



### Product Description

Electronics include durable goods whose primary function is performed by systems made from integrated circuits such as IT equipment, consumer electronics products, and mobile and wearable devices. Product types include computers, displays, smartphones, televisions, stereos, GPS trackers, and smart watches.

### Mission

The mission of The Sustainability Consortium (TSC) is to improve the sustainability of products when they are made, purchased, and used, with a focus on manufacturers and the retail buyers who decide what products to carry in stores. The information in this document is drawn from our detailed research on known and potential social and environmental impacts across product life cycles. TSC acknowledges that other issues exist, but we have included here those that are most relevant to the decision making of retail buying teams and manufacturers. The topics are listed alphabetically for ease of reading; the order does not represent prioritization or other criteria.



## Managing the Supply Chain

### Fluorinated greenhouse gases

Fluorinated gases, which are used in many electronics manufacturing processes and to clean manufacturing equipment, are potent greenhouse gases that contribute to climate change. Manufacturers of electronics should work with their component suppliers to implement emissions controls in manufacturing facilities.

### Supply chain transparency

Chain-of-custody and other data-sharing systems and initiatives can help improve transparency concerning the chemicals and materials used in electronics components. Manufacturers and suppliers can work together to find safer chemicals and more sustainable materials.



## Use of Resources

### Climate and energy

Component manufacturing and final product assembly can consume significant amounts of electricity and energy, leading to greenhouse gas emissions. Manufacturers can help abate these impacts by measuring, tracking, and reporting energy use and greenhouse gas emissions, with a focus on reduction. They can also perform preventative maintenance on equipment, replace inefficient equipment, and encourage efficient energy behaviors throughout their operations.

### Disposal and end-of-life

Manufacturers should participate in product stewardship programs, design products with product end-of-life in mind, and engage downstream partners to ensure that products are responsibly managed. Used consumer electronics peripherals need to be collected, treated, and disposed of responsibly to ensure that the product and valuable components and materials are available for further reuse or recycling. When electronics or their components are burned or disposed of improperly, heavy metals and other hazardous materials can be released, posing a threat to humans and the environment.

## Packaging

Packaging design should be optimized to ensure that packaging performs its essential functions of containment and protection while minimizing use of materials, energy resources, and environmental impacts across the life cycle of the packaged product. Under-packaging and over-packaging can both lead to increased impacts. These impacts may be mitigated by using more energy-efficient manufacturing, creating packaging materials from renewable resources, designing packaging to be recyclable, and encouraging consumers to recycle packaging.

## Product efficiency

Manufacturers should design electronic products to be energy-efficient in power charging and operation and have power management features where appropriate. This is important because there is a significant amount of electricity used to operate electronics.



## Workers and Communities

### Conflict Minerals

Conflict minerals, including gold and ores that produce tantalum, tin, and tungsten, are those that are mined in areas where armed groups responsible for human rights abuses control mining operations and profit from mineral sales. Manufacturers should work to ensure that materials in their products are sourced responsibly to help improve stability and quality of life for miners and their communities.

### Workers

Workers may be exposed to hazards in the workplace. In some parts of the world, their rights to freedom of association, equal opportunity and treatment, and fair wages may not be protected. To help ensure worker health, safety, and labor rights, final product manufacturers should have a documented health and safety management plan, including a chemical management plan where needed, and provide safety training and personal protective equipment to workers. Manufacturers should procure materials from suppliers that address worker health and safety and labor rights transparently and should perform audits when needed.