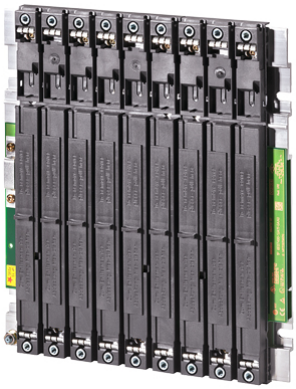
ENVIRONMENTAL PRODUCT DECLARATION

# SIMATIC S7-400 Racks

## 6ES7400-1JA11-0AA1

Type II according to ISO 14021 including life cycle impact assessment (LCIA)





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# General information

This environmental product declaration (EPD) is based on the international standard ISO 14021 (“Environmental labels and declarations – Self declared environmental claims – Type II”). The data in this EPD has been evaluated on a full-scale life cycle assessment (LCA) study according to ISO 14040/44, taking into account the product category rules (PCR) for electronic and electrotechnical products and systems defined in EN 50693.

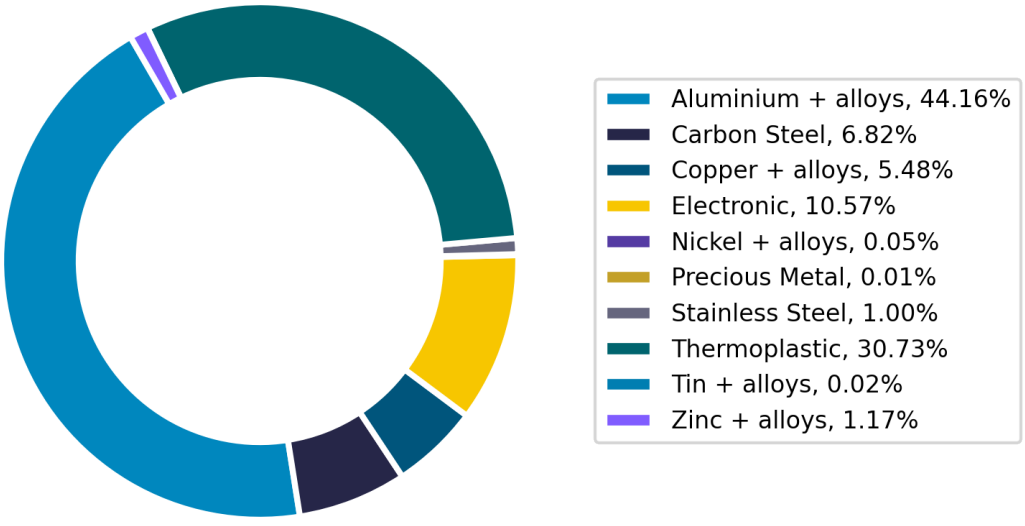
Siemens is dedicated to an environmentally conscious design of its products in line with IEC 62430 and has implemented an integrated management system according to ISO 9001, ISO 14001 and ISO 45001.

| | |
|---|---|
| Products | **All products from S7 400 Racks - please refer annex** |
| Represented by | 6ES7400-1JA11-0AA1 |
| Product Description | SIMATIC PCS 7, UR2 XTR S7-400 rack central and distributed with 9 slots |
| Functional Unit | Production of 1 pc S7-400 rack and use over the reference service lifetime of 10 years. |

## Material composition

The following chart outlines the overall material composition of the calculated reference product. Product weight of 1.62 kg adds up with packaging weight of 0.36 kg to a total weight of 1.98 kg. Packaging consists of Box, Foil Film Wrap Bag Label, Paper.

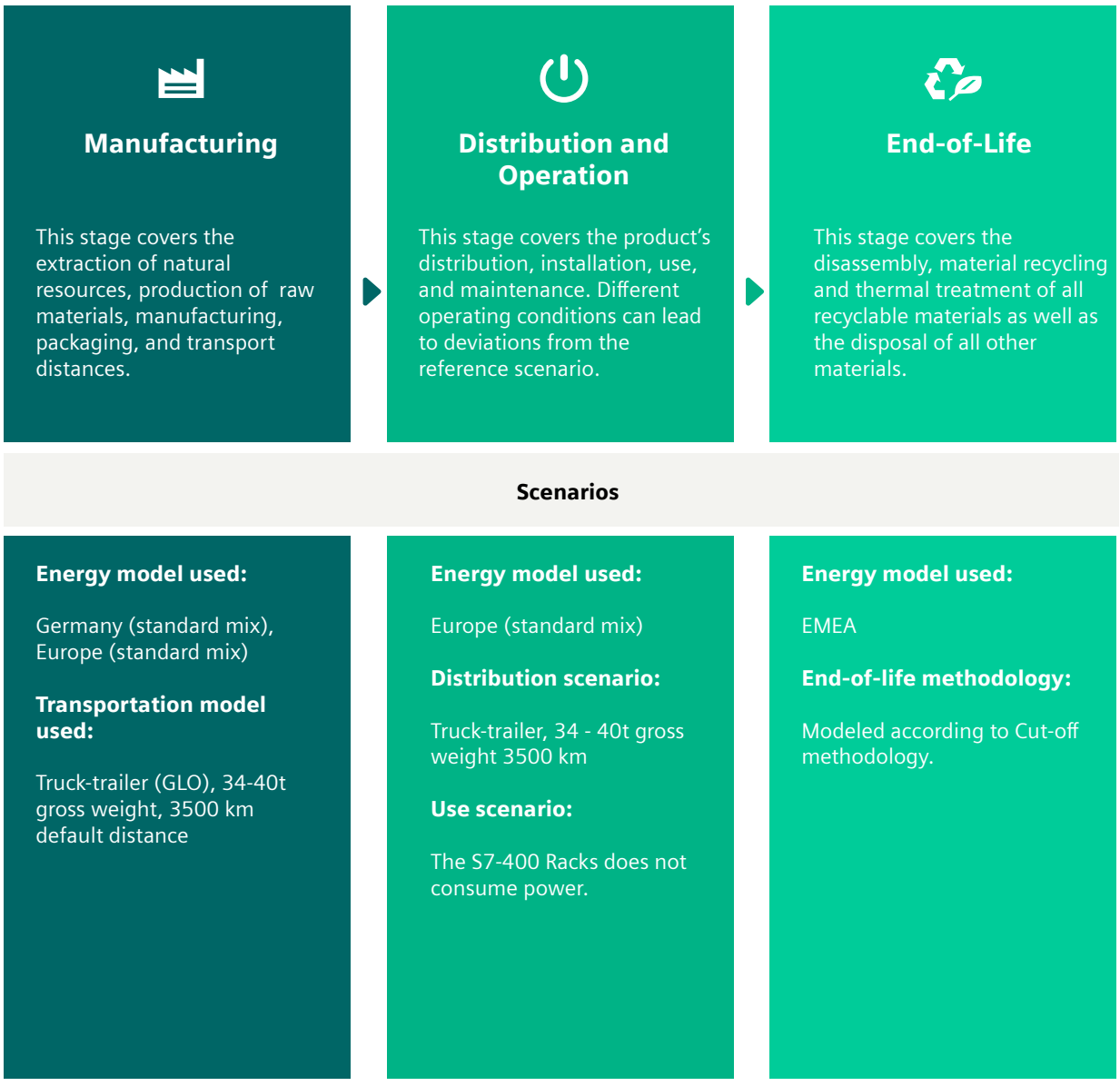
**Product Weight 1.62 kg**



# Substance assessment

At Siemens, we are committed to the development and production of environmentally sound and sustainably produced equipment. This includes avoiding hazardous substances in our products without compromising their benefits for our customers. Please visit the following website to learn more about how we comply with product-related environmental regulations like RoHS, REACH, WEEE and others: Product Related Environmental Protection

# Life cycle stages and reference scenarios



# Key environmental performance indicators

The following impact categories characterize the product's environmental footprint. They have been calculated with LCIA methodology EF3.1; LCA tool: Green Digital Twin (GDT), Database: One Siemens LCA Database (based on MLC CUP 2023.2, formerly GaBi).

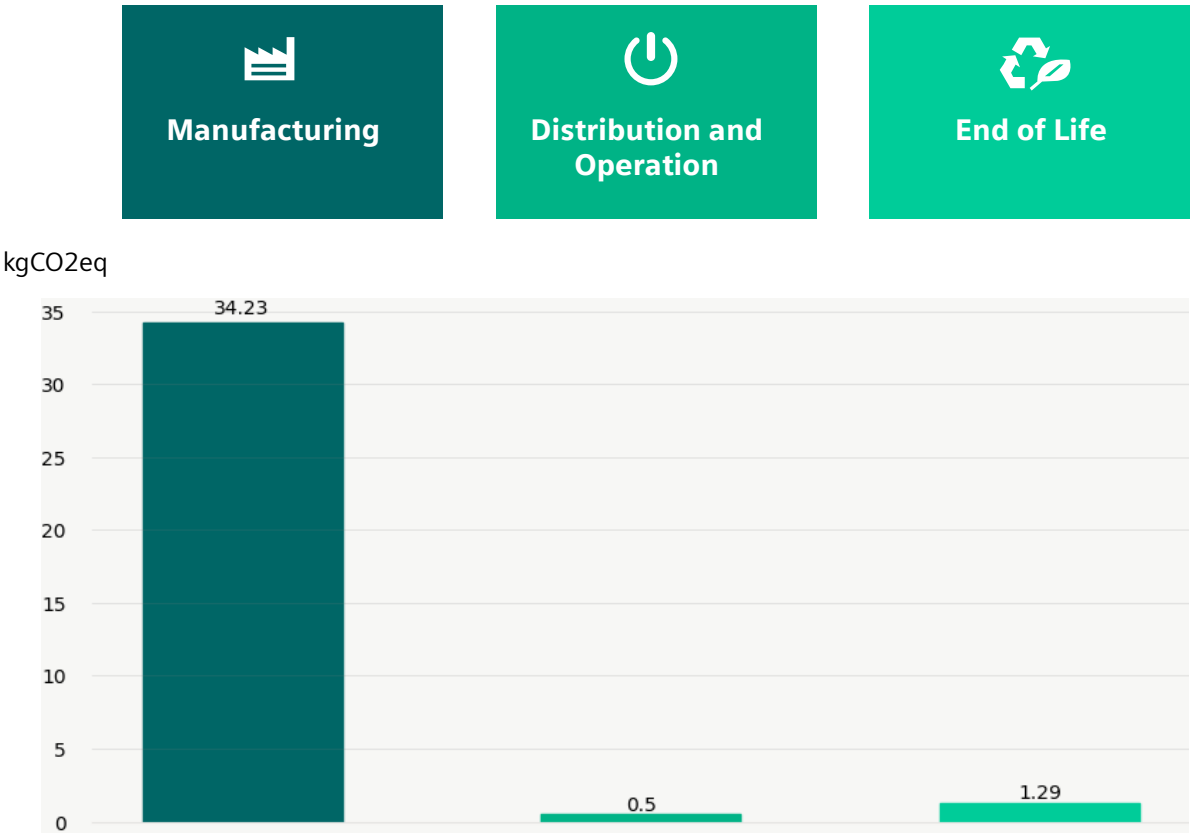
To ensure the high quality and completeness of the LCA results, Primary Data have been used whenever possible. Datasets for resources, such as electrical energy or natural gas, are chosen from the region where the device is produced and assembled. If primary data are not available, datasets reflecting state-of-the-art manufacturing technology are considered.

For products belonging to the same homogeneous product family range the extrapolation criteria in the annex can be used to derive their corresponding environmental impacts.:

| Impact Category | Unit | Total | Manufacturing | Distribution | Operation | End of Life |
|---|---|---|---|---|---|---|
| Acidification | Mole of H+ eq | 4.52E-01 | 4.51E-01 | 6.37E-04 | 0.00E+00 | 2.31E-04 |
| Climate change – total | kg CO2 eq | 3.60E+01 | 3.42E+01 | 4.98E-01 | 0.00E+00 | 1.29E+00 |
| Climate change – fossil | kg CO2 eq | 3.58E+01 | 3.41E+01 | 4.92E-01 | 0.00E+00 | 1.29E+00 |
| Climate change – biogenic | kg CO2 eq | 1.32E-01 | 1.31E-01 | 1.33E-03 | 0.00E+00 | 2.52E-04 |
| Climate Change, land use and land use change | kg CO2 eq | 3.61E-02 | 3.60E-02 | 4.60E-03 | 0.00E+00 | 2.06E-05 |
| Ecotoxicity, freshwater – total | CTUe | 1.77E+02 | 1.72E+02 | 4.85E+00 | 0.00E+00 | 2.99E-01 |
| Eutrophication, freshwater | kg P eq | 2.36E-04 | 2.34E-04 | 1.82E-06 | 0.00E+00 | 1.08E-06 |
| Eutrophication, marine | kg N eq | 3.26E-02 | 3.23E-02 | 2.16E-04 | 0.00E+00 | 6.36E-05 |
| Eutrophication, terrestrial | Mole of N eq | 3.51E-01 | 3.48E-01 | 2.60E-03 | 0.00E+00 | 9.27E-04 |
| Human toxicity, cancer – total | CTUh | 4.39E-08 | 4.38E-08 | 9.83E-11 | 0.00E+00 | 2.42E-11 |
| Human toxicity, non-cancer – total | CTUh | 8.77E-07 | 8.71E-07 | 4.37E-09 | 0.00E+00 | 1.15E-09 |
| Ionising radiation, human health | kBq U235 eq | 9.34E-01 | 9.20E-01 | 1.89E-03 | 0.00E+00 | 1.24E-02 |
| Land Use | dimensionless (pt) | 1.09E+02 | 1.06E+02 | 2.83E+00 | 0.00E+00 | 2.41E-01 |
| Ozone depletion | kg CFC-11 eq | 4.85E-10 | 4.85E-10 | 6.46E-14 | 0.00E+00 | 4.63E-13 |
| Particulate matter | Disease incidences | 3.96E-06 | 3.95E-06 | 4.66E-09 | 0.00E+00 | 1.82E-09 |
| Photochemical ozone formation, human health | kg NMVOC eq | 1.12E-01 | 1.11E-01 | 5.49E-04 | 0.00E+00 | 1.80E-04 |
| Resource use, fossils | MJ | 4.62E+02 | 4.54E+02 | 6.76E+00 | 0.00E+00 | 8.17E-01 |
| Resource use, mineral and metals | kg Sb eq | 8.03E-03 | 8.03E-03 | 3.29E-08 | 0.00E+00 | 4.00E-09 |
| Water use | $m^3$ water eq deprived water | 9.00E+00 | 8.88E+00 | 6.00E-03 | 0.00E+00 | 1.16E-01 |

# Climate Change

This chart shows the overall impact of the product on climate change – total. The manufacturing phase is the lifecycle phase with the biggest overall impact




# End-of-Life results

The end-of-life stage was modelled by shredding of the device, followed by sorting and material separation process.

It leads to:

- **an overall product recyclability of up to 51%** mainly due to high metal content
- **an energy recoverability of up to 34%** from plastic materials
- **a minimum disposal rate of 15%**

The exact final values depend on the used recycling process and add up to 100%.

**Note:** The device should not be disposed of as unsorted municipal waste. Special treatment for specific components may be mandated by law or recommended for environmental reasons. Observe all local and applicable laws.

# Legal Disclaimer

## This Environmental Product Declaration (EPD) is for information purposes only. It is based upon the standards mentioned above.

This EPD does not warrant or guarantee the composition of a product or that the product will retain a particular composition for a particular period. Therefore, all warranties, representations, conditions, and all other terms of any kind whatsoever implied by statute or common law are – to the fullest extent permitted by applicable law – excluded.

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Please be aware that the data of this EPD cannot be compared with data calculated based upon product category rules (PCRs) other than the standards mentioned above. The values given are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

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# Annex

For other racks „Key environmental performance indicators" please refer the following factors:

| Product | Description | Manufacturing | Distribution | Operation based on power loss | End-of-Life |
|---|---|---|---|---|---|
| **6ES7400-1JA01-0AA0** | SIMATIC S7-400, rack UR2, central and distributed with 9 slots | 1 | 1 | 0 | 1 |
| **6ES7400-1JA11-0AA0** | SIMATIC S7-400, rack aluminum UR2, central and distributed with 9 slots | 1 | 1 | 0 | 1 |
| **6ES7400-1JA11-0AA1** | SIMATIC PCS 7, UR2 XTR S7-400 rack central and distributed with 9 slots | 1 | 1 | 0 | 1 |
| **6ES7400-1TA01-0AA0** | SIMATIC S7-400, rack UR1, central and distributed with 18 slots | 2 | 2 | 0 | 2 |
| **6ES7400-1TA11-0AA0** | SIMATIC S7-400, rack UR1 Alu, central and distributed with 18 slots | 2 | 2 | 0 | 2 |
| **6ES7400-2JA00-0AA0** | SIMATIC S7-400H, rack UR2-H, central and distributed with 2 x 9 slots | 2 | 2 | 0 | 2 |
| **6ES7400-2JA10-0AA0** | SIMATIC S7-400, rack aluminum UR2-H, central and distributed with 2 x 9 slots | 2 | 2 | 0 | 2 |
| **6ES7400-2JA10-0AA1** | SIMATIC PCS 7, UR2-H XTR S7-400 rack central and distributed with 2 x 9 slots | 2 | 2 | 0 | 2 |
| **6ES7401-1DA01-0AA0** | SIMATIC S7-400, rack CR3, central with 4 slots | 0,45 | 0,45 | 0 | 0,45 |
| **6ES7401-1DA01-0AA1** | SIMATIC PCS 7, CR3 XTR S7-400 rack central with 4 slots | 0,45 | 0,45 | 0 | 0,45 |
| **6ES7401-2TA01-0AA0** | SIMATIC S7-400, rack CR2, central with 18 slots | 2 | 2 | 0 | 2 |
| **6ES7403-1JA01-0AA0** | SIMATIC S7-400, extension rack ER2 with 9 slots | 1 | 1 | 0 | 1 |
| **6ES7403-1JA11-0AA0** | SIMATIC S7-400, extended rack ER2 aluminum, with 9 slots | 1 | 1 | 0 | 1 |
| **6ES7403-1TA01-0AA0** | SIMATIC S7-400, extension rack ER1 with 18 slots | 2 | 2 | 0 | 2 |
| **6ES7403-1TA11-0AA0** | SIMATIC S7-400, extension rack ER1 aluminum, with 18 slots | 2 | 2 | 0 | 2 |