

Fuse disconnecter E91/125

PEP ecopassport®  
Product Environmental Profile



|                                                                                                                                                                                  |                          |                                      |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------|-------------------------------------|
| Registration number:                                                                                                                                                             | ABBG-00996-V01.01-EN     | Drafting rules:                      | PCR-ed4-EN-2021 09 06               |
| Contact information:                                                                                                                                                             | EPD_ELSB@abb.com         | Supplemented by:                     | PSR-0005-ed3.1-EN-2023 12 08        |
| Verifier accreditation number:                                                                                                                                                   | VH60                     | Information and reference documents: | www.pep-ecopassport.org             |
| Date of issue:                                                                                                                                                                   | 03-26                    | Validity period:                     | 5 years                             |
| Independent verification of the declaration and data in compliance with ISO 14025: 2006                                                                                          |                          |                                      |                                     |
| Internal:                                                                                                                                                                        | <input type="checkbox"/> | External:                            | <input checked="" type="checkbox"/> |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (Ddomain)                                                                                            |                          |                                      |                                     |
| PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022<br>The components of the present PEP may not be compared with components from any other program. |                          |                                      |                                     |
| Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"                                                               |                          |                                      |                                     |





# ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow. With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.

The context of this PEP cannot be compared with the content based on another program/database.

Scan QR code for more information

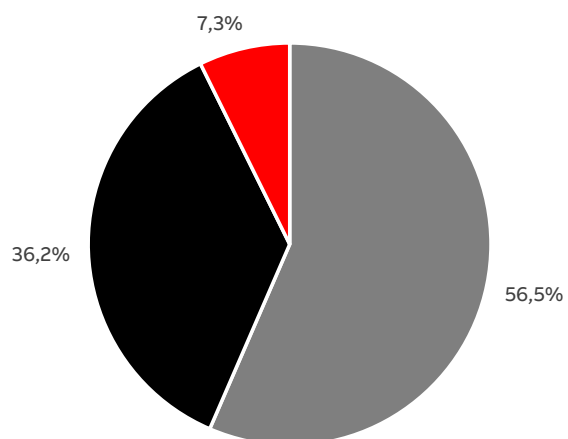


## General information

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference product          | 2CSM277572R1801 - E91/125                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Description of the product | The E91/125 product is Fuse disconnecter 1 Pole , with 100A rated operational current for overcurrent and short circuit protection.                                                                                                                                                                                                                                                                                                                     |
| Functional unit            | Turn off all or part of an installation by separating the installation or part of the installation of all electrical energy or earth, for safety reasons with a rated voltage U, and rated current In ensuring isolation characterized by a rated voltage 400V (acc. IEC) /690 V (acc. UL), and if applicable the specific specifications, according to the appropriate use scenario, and during the reference service life of the product of 20 years. |
| Other products covered     | E90/30J, E90/60J, E90/125 family<br>Rated Voltage [V] 600/690<br>Rated Current [In] 30/60/125<br>Number of poles [P] 1/1P+N/2/3/3P+N                                                                                                                                                                                                                                                                                                                    |
| Manufacturing address      | ABB S.p.A. - Via Ardeatina, 00134 Roma (RM), Italy<br><a href="http://www.new.abb.com">www.new.abb.com</a>                                                                                                                                                                                                                                                                                                                                              |



## Constituent Materials



■ Plastics 82,70 g ■ Metals 53,00 g ■ Others 10,70 g

Total weight of reference product and packaging

146,4

g

| Plastics as % of weight |         | Metals as % of weight |         | Others as % of weight |         |
|-------------------------|---------|-----------------------|---------|-----------------------|---------|
| Name and CAS number     | Weight% | Name and CAS number   | Weight% | Name and CAS number   | Weight% |
| PA                      | 40,8    | STEEL                 | 19,2    | CARDBOARD             | 6,4     |
| GF                      | 14,6    | COPPER                | 16,2    | WOOD                  | 0,5     |
| PC                      | 1,1     | ALUMINIUM             | 0,8     | PAPER                 | 0,3     |
|                         |         |                       |         | MISCELLANEOUS         | 0,1     |

Product weight is 135,7 g plus 10,7 packaging



## Additional Information

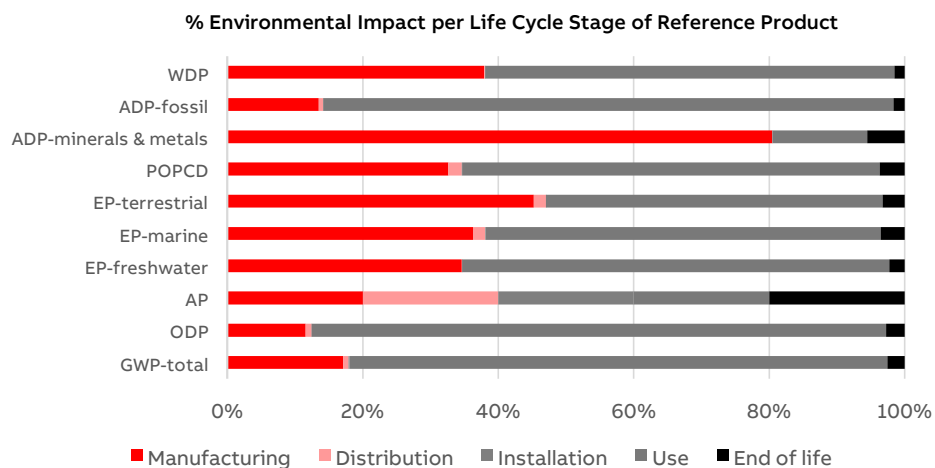
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Manufacturing</b>                                   | <p>The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of E91/125 Fuse disconnecter and its packaging. The production occurs at the factory located in Tunisia.</p>                                                                                                                                                                                                                                                          |
| <b>Distribution</b>                                    | <p>The transport from the factory to Regional Distribution Centers was taken into account. For the distribution of the product from the RDCs to the final customer, the intracontinental transport scenario provided by PCR-ed4-EN-2021 09 06 standard was adopted.</p>                                                                                                                                                                                                                  |
| <b>Installation</b>                                    | <p>The installation phase only implies manual activities and no energy is consumed. This phase also includes the disposal of the packaging of the product. Statistical average data from Eurostat databases were considered for the disposal of the product and its packaging.</p>                                                                                                                                                                                                       |
| <b>Use</b>                                             | <p>During the use phase, the E91/125 Fuse disconnecter dissipates some electricity due to power losses. The average power loss of the switch has been calculated by ABB following the assumption indicated in the PSR-0005-ed3.1-EN-2023 12 08 :</p> <ul style="list-style-type: none"><li>- Nominal current load rate as 50%</li><li>- RSL of 20 years;</li><li>- Functioning time of 30% of the RSL (<math>\alpha</math>).</li></ul> <p>No maintenance is planned for the product.</p> |
| <b>End of life</b>                                     | <p>The default end-of-life scenario provided by the IEC/TR 62635 document have been adopted, considering the product transport by lorry over 1000 km.</p>                                                                                                                                                                                                                                                                                                                                |
| <b>Benefits and loads beyond the system boundaries</b> | <p>The potential benefits derives from the impacts prevented by recycling and waste to energy recovery of the packaging in the installation phase</p>                                                                                                                                                                                                                                                                                                                                    |



## Environmental Impacts

|                                  |                                                                                                                                                                                                       |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference lifetime               | 20 years                                                                                                                                                                                              |
| Product category                 | Electrical switchgear and control gear solutions                                                                                                                                                      |
| Installation elements            | No installation materials are required in the life cycle of the product.                                                                                                                              |
| Use scenario                     | The calculation of the use stage electricity consumption from the average power consider the following assumptions:<br>nominal current load rate as 50%                                               |
| Geographical representativeness  | For the use and end-of-life stages of the product, the geographical boundaries of Worldwide have been considered                                                                                      |
| Technological representativeness | Technological representativeness refers to the specific production process for primary data.                                                                                                          |
| Software and database used       | SimaPro 9.5.0.0 - Ecoinvent 3.9.1- Industry Data 2.0                                                                                                                                                  |
| <b>Energy model used</b>         |                                                                                                                                                                                                       |
| Manufacturing                    | Electricity, medium voltage [TN]] market for electricity, medium voltage   Cut-off, S The energy-related processes used for the remaining inputs are those included in the ecoinvent v3.9.1 datasets. |
| Installation                     | No energy consumption occur during the installation stage                                                                                                                                             |
| Use                              | Electricity, low voltage (Various regionalities according to product distribution data)                                                                                                               |
| End of life                      | The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent datasets selected for the analysis.                                                     |

## Common base of mandatory indicators



### Environmental impact indicators

| Indicator |                   | Unit          | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|-------------------|---------------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| GWP       | Total             | kg CO2 eq.    | 7,83E+00 | 1,34E+00      | 6,38E-02     | 1,04E-02     | 6,22E+00 | 2,00E-01    | -3,35E-01 |
|           | Fossil            | kg CO2 eq.    | 7,49E+00 | 1,33E+00      | 6,37E-02     | 8,31E-04     | 5,92E+00 | 1,75E-01    | -3,52E-01 |
|           | Biogenic          | kg CO2 eq.    | 3,07E-01 | 3,71E-03      | 3,59E-05     | 9,55E-03     | 2,69E-01 | 2,49E-02    | 1,75E-02  |
|           | Luluc             | kg CO2 eq.    | 3,96E-02 | 1,95E-03      | 3,25E-05     | 5,07E-07     | 3,74E-02 | 2,24E-04    | -2,17E-04 |
| ODP       |                   | kg CFC-11 eq. | 1,39E-07 | 1,60E-08      | 1,25E-09     | 1,64E-11     | 1,18E-07 | 3,84E-09    | -7,82E-10 |
| AP        |                   | H+ eq.        | 6,10E-02 | 6,10E-02      | 6,10E-02     | 6,10E-02     | 6,10E-02 | 6,10E-02    | 6,10E-02  |
| EP        | Freshwater        | kg P eq.      | 6,31E-03 | 2,18E-03      | 4,52E-06     | 9,72E-08     | 3,98E-03 | 1,44E-04    | -8,00E-04 |
|           | Marine            | kg N eq.      | 7,65E-03 | 2,77E-03      | 1,36E-04     | 5,55E-06     | 4,46E-03 | 2,71E-04    | -6,73E-04 |
|           | Terrestrial       | mol N eq.     | 8,38E-02 | 3,79E-02      | 1,47E-03     | 1,70E-05     | 4,16E-02 | 2,73E-03    | -8,76E-03 |
| POPCD     |                   | kg NMVOC eq.  | 2,48E-02 | 8,09E-03      | 4,94E-04     | 6,98E-06     | 1,53E-02 | 9,14E-04    | -2,65E-03 |
| ADP       | Minerals & metals | kg SB eq.     | 4,68E-04 | 3,76E-04      | 1,65E-07     | 2,96E-09     | 6,55E-05 | 2,59E-05    | -1,21E-04 |
|           | Fossil            | MJ            | 1,42E+02 | 1,92E+01      | 9,19E-01     | 9,76E-03     | 1,20E+02 | 2,39E+00    | -4,01E+00 |
| WDP       |                   | m³ eq. depr.  | 2,84E+00 | 1,08E+00      | 4,25E-03     | 9,64E-05     | 1,71E+00 | 4,31E-02    | -2,06E-01 |

### Resource use indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| PERE      | MJ   | 2,89E+01 | 1,91E+00      | 1,24E-02     | 3,27E-04     | 2,67E+01 | 2,84E-01    | -3,50E-01 |
| PERM      | MJ   | 2,31E-01 | 2,31E-01      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| PERT      | MJ   | 2,91E+01 | 2,14E+00      | 1,24E-02     | 3,27E-04     | 2,67E+01 | 2,84E-01    | -3,50E-01 |
| PENRE     | MJ   | 1,40E+02 | 1,70E+01      | 9,19E-01     | 9,77E-03     | 1,20E+02 | 2,39E+00    | -4,01E+00 |
| PENRM     | MJ   | 2,19E+00 | 2,19E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| PENRT     | MJ   | 1,42E+02 | 1,92E+01      | 9,19E-01     | 9,77E-03     | 1,20E+02 | 2,39E+00    | -4,01E+00 |

## Common base of mandatory indicators

### Use of secondary materials, water, and energy resources

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| SM        | kg   | 7,45E-03 | 7,45E-03      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| RSF       | MJ   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| NRSF      | MJ   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00  |
| FW        | m³   | 1,34E-01 | 2,68E-02      | 1,38E-04     | 3,89E-06     | 1,06E-01 | 1,52E-03    | -4,80E-03 |

### Waste category indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| HWD       | kg   | 3,74E-04 | 6,05E-05      | 5,66E-06     | 5,84E-08     | 2,90E-04 | 1,76E-05    | 1,54E-06  |
| N-HWD     | kg   | 8,83E-01 | 2,59E-01      | 7,17E-02     | 2,68E-03     | 4,73E-01 | 7,77E-02    | -5,03E-02 |
| RWD       | kg   | 6,90E-04 | 2,66E-05      | 2,42E-07     | 7,06E-09     | 6,57E-04 | 5,91E-06    | -2,69E-07 |

### Output flow indicators

| Indicator | Unit | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits |
|-----------|------|----------|---------------|--------------|--------------|----------|-------------|----------|
| CfRu      | kg   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00 |
| MfR       | kg   | 1,64E-01 | 3,20E-02      | 0,00E+00     | 6,92E-03     | 0,00E+00 | 1,25E-01    | 0,00E+00 |
| MfER      | kg   | 0,00E+00 | 0,00E+00      | 0,00E+00     | 0,00E+00     | 0,00E+00 | 0,00E+00    | 0,00E+00 |
| EE        | MJ   | 1,76E-02 | 1,81E-04      | 0,00E+00     | 7,60E-03     | 0,00E+00 | 9,85E-03    | 0,00E+00 |

### Other indicators

| Indicator       |           | Unit    | Total    |
|-----------------|-----------|---------|----------|
| Biogenic Carbon | Product   | kg of C | 5,12E-05 |
|                 | Packaging | kg of C | 7,46E-03 |

### Optional indicators

| Indicator | Unit         | Total    | Manufacturing | Distribution | Installation | Use      | End of life | Benefits  |
|-----------|--------------|----------|---------------|--------------|--------------|----------|-------------|-----------|
| Tot PE    | MJ           | 1,71E+02 | 2,13E+01      | 9,32E-01     | 1,01E-02     | 1,46E+02 | 2,68E+00    | -4,36E+00 |
| Efp       | Dise inc     | 2,83E-07 | 1,29E-07      | 6,04E-09     | 8,57E-11     | 1,31E-07 | 1,67E-08    | -3,10E-08 |
| IrHH      | kBq U-235 eq | 2,72E+00 | 1,04E-01      | 1,01E-03     | 2,84E-05     | 2,59E+00 | 2,31E-02    | -9,21E-04 |
| ETX FW    | CTUe         | 5,47E+01 | 3,33E+01      | 4,58E-01     | 1,64E-02     | 1,85E+01 | 2,46E+00    | -1,13E+01 |
| HTX CE    | CTUh         | 8,78E-09 | 5,08E-09      | 2,78E-11     | 8,65E-13     | 2,47E-09 | 1,20E-09    | -1,16E-09 |
| HTX N-CE  | CTUh         | 4,61E-07 | 3,26E-07      | 6,31E-10     | 1,66E-11     | 9,55E-08 | 3,97E-08    | -1,17E-07 |
| IrLS      | Pt           | 3,52E+01 | 1,13E+01      | 8,37E-01     | 5,45E-03     | 2,15E+01 | 1,53E+00    | -2,73E+00 |

# Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by a linear correlation with respect to weight for the manufacturing, distribution, and end-of-life phase and with respect to average power loss for the use phase. Each environmental indicator value shall be calculated using the following formulas:  
For the manufacturing, distribution and end-of-life stages:  $y = ax_1 + b$  where  $x_1$  is the weight of the product  
For the use stage:  $y = ax_2 + b$  where  $x_2$  is the average power loss of the product

\* If the coefficient is 11, the impacts of the phase of the life cycle are assimilated to the Reference product, meaning that the impacts are unchanged in comparison to the Reference product

| Impact Category                                                                                                     | Manufacturing |           | Distribution |          | Installation |          | Use      |           | End of Life |           |
|---------------------------------------------------------------------------------------------------------------------|---------------|-----------|--------------|----------|--------------|----------|----------|-----------|-------------|-----------|
|                                                                                                                     | a1            | b1        | a2           | b2       | a3           | b3       | a4       | b4        | a5          | b5        |
| GWP-total                                                                                                           | 9,70E-03      | 2,51E-02  | 4,38E-04     | 4,60E-03 | 0,00E+00     | 1,04E-02 | 2,10E+01 | -3,00E-04 | 1,48E-03    | -2,57E-04 |
| GWP-fossil                                                                                                          | 9,68E-03      | 2,29E-02  | 4,37E-04     | 4,59E-03 | 0,00E+00     | 8,31E-04 | 1,99E+01 | 3,00E-04  | 1,30E-03    | -2,26E-04 |
| GWP-biogenic                                                                                                        | 1,50E-05      | 1,69E-03  | 2,46E-07     | 2,59E-06 | 0,00E+00     | 9,55E-03 | 9,04E-01 | -5,00E-06 | 1,84E-04    | -3,31E-05 |
| GWP-luluc                                                                                                           | 9,84E-06      | 6,23E-04  | 2,23E-07     | 2,34E-06 | 0,00E+00     | 5,07E-07 | 1,26E-01 | -1,50E-06 | 1,66E-06    | -2,89E-07 |
| ODP                                                                                                                 | 1,10E-10      | 1,10E-09  | 8,59E-12     | 9,03E-11 | 0,00E+00     | 1,64E-11 | 3,96E-07 | 5,00E-12  | 2,85E-11    | -5,13E-12 |
| AP                                                                                                                  | 2,31E-04      | 3,31E-05  | 2,90E-06     | 3,05E-05 | 0,00E+00     | 4,38E-06 | 9,03E-02 | -5,00E-07 | 1,92E-05    | -3,22E-06 |
| EP-freshwater                                                                                                       | 1,61E-05      | 3,28E-06  | 3,10E-08     | 3,26E-07 | 0,00E+00     | 9,72E-08 | 1,34E-02 | 5,00E-08  | 1,06E-06    | -1,82E-07 |
| EP-marine                                                                                                           | 2,02E-05      | 4,26E-05  | 9,34E-07     | 9,82E-06 | 0,00E+00     | 5,55E-06 | 1,50E-02 | -1,50E-07 | 2,00E-06    | -3,35E-07 |
| EP-terrestrial                                                                                                      | 2,79E-04      | 1,82E-04  | 1,01E-05     | 1,06E-04 | 0,00E+00     | 1,70E-05 | 1,40E-01 | 1,00E-06  | 2,02E-05    | -3,73E-06 |
| POCP                                                                                                                | 5,92E-05      | 7,72E-05  | 3,39E-06     | 3,56E-05 | 0,00E+00     | 6,98E-06 | 5,15E-02 | -5,00E-07 | 6,77E-06    | -1,21E-06 |
| ADPE                                                                                                                | 2,78E-06      | -4,09E-07 | 1,13E-09     | 1,19E-08 | 0,00E+00     | 2,96E-09 | 2,20E-04 | 3,00E-09  | 1,92E-07    | -3,54E-08 |
| ADPF                                                                                                                | 1,40E-01      | 3,33E-01  | 6,31E-03     | 6,63E-02 | 0,00E+00     | 9,76E-03 | 4,03E+02 | -5,00E-03 | 1,77E-02    | -3,11E-03 |
| WDP                                                                                                                 | 8,15E-03      | -2,67E-02 | 2,91E-05     | 3,06E-04 | 0,00E+00     | 9,64E-05 | 5,77E+00 | -1,33E-15 | 3,19E-04    | -5,51E-05 |
| CRU                                                                                                                 | 0,00E+00      | 0,00E+00  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| MFR                                                                                                                 | 2,37E-04      | -3,78E-05 | 0,00E+00     | 0,00E+00 | 0,00E+00     | 6,92E-03 | 0,00E+00 | 0,00E+00  | 9,28E-04    | -1,60E-04 |
| MER                                                                                                                 | 0,00E+00      | 0,00E+00  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| EE                                                                                                                  | 0,00E+00      | 1,81E-04  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 7,60E-03 | 0,00E+00 | 0,00E+00  | 7,30E-05    | -1,23E-05 |
| PM                                                                                                                  | 9,49E-10      | 6,31E-10  | 4,14E-11     | 4,35E-10 | 0,00E+00     | 8,57E-11 | 4,43E-07 | 5,00E-12  | 1,24E-10    | -2,09E-11 |
| IRP                                                                                                                 | 7,61E-04      | 9,61E-04  | 6,90E-06     | 7,26E-05 | 0,00E+00     | 2,84E-05 | 8,73E+00 | -3,55E-15 | 1,71E-04    | -3,03E-05 |
| PENRE                                                                                                               | 1,23E-01      | 3,29E-01  | 6,31E-03     | 6,63E-02 | 0,00E+00     | 9,77E-03 | 4,03E+02 | -1,14E-13 | 1,77E-02    | -3,11E-03 |
| PENRM                                                                                                               | 1,62E-02      | 3,06E-03  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| PENRT                                                                                                               | 1,40E-01      | 3,33E-01  | 6,31E-03     | 6,63E-02 | 0,00E+00     | 9,77E-03 | 4,03E+02 | -1,14E-13 | 1,77E-02    | -3,11E-03 |
| PERE                                                                                                                | 1,45E-02      | -4,27E-02 | 8,49E-05     | 8,93E-04 | 0,00E+00     | 3,27E-04 | 8,98E+01 | 2,00E-03  | 2,10E-03    | -3,67E-04 |
| PERM                                                                                                                | 6,92E-04      | 1,37E-01  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| PERT                                                                                                                | 1,51E-02      | 9,43E-02  | 8,49E-05     | 8,93E-04 | 0,00E+00     | 3,27E-04 | 8,98E+01 | 2,00E-03  | 2,10E-03    | -3,67E-04 |
| PE                                                                                                                  | 1,55E-01      | 4,27E-01  | 6,39E-03     | 6,72E-02 | 0,00E+00     | 1,01E-02 | 4,92E+02 | -5,00E-03 | 1,98E-02    | -3,41E-03 |
| SM                                                                                                                  | 0,00E+00      | 7,45E-03  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| RSF                                                                                                                 | 0,00E+00      | 0,00E+00  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| NRSF                                                                                                                | 0,00E+00      | 0,00E+00  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| FW                                                                                                                  | 2,05E-04      | -8,46E-04 | 9,50E-07     | 9,98E-06 | 0,00E+00     | 3,89E-06 | 3,56E-01 | -1,11E-16 | 1,12E-05    | -1,93E-06 |
| HWD                                                                                                                 | 4,36E-07      | 1,55E-06  | 3,88E-08     | 4,08E-07 | 0,00E+00     | 5,84E-08 | 9,76E-04 | -2,00E-08 | 1,30E-07    | -2,26E-08 |
| NHWD                                                                                                                | 1,89E-03      | 3,10E-03  | 4,92E-04     | 5,17E-03 | 0,00E+00     | 2,68E-03 | 1,59E+00 | 2,50E-05  | 5,76E-04    | -1,00E-04 |
| RWD                                                                                                                 | 1,95E-07      | 2,41E-07  | 1,66E-09     | 1,74E-08 | 0,00E+00     | 7,06E-09 | 2,21E-03 | -3,00E-08 | 4,38E-08    | -7,55E-09 |
| ETP-fw                                                                                                              | 2,46E-01      | 1,08E-01  | 3,14E-03     | 3,30E-02 | 0,00E+00     | 1,64E-02 | 6,22E+01 | 5,00E-04  | 1,82E-02    | -3,22E-03 |
| HTP-c                                                                                                               | 3,76E-11      | 2,42E-12  | 1,91E-13     | 2,01E-12 | 0,00E+00     | 8,65E-13 | 8,32E-09 | 0,00E+00  | 8,92E-12    | -1,58E-12 |
| HTP-nc                                                                                                              | 2,41E-09      | -2,57E-10 | 4,33E-12     | 4,55E-11 | 0,00E+00     | 1,66E-11 | 3,22E-07 | -4,00E-12 | 2,94E-10    | -5,28E-11 |
| SQP                                                                                                                 | 8,03E-02      | 4,20E-01  | 5,74E-03     | 6,03E-02 | 0,00E+00     | 5,45E-03 | 7,24E+01 | -7,11E-15 | 1,13E-02    | -1,96E-03 |
| BCProd                                                                                                              | 0,00E+00      | 5,12E-05  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
| BCPack                                                                                                              | 2,25E-05      | 4,42E-03  | 0,00E+00     | 0,00E+00 | 0,00E+00     | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00    | 0,00E+00  |
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## Extrapolation Factors

[illegible]

## Glossary

| Environmental impact Indicators                                                                                               |                                                                                                                        |                           |                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------|
| GWP-total                                                                                                                     | Global Warming Potential total (Climate change)                                                                        |                           |                                                   |
| GWP-fossil                                                                                                                    | Global Warming Potential fossil                                                                                        |                           |                                                   |
| GWP-biogenic                                                                                                                  | Global Warming Potential biogenic                                                                                      |                           |                                                   |
| GWP-luluc                                                                                                                     | Global Warming Potential land use and land use change                                                                  |                           |                                                   |
| ODP                                                                                                                           | Depletion potential of the stratospheric ozone layer                                                                   |                           |                                                   |
| AP                                                                                                                            | Acidification potential                                                                                                |                           |                                                   |
| EP-freshwater                                                                                                                 | Eutrophication potential - freshwater compartment                                                                      |                           |                                                   |
| EP-marine                                                                                                                     | Eutrophication potential - fraction of nutrients reachin marine end compartment                                        |                           |                                                   |
| EP-terrestrial                                                                                                                | Eutrophication potential - Accumulated Exceedance                                                                      |                           |                                                   |
| POPCD                                                                                                                         | Formation potential of tropospheric ozone                                                                              |                           |                                                   |
| ADP-m&m                                                                                                                       | Abiotic Depletion for non-fossil resources potential                                                                   |                           |                                                   |
| ADP-fossil                                                                                                                    | Abiotic Depletion for fossil resources potential, WDP                                                                  |                           |                                                   |
| WDP                                                                                                                           | Water deprivation potential                                                                                            |                           |                                                   |
| Resource indicators                                                                                                           |                                                                                                                        |                           |                                                   |
| PENRE                                                                                                                         | Use of non-renewable primary energy excluding renewable primary energy resources used as raw                           |                           |                                                   |
| PENRM                                                                                                                         | Use of non-renewable primary energy resources used as raw material                                                     |                           |                                                   |
| PENRT                                                                                                                         | Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials |                           |                                                   |
| PERE                                                                                                                          | Use of renewable primary energy excluding non-renewable primary energy resources used as raw material.                 |                           |                                                   |
| PERM                                                                                                                          | Use of renewable primary energy resources used as raw material                                                         |                           |                                                   |
| PERT                                                                                                                          | Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)    |                           |                                                   |
| Secondary materials, water and energy resources                                                                               |                                                                                                                        | Waste category indicators |                                                   |
| SM                                                                                                                            | Use of secondary materials                                                                                             | HWD                       | Hazardous waste disposed                          |
| RSF                                                                                                                           | Use of renewable secondary fuels                                                                                       | N-HWD                     | Non-hazardous waste disposed                      |
| NRSF                                                                                                                          | Use of non-renewable secondary fuels                                                                                   | RWD                       | Radioactive waste disposed                        |
| FW                                                                                                                            | Net use of fresh water                                                                                                 |                           |                                                   |
| Output flow indicators                                                                                                        |                                                                                                                        | Optional indicators       |                                                   |
| CfRu                                                                                                                          | Components for re-use                                                                                                  | Tot PE                    | Total use of primary energy during the life cycle |
| MfR                                                                                                                           | Materials for recycling                                                                                                |                           |                                                   |
| MfER                                                                                                                          | Materials for energy recovery                                                                                          | Efp                       | Emissions of Fine particles                       |
| EE                                                                                                                            | Exported Energy                                                                                                        | IrHH                      | Ionizing radiation, human health                  |
|                                                                                                                               |                                                                                                                        | ETX FW                    | Ecotoxicity, freshwater                           |
|                                                                                                                               |                                                                                                                        | HTX CE                    | Human toxicity, carcinogenic effects              |
|                                                                                                                               |                                                                                                                        | HTX N-CE                  | Human toxicity, non-carcinogenic effects          |
|                                                                                                                               |                                                                                                                        | IrLS                      | Impact related to Land use / soil quality         |
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