



# SIPROTEC 4

Environmental product declaration according to ISO 14021

Answers for energy.

**SIEMENS**

# Policy and principles for quality, health, safety, and environmental affairs

We provide the highest customer benefit by leveraging leading-edge energy solutions powered by our people.

## Committed to quality

We are deeply committed to meeting our customer's quality expectations and provide tangible competitive advantages for our customers.

## Financial strength

We leverage our financial strength to provide long-term value to all our partners.

## The world's local supplier

We are there – wherever and whenever our customers need us – to deliver unparalleled service that extends the life, increases availability, and enhances the value of our customers' assets.

## Health and safety

We share an uncompromising commitment to protect the health and safety of our employees and our customers.

## Environment

We offer products and services that contribute to environment and climate protection.

## Value-based Innovation

We are dedicated to maximizing customer benefits through a broad portfolio of technology-based solutions built on intelligent innovation.



## The product

### Product description

With SIPROTEC 4, the family of protection and bay control devices by Siemens, we are offering the expertise of an innovative partner in the field of protection devices and substation automation. Reliable SIPROTEC products protect the following components of the energy conversion chain:

- transmission lines
- transformers
- busbars
- generators.

The devices' long time of operation and their environmentally friendly design play a decisive role in providing resource-saving solutions.



# Manufacturer

## Energy Automation

In the field of energy automation, Siemens is a strong supplier for the industry, for utilities, and for major energy consumers offering innovative products, systems, and solutions. Many years of experience and expertise in energy automation have turned us into one of the market's leading suppliers, and a reliable partner for a successful future. Our product portfolio comprises:

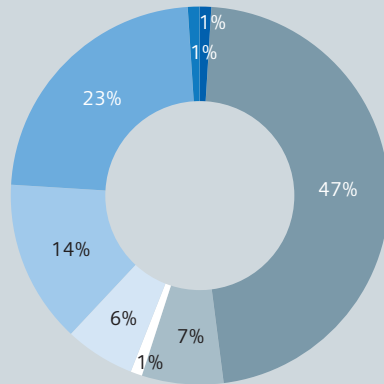
- SIPROTEC protection devices
- SIMEAS power quality products
- SICAM telecontrol systems
- Power Network Communication
- AMIS metering and distribution network automation solutions
- Control systems

Future-oriented automation and optimization solutions can help make our customers' power networks more intelligent, environmentally friendly, reliable, and efficient. With the power of innovation we are setting trends in energy automation, and, together with our customers, we are shaping the evolution of their energy networks into "Smart Grids".

[www.siemens.com/energy](http://www.siemens.com/energy)

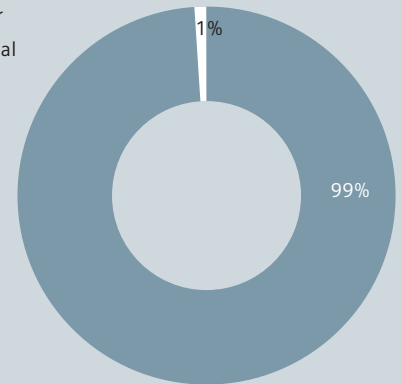
### 1. Material composition device

- Iron, iron alloy
- Iron-free metals, iron-free alloys
- Noble metals, noble metal alloys
- Other metals and partial metals
- Anorganic materials, ceramics
- Synthetic materials
- Other materials (cardboard)
- Organic materials



### 2. Material composition packaging

- Cardboard/paper
- Synthetic material



## Life cycle

SIPROTEC 4 devices generally consist of the following components:

- metal housing
- several circuit boards with assembled electrical components
- clamps
- front panel made of synthetic material with LCD

### Material

The typical material mix a SIPROTEC 4 7SJ62 device consists of is shown in the diagram above.

It was made sure that certain materials like lead or chlorine were only used in very low concentration.

This particularly applies to:

- lead-free soldering of circuit boards
- packaging without foaming agent

### Packaging

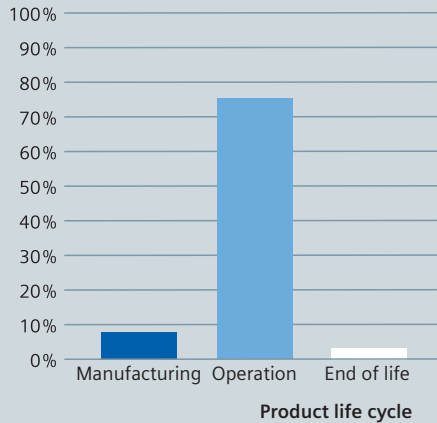
The packaging is made of up to 99 percent of recyclable paper. The printing ink used for the packaging is chlorine-free. Compared to our competitors, we are setting benchmarks in environmentally friendly packaging.

### Manufacturing

All products of the SIPROTEC 4 family are entirely manufactured at the Messgeraetewerk, the measuring instrument factory, in Berlin. All important departments from procurement to disposal are located here. All components and devices are manufactured with state-of-the-art technology and logistics, and they are delivered directly to the customer. Comprehensive quality management, as well as manufacturing processes in accordance with RoHS guidelines are a matter of course for us. Even though we are not legally obliged to follow these guidelines in our production process, it goes without saying that we observe these guidelines and apply state-of-the-art, resource-saving production facilities to reduce the impact on the environment.

#### 4. Energy consumption

Potential effect on the environment (%)



## Environmental indicators

### Application

To guarantee protective functions at all times, protective devices are permanently in operation. Possible disturbances of the devices are signalled through alarm signals.

Many more functionalities are integrated in devices of the SIPROTEC 4 family. This results in energy savings of up to 40 percent. The lifetime of the lithium batteries was doubled to ten years as compared to the previous SIPROTEC 3 series. In addition to longer maintenance intervals, this results in 50 percent less battery waste along the entire product lifecycle.

### Energy consumption

Energy consumption is the most important environmental aspect of protection devices. Therefore, we use the cumulated energy demand (CED) to assess possible effects on the environment. CED is the sum of primary energy spent to manufacture a device, to operate it, and to dispose of it, including all relevant transport activities. Our protection devices may almost be entirely recycled.

### Disposal

The most important factor in an environmentally friendly disposal strategy is the packaging. The packaging of SIPROTEC 4 devices is up to 99 percent made of recyclable paper, and the printing ink used for the packaging is chlorine-free.

At the end of the product life cycle, the product may be disposed of as electronic waste. Entering old devices in the recycling process is made possible by the effortless separation of circuit boards and metal housing. Only the lithium batteries need to be disposed of separately.

### Risk factors for the environment

In case of fire, the application guidelines for electronic devices apply. In the event of damage, virtually no harmful substances are emitted thanks to the metal housing and the fire resistant synthetic materials used in the production of the device.

SIPROTEC 4 products are developed and certified according to the guideline UL 187 of the American Insurance Underwriter Laboratories.

Published by and copyright © 2009:  
Siemens AG  
Energy Sector  
Freyeslebenstrasse 1  
91058 Erlangen, Germany

Siemens AG  
Energy Sector  
Power Distribution Division  
Energy Automation  
Humboldtstrasse 59  
90459 Nuremberg, Germany

For more information, please contact  
our Customer Support Center.  
Phone: +49 180 524 70 00  
Fax: +49 180 524 24 71  
(Charges depending on provider)  
E-mail: [support.energy@siemens.com](mailto:support.energy@siemens.com)

Power Distribution Division  
Bestell-Nr. E50001-G720-A170-X-4A00  
Dispo 06200, c4bs No. 7439  
fb 2049 480701 WS 1109X

All rights reserved.  
Trademarks mentioned in this document  
are the property of Siemens AG, its affiliates,  
or their respective owners.

Subject to change without prior notice.  
The information in this document contains  
general descriptions of the technical options  
available, which may not apply in all cases.  
The required technical options should therefore  
be specified in the contract.