laws through its environmental efforts, including RoHS, REACH and WEEE for hazardous substances. There are several required guidelines which we strive to meet and exceed where possible by using safe and eco-conscious substances in all Samsung Smart Signage products and technologies.

# Resource conservation

Samsung has increased resource circularity by applying eco-conscious processes to both inside and outside product packaging. We reduced greenhouse gas emission with post and pre-consumer recycled resin, while the accessory bag and box strap is made from recycled plastic trash. Also, Samsung developed a screw-less design and replaced all staples with glue to reduce waste of materials. These efforts make it possible to meet the needs of eco-conscious consumers who want to increase resource circularity.

## 1) Product

: Production of rear cover using recycled resin\*

: Screw-less design

\* PC+ABS+ED20(PCM10% applied)

## 2) Packaging

: Using recycled plastic, accessory bag, box clip, box strap

: Glue bonding instead of metal staples on the side of the box

: Changed box printing specifications : reducing ink usage by dot printing instead of solid

Packaging material	Post consumer recycled contents*	Pre consumer recycled contents**
Housing plastic	10%	N/A
Outer box	30~100% (About 50%)	N/A
Accessory bag	N/A	50%

\* Recycling that materials has already used by consumer.

\*\* Recycling that materials has generated during manufacturing process.

\*\*\* The figures in the table indicate the ratio of each recycled content input to individual products.



In order to minimize waste and efficiently use resources, the establishment of a resource circulation system is essential and can be considered a basic element. In response, Samsung Electronics is operating the Re+ program – a collection program for used appliances globally including Samsung Smart Signage, and products that have reached the end of their lifespan. The products are collected through a recycling union or service center to which Samsung Electronics has joined. From there, the recovered waste appliances are recycled in an eco-conscious way and used again as a resource. Samsung is striving to build a society that circulates resources by analyzing the constituent materials of Smart Signage and evaluating the supply chain safety and environmental, social and economic impact of each material from a variety of angles.

# Energy efficiency

Samsung's Smart Signage uses power-efficient components and software that intelligently manages power consumption. This increased energy efficiency also reduces fossil fuel energy consumption such as coal, crude oil, and natural gas which creates Co2. We have been continually developing ways to improve power consumption efficiency for a longer product lifecycle, while also reducing Co2 emissions.

Samsung has received multiple certifications for energy efficiency, including the UL-verified Energy Star label which proves the efficient power consumption capabilities of Samsung's Smart Signage. We provide enhanced power consumption functionality through a variety of product lineups.



	QH43B	QH50B	QH55B	QH65B	QH75B
Rating	125	160	145	185	240
Typical	93	106	115	152	195
Sleep Mode	0.5	0.5	0.5	0.5	0.5
Off Mode	N/A	N/A	N/A	N/A	N/A
Annual Energy Consumption(kWh)	136	155	168	222	285

	QM43B	QM50B	QM55B	QM65B	QM75B	QM43B(IPS)
Rating	100	155	130	165	210	100
Typical	79	91	108	127	161	83
Sleep Mode	0.5	0.5	0.5	0.5	0.5	0.5
Off Mode	N/A	N/A	N/A	N/A	N/A	N/A
Annual Energy Consumption(kWh)	115	133	158	185	235	121

	QB43B	QB50B	QB55B	QB65B	QB75B	QB55B-N	QB65B-N	QB75B-N
Rating	100	130	130	165	210	130	165	210
Typical	79	91	96	124	174	96	124	174
Sleep Mode	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Off Mode	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annual Energy Consumption(kWh)	115	133	140	181	254	140	181	254

\* Typical power consumption varies depending on the setting of the displays and country. (Test method : IEC62087 ed2)

\*\* Annual energy consumption: Operating 4 hours a day and 365 days a year.

\*\*\* Certifications vary by model.

One example of the energy efficient improvements Samsung has made is the QH55B, part of our high-end lineup, which now consumes 3% less energy than the previous model. This not only provides cost savings but reduces electricity use too. Plus, as this signage is typically installed in multiple units, it means the more displays installed the more energy efficiency increases.

Electricity Energy Cost 1,033kWh/yr \$103/yr



Conventional



Electricity Energy Cost 1,007kWh/yr \$100/yr



QH55B

\* "Conventional" refers to Samsung's QHR series.

## Non-hazardous substances

As part of Samsung's eco-conscious efforts, we review whether a product's constituents are harmful to the human body and surrounding nature. EU guidelines for hazardous substances and environmental laws on waste are very strict, meaning only products that comply with them can be distributed and sold. To minimize e-waste, we conduct a thorough preliminary review of the risk of waste quality itself.

### RoHS (Restriction of Hazardous Substances)

Directives from the EU have restricted the use of certain hazardous substances in electrical and electronic equipment. As such, manufacturers must prepare technical documentation to enable the assessment of product compliance with relevant requirements and follow conformity assessment procedures to determine whether a sufficient analysis and assessment of risks is included. Samsung Smart Signage products do not use the six hazardous substances specified in the RoHS regulations, proven by the declaration document. Samsung is continuously making efforts to develop products that cause no harm to the human body and surrounding nature.

### REACH (Registration, Evaluation, Authorization of Chemical)

Another guideline, REACH, provides regulations for a wider range of chemicals. REACH registration is required to manufacture, use or import chemicals within the European market. REACH streamlines and enhances the EU's previous regulatory framework for chemicals, meaning each registrant must now prepare a technical registration document, containing data on the substance and its uses, such as physicochemical or toxicological. REACH requires a Chemical Safety Report, including exposure scenarios and potential risk assessments. Samsung Smart Signage has obtained a declaration document in compliance with a wide range of chemical guidelines.

### WEEE (Waste of Electrical and Electronic Equipment)

The WEEE directive is an electrical and electronic waste disposal directive established by the EU. Samsung aims to collect, recycle, and reuse electrical and electronic products, while encouraging our partners that the collected waste be used in an environmentally friendly manner, such as eco-conscious disposal and reuse of waste electrical and electronic products. Samsung has obtained the WEEE emission mark and is fully compliant with national guidelines for recycling of materials used in products.

## Samsung Signage's housing plastic and packaging materials do not contain

### 1) Harmful substances fatal to the human body

: Brominated flame retardants (BFR), Chlorinated flame retardants (CFR)  
: Cadmium (Cd), Lead (Pb), Mercury (Hg) and Hexavalent chromium (Cr(VI))

### 2) Ozone depleting substances

: Chlorofluorocarbon (CFCs), Hydrogenated Chlorofluorocarbon (HCFCs), Halons

### 3) Hazardous substances affecting the natural environment

: Polyvinyl chloride (PVC)



# Sustainable innovation throughout entire product lifecycle

Each eco-conscious effort identified above is applied throughout the entire lifecycle of Samsung's Smart Signage lineup. Through this process, we assess each product's energy efficiency, resource efficiency, environmental hazard risks, environmental policy and Co2 emissions. These efforts are being applied throughout each stage of a product's lifestyle: manufacturing, packaging, unboxing, usage, and disposal. Our efforts to bring eco-conscious products and green technologies to market, contributing to worldwide sustainability efforts, is evident in our wide range of products, which boast a selection of eco-efficient technologies and features.



## Certified for a greener world

Samsung has been continuously making substantial efforts to introduce eco-conscious elements throughout our entire product process. As a result, we have obtained internationally recognized certifications, allowing us to better quantify our efforts, determine whether we are meeting our sustainability guidelines, as well as provide a baseline from which partners and consumers can more easily compare.



### EPEAT (Electronic Product Environment Assessment Tool)

The EPEAT\* ecolabel is the leading global Type-1 ecolabel for technology products, jointly certified by the Green Electronics Council and UL (Underwriters Laboratories). Samsung is committed to meeting the standards required by EPEAT, which evaluates various items such as prohibition of the use of hazardous substances, energy efficiency of products, ease of disassembly and recycling of products and packaging materials. The standards presented by EPEAT encompass the eco-conscious standards that have been released so far.

\* Certifications vary by model.

### Carbon footprint

A carbon footprint\* is the total amount of greenhouse gases\*\* that are generated by an individual or organization. Samsung demonstrates multiple efforts to protect the environment and address global warming. We have committed to reducing carbon emissions throughout all stages of product production, use and disposal, in addition to reducing the weight by reducing the amount used in the parts manufacturing stage for lower emissions. Also, by improving power consumption in the stage of using products, carbon emissions were also significantly lowered. Finally, in the disposal stage, the amount of plastic used has been minimized to reduce the amount of carbon emitted during plastic incineration.

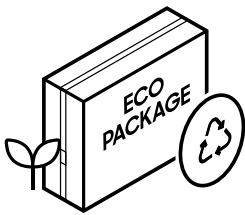
\* Certifications vary by model.

\*\* Carbon dioxide and methane.

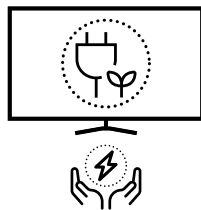


# Samsung will continue to build a better tomorrow

We have made huge strides in ensuring our Smart Signage products are more eco-conscious, continuously innovating to create efficiencies wherever we can. We are committed to resource conservation through recycling of materials, increased energy efficiency to reduce CO2 emission, as well as the use of materials harmless to the human body and environment. Our efforts throughout the entire product lifecycle will be very meaningful to our goal of enhanced sustainability. In the future, our efforts and innovation will be expanded and strengthened as we constantly research to develop groundbreaking technology that will reduce energy use even further and help to make positive changes for a better, more sustainable planet.



**Resource conservation**



**Energy efficiency**



**Non-hazardous substances**

## About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, medical equipment, network systems, and semiconductor and LED solutions. For the latest news, please visit the Samsung Newsroom at [news.samsung.com](https://news.samsung.com).

## Smart Signage

For more information about Samsung Smart Signage, visit [www.samsung.com/business](https://www.samsung.com/business) or [www.samsung.com/displaysolutions](https://www.samsung.com/displaysolutions)

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Samsung Electronics Co., Ltd.  
416, Maetan 3-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-772, Korea