

PRODUCTS FAMILY DECLARATION FOR – – MCB HOUSEHOLD SERIES OF ABB

# PEP ecopassport®

## Product Environmental Profile



Registration number:	ABBG-00339-V02.01-EN	Drafting rules:	PCR-ed4-EN-2021 09 06
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Verifier accreditation number:	VH59	Information and reference documents:	www.pep-ecopassport.org
Date of issue:	June-2025	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 (Ddemail)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022			
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 content of this PEP cannot be compared with the content based on another program/database.

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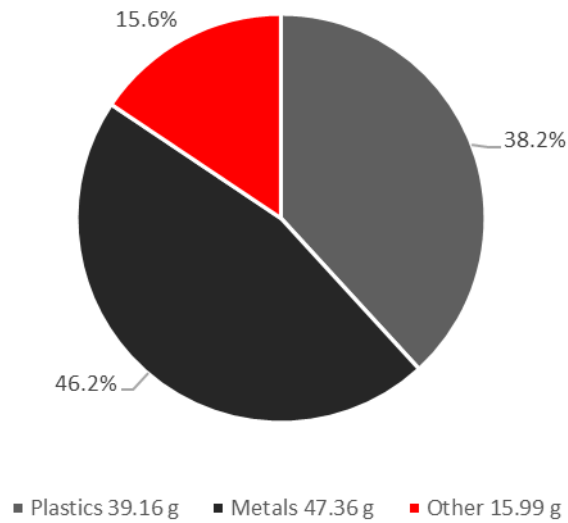


## General Information

<b>Reference product</b>	One unit of Miniature Circuit Breaker (MCB) household series - produced by ABB, the representative product is SH201-C16.
<b>Description of the product</b>	Household MCB products which are terminal distribution protection products with overload and short-circuit protection features. All MCB products meet the international standard of IEC/EN 60898-1 and GB/T 10963.1 allowing their use in residential applications. The representative product is SH201-C16.
<b>Functional unit</b>	Protect the installation from overloads and short circuits in a circuit with rated voltage $U_e$ (230/400 V), rated current $I_n$ (16A), with $N_p$ poles (1p), a rated breaking capacity $I_{cn}$ (6kA) and the tripping curve $C_d$ (C), in the household application area, according to the use scenario of 15% load rate and 30% use rate during the reference service life of the product of 20 years.
<b>Other products covered</b>	The products covered by this PEP are: SH200, SH200L, SH200T, SF200, SF200M, SF200MDC, SF200DC, SE200, SE200L, SE200MDC, SJ200, SJ200T, SJ200L, CRS200
<b>Manufacturing address</b>	Organization: ABB LV INSTALLATION MATERIALS CO., LTD. BEIJING Address: NO.17 Kangding Street, Beijing Economic-Technological Development Area, Beijing, China Website: <a href="https://new.abb.com/cn">https://new.abb.com/cn</a>



# Constituent Materials



**Total weight of reference product and packaging** **102.5 g**

Plastics as % of weight		Metals as % of weight		Other as % of weight	
Name and CAS number	Weight %	Name and CAS number	Weight %	Name and CAS number	Weight %
PA6+GF/ PA66+GF	35.9	Steel	40.4	Corrugated board & Paper	11.7
Other plastic	2.3	Cu	4.2	Wood	3.4
		Al	1.6	Others	0.5

These products comply with actual requirements of Low Voltage Directives - 2014/35/EU and RoHS Directives 2011/65/EU including 2014/13/EU & 2015/863/EU and do not contain or only contain in the authorised proportions lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls -PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive.



## Additional Information

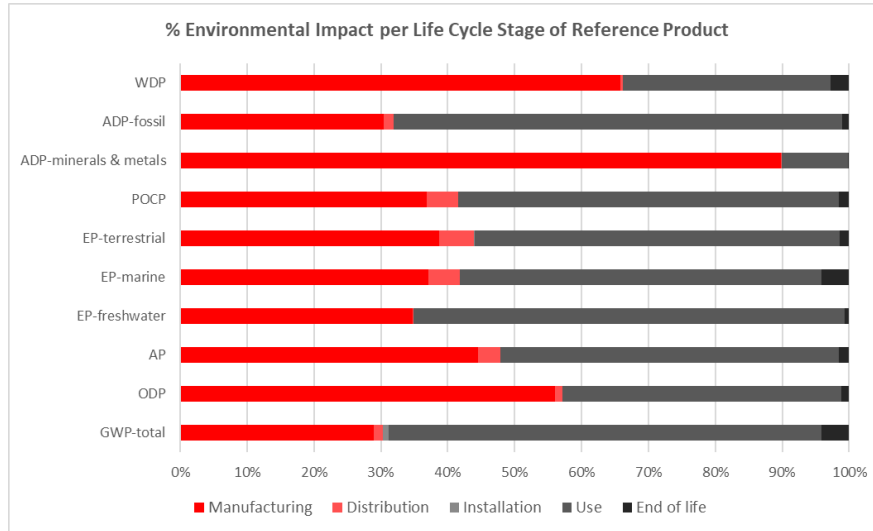
<b>Manufacturing</b>	The components are transported by lorry from the suppliers to the manufacturing site and product is assembled and packed in ABB plant. The electricity on the manufacturing site of ABB plant are photovoltaic power and wind power of China. Production waste is assumed to be transported by lorry and treated by disposal. Specific one-year data from 2024 on the manufacturing site level was collected. Economic allocation was applied to allocate corresponding data to the studied product.
<b>Distribution</b>	25.2% in China, 48.6% to Singapore, 18.1% to Australia, 2.4% to USA and 5.7% to Vietnam.
<b>Installation</b>	For the installation of the product, only standard tools (electric screwdriver) are needed. For treatment of packaging waste, the scenario set by the PSR is followed.
<b>Use</b>	This product requires no servicing, no maintenance or additional products. The only energy used is low voltage electricity of China, Singapore, Australia, USA and Vietnam.
<b>End of life</b>	The reference product is assumed to be partly recycled and recovered. And the remaining part is treated to the end-of-life stage.
<b>Benefits and loads beyond the system boundaries</b>	/



# Environmental Impacts

<b>Reference lifetime</b>	20 years.
<b>Product category</b>	PSR-0005-ed3.1-EN-2023 12 08, 3.2. Circuit-breakers
<b>Installation elements</b>	Electric screw is used for installation, not other material is needed.
<b>Use scenario</b>	Load rate = 15% In, Use rate = 30 % RLT
<b>Geographical representativeness</b>	Raw materials and Manufacturing: Global; Assembly: China; Distribution: China, Singapore, Australia, USA and Vietnam; Installation: Global, China, Singapore, Australia, USA and Vietnam; Use: China, Singapore, Australia, USA and Vietnam; EoL: Global, China, Singapore, Australia, USA and Vietnam
<b>Technological representativeness</b>	Technology is specific to current production of this product in ABB plant.
<b>Time representativeness</b>	2024
<b>Software and database used</b>	SimaPro version 9.6.0.1. & databases ecoinvent 3.10 & EF3.1
<b>Energy model used</b>	
<b>Manufacturing</b>	Materials and parts production: Global electricity mix Product assembly: photovoltaic power and wind power of China
<b>Installation</b>	Global electricity mix and average electricity mix of China, Singapore, Australia, USA and Vietnam
<b>Use</b>	Average electricity mix of China, Singapore, Australia, USA and Vietnam
<b>End of life</b>	Global electricity mix and average electricity mix of China, Singapore, Australia, USA and Vietnam

## Common base of mandatory indicators



## Environmental impact indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	
GWP	Total	kg CO2 eq.	2.99E+00	8.66E-01	4.11E-02	2.73E-02	1.94E+00	1.23E-01
	Fossil	kg CO2 eq.	2.98E+00	8.81E-01	4.10E-02	2.81E-04	1.94E+00	1.23E-01
	Biogenic	kg CO2 eq.	1.19E-02	-1.58E-02	7.19E-06	2.70E-02	3.28E-04	2.88E-04
	Luluc	kg CO2 eq.	1.16E-03	7.56E-04	1.80E-05	8.26E-08	3.74E-04	1.49E-05
ODP	kg CFC11 eq.	5.36E-08	3.00E-08	5.73E-10	3.79E-12	2.23E-08	6.47E-10	
AP	mol H+ eq.	1.58E-02	7.03E-03	5.26E-04	1.74E-06	7.98E-03	2.37E-04	
EP	Freshwater	kg P eq.	1.44E-03	5.00E-04	2.52E-06	4.13E-08	9.26E-04	1.02E-05
	Marine	kg N eq.	2.98E-03	1.11E-03	1.38E-04	7.97E-07	1.61E-03	1.24E-04
	Terrestrial	mol N eq.	2.91E-02	1.13E-02	1.52E-03	7.20E-06	1.59E-02	4.14E-04
POPCD	kg NMVOC eq.	9.57E-03	3.53E-03	4.49E-04	2.01E-06	5.45E-03	1.46E-04	
ADP	Minerals & metals	kg Sb eq.	1.12E-04	1.00E-04	9.65E-08	7.69E-10	1.11E-05	1.87E-07
	Fossil	MJ	3.57E+01	1.08E+01	5.41E-01	2.80E-03	2.39E+01	3.78E-01
WDP	m3 world eq. depr.	5.56E-01	3.66E-01	2.31E-03	1.67E-04	1.72E-01	1.54E-02	

## Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
PERE	MJ	2.95E+00	9.61E-01	5.89E-03	9.13E-05	1.97E+00	1.79E-02
PERM	MJ	2.09E-01	2.09E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.16E+00	1.17E+00	5.89E-03	9.13E-05	1.97E+00	1.79E-02
PENRE	MJ	3.45E+01	9.64E+00	5.41E-01	2.80E-03	2.39E+01	3.78E-01
PENRM	MJ	1.19E+00	1.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	3.57E+01	1.08E+01	5.41E-01	2.80E-03	2.39E+01	3.78E-01

## Common base of mandatory indicators

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

Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
SM	kg	0.00E+00	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m <sup>3</sup>	1.49E-02	9.57E-03	7.04E-05	5.74E-06	4.85E-03	4.25E-04

### Waste category indicators

Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Hazardous waste disposed	kg	2.49E-02	2.09E-02	1.20E-04	5.09E-05	1.46E-03	2.35E-03
Non-hazardous waste disposed	kg	2.56E-01	5.25E-02	1.72E-02	1.28E-04	5.39E-02	1.32E-01
Radioactive waste disposed	kg	2.02E-05	9.01E-06	9.30E-08	9.86E-10	1.07E-05	3.97E-07

### Output flow indicators

Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	Kg	3.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E+01
Materials for energy recovery	Kg	1.95E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E+01
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

### Other indicators

Indicators	Unit	Total
Biogenic carbon	Product	kg of C 0.00E+00
	Packaging	kg of C 7.37E-03

**Note 1:** In manufacturing stage, the recycled content of raw materials is 0, and scrap value is considered according to PSR. In EoL stage, recovery rate and disposal rate is based on PCR.

**Note 2:** As no biogenic carbon in the product, thus, only the biogenic carbon in the packaging was calculated. Of the product packaging and packaging for transportation, the materials containing biogenic carbon are wood pallet and paper board.

# 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 multiplying the values of the Reference product by the following coefficients:

\* if the coefficient is 1, 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

The impact for Manufacturing, Distribution, Installation and End of life phases of a product covered by the PEP other than the representative product is proportional to weight of the product, weight of the packaged product, weight of the product packaging and weight of the product, thus, the impacts of these phases should be separately calculated by multiple the coefficients factor\_1, factor\_2, factor\_3, and factor\_1 by the environmental impact for this phase of the representative product.

The environmental impact for Use phase of a product covered by the PEP other than the representative product is proportional to the amount of the electricity used in use stage, thus, the impacts should be calculated by multiple the coefficients factor\_4 by the environmental impact for this phase of the representative product.

## Extrapolation rules for Manufacturing and End of life phases (factor\_1)

Pole	Rated Current (A)	SH200, SH200L, SH200T, CRS200	SF200, SF200M	SF200MDC	SF200DC	SE200, SE200L	SE200MDC	SJ200	SJ200T, SJ200L
1P	0.5 1 1.6 2 3 4 6 8 10 13	1.01	1.05	1.05	1.06	1.01	1.04	0.97	1.01
	16 20 25 32	1.00	1.03	1.04	1.04	1.00	1.03	1.00	1.00
	40 50 63	1.17	1.20	1.21	1.21	1.17	NA	1.17	1.17
1P+N	0.5 1 1.6 2 3 4 6 8 10 13	1.96	2.02	NA	NA	1.95	NA	1.87	1.95
	16 20 25 32	1.93	1.99	NA	NA	1.92	NA	1.93	1.92
	40 50 63	2.26	2.32	NA	NA	2.26	NA	2.25	2.26
2p	0.5 1 1.6 2 3 4 6 8 10 13	2.02	2.09	2.10	2.11	2.01	2.08	1.94	2.01
	16 20 25 32	1.99	2.02	2.03	2.07	1.99	2.06	1.99	1.99
	40 50 63	2.33	2.37	2.38	2.41	2.34	NA	2.32	2.34
3p	0.5 1 1.6 2 3 4 6 8 10 13	3.02	3.10	3.12	3.14	3.01	3.13	2.89	3.00
	16 20 25 32	2.97	3.07	3.09	3.09	2.96	3.07	2.97	2.96
	40 50 63	3.49	3.58	3.60	3.60	3.49	NA	3.47	3.49
3P+N	0.5 1 1.6 2 3 4 6 8 10 13	3.98	4.10	NA	NA	3.96	NA	3.81	3.96
	16 20 25 32	3.92	4.04	NA	NA	3.91	NA	3.91	3.91
	40 50 63	4.60	4.72	NA	NA	4.59	NA	4.57	4.59
4P	0.5 1 1.6 2 3 4 6 8 10 13	4.07	4.20	4.23	4.24	4.05	4.19	3.90	4.05
	16 20 25 32	3.98	4.11	4.14	4.14	3.97	4.11	3.98	3.97
	40 50 63	4.67	4.79	4.81	4.81	4.66	NA	4.64	4.66

## Extrapolation rules for Distribution phases (factor\_2)

Pole	Rated Current (A)	SH200, SH200L, SH200T, CRS200	SF200, SF200M	SF200MDC	SF200DC	SE200, SE200L	SE200MDC	SJ200	SJ200T, SJ200L
1P	0.5 1 1.6 2 3 4 6 8 10 13	1.01	1.04	1.05	1.05	1.01	1.04	0.98	1.01
	16 20 25 32	1.00	1.03	1.03	1.03	1.00	1.03	1.00	1.00
	40 50 63	1.15	1.17	1.18	1.18	1.15	NA	1.14	1.14
1P+N	0.5 1 1.6 2 3 4 6 8 10 13	1.96	2.02	NA	NA	1.96	NA	1.89	1.96
	16 20 25 32	1.94	1.99	NA	NA	1.94	NA	1.94	1.93
	40 50 63	2.22	2.27	NA	NA	2.22	NA	2.21	2.22
2p	0.5 1 1.6 2 3 4 6 8 10 13	2.02	2.07	2.09	2.09	2.01	2.07	1.95	2.01
	16 20 25 32	1.99	2.02	2.02	2.06	1.99	2.05	1.99	1.99
	40 50 63	2.28	2.32	2.32	2.35	2.29	NA	2.28	2.29
3p	0.5 1 1.6 2 3 4 6 8 10 13	3.01	3.08	3.10	3.12	3.01	3.11	2.90	3.00
	16 20 25 32	2.98	3.06	3.08	3.08	2.97	3.06	2.97	2.97
	40 50 63	3.42	3.50	3.51	3.51	3.41	NA	3.40	3.42
3P+N	0.5 1 1.6 2 3 4 6 8 10 13	3.98	4.09	NA	NA	3.97	NA	3.84	3.97
	16 20 25 32	3.93	4.04	NA	NA	3.92	NA	3.93	3.92
	40 50 63	4.51	4.61	NA	NA	4.50	NA	4.48	4.50
4P	0.5 1 1.6 2 3 4 6 8 10 13	4.06	4.17	4.19	4.20	4.04	4.16	3.91	4.04
	16 20 25 32	3.99	4.09	4.12	4.12	3.97	4.09	3.98	3.97
	40 50 63	4.57	4.67	4.69	4.69	4.56	NA	4.54	4.56

**Extrapolation rules for Installation phases (factor\_3)**

Pole	Rated Current (A)	SH200, SH200L, SH200T, CRS200	SF200, SF200M	SF200MDC	SF200DC	SE200, SE200L	SE200MDC	SJ200	SJ200T, SJ200L
1P	0.5 1 1.6 2 3 4 6 8 10 13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	16 20 25 32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	40 50 63	1.00	1.00	1.00	1.00	1.00	NA	1.00	1.00
1P+N	0.5 1 1.6 2 3 4 6 8 10 13	2.00	2.00	NA	NA	2.00	NA	2.00	2.00
	16 20 25 32	2.00	2.00	NA	NA	2.00	NA	2.00	2.00
	40 50 63	2.00	2.00	NA	NA	2.00	NA	2.00	2.00
2p	0.5 1 1.6 2 3 4 6 8 10 13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	16 20 25 32	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	40 50 63	2.00	2.00	2.00	2.00	2.00	NA	2.00	2.00
3p	0.5 1 1.6 2 3 4 6 8 10 13	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	16 20 25 32	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	40 50 63	3.00	3.00	3.00	3.00	3.00	NA	3.00	3.00
3P+N	0.5 1 1.6 2 3 4 6 8 10 13	4.00	4.00	NA	NA	4.00	NA	4.00	4.00
	16 20 25 32	4.00	4.00	NA	NA	4.00	NA	4.00	4.00
	40 50 63	4.00	4.00	NA	NA	4.00	NA	4.00	4.00
4P	0.5 1 1.6 2 3 4 6 8 10 13	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	16 20 25 32	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	40 50 63	4.00	4.00	4.00	4.00	4.00	NA	4.00	4.00

**Extrapolation rules for Use phases (factor\_4)**

Pole	Rated Current (A)	Tripping Curve B,C,D	Pole	Rated Current (A)	Tripping Curve B,C,D	Pole	Rated Current (A)	Tripping Curve B,C,D
1P	0.5	0.66	1P+N	0.5	0.66	2P	0.5	1.31
	1	0.65		1	0.65		1	1.30
	1.6	0.72		1.6	0.72		1.6	1.44
	2	0.57		2	0.58		2	1.15
	3	0.60		3	0.61		3	1.20
	4	0.68		4	0.70		4	1.35
	6	0.44		6	0.49		6	0.88
	8	0.68		8	0.76		8	1.36
	10	0.74		10	0.87		10	1.48
	13	0.97		13	1.19		13	1.94
	16	1.00		16	1.33		16	2.00
	20	1.09		20	1.60		20	2.18
	25	1.28		25	2.09		25	2.57
	32	1.57		32	2.67		32	3.14
	40	1.74		40	3.46		40	3.48
50	2.10	50	3.07	50	4.20			
63	2.55	63	4.09	63	5.10			
3P	0.5	1.97	3P+N	0.5	1.97	4P	0.5	2.63
	1	1.94		1	1.94		1	2.59
	1.6	2.16		1.6	2.17		1.6	2.89
	2	1.72		2	1.73		2	2.29
	3	1.80		3	1.81		3	2.40
	4	2.03		4	2.05		4	2.71
	6	1.32		6	1.37		6	1.77
	8	2.04		8	2.12		8	2.72
	10	2.23		10	2.35		10	2.97
	13	2.91		13	3.13		13	3.88
	16	3.00		16	3.33		16	4.00
	20	3.26		20	3.78		20	4.35
	25	3.85		25	4.65		25	5.13
	32	4.71		32	5.81		32	6.28
	40	5.22		40	6.94		40	6.96
50	6.30	50	7.27	50	8.41			
63	7.65	63	9.19	63	10.21			

**Note:** NA indicates no product in this combination.

# Glossary

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## Environmental impact Indicators

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<b>GWP-total</b>	Global Warming Potential total (Climate change)
<b>GWP-fossil</b>	Global Warming Potential fossil
<b>GWP-biogenic</b>	Global Warming Potential biogenic
<b>GWP-luluc</b>	Global Warming Potential land use and land use change
<b>ODP</b>	Depletion potential of the stratospheric ozone layer
<b>AP</b>	Acidification potential
<b>EP-freshwater</b>	Eutrophication potential - freshwater compartment
<b>EP-marine</b>	Eutrophication potential - fraction of nutrients reachin marine end compartment
<b>EP-terrestrial</b>	Eutrophication potential - Accumulated Exceedance
<b>POCP</b>	Formation potential of tropospheric ozone
<b>ADP- minerals &amp; metals</b>	Abiotic Depletion for non-fossil resources potential
<b>ADP-fossil</b>	Abiotic Depletion for fossil resources potential
<b>WDP</b>	Water deprivation potential

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## Resource indicators

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<b>PENRE</b>	Use of non-renewable primary energy excluding renewable primary energy resources used as raw material
<b>PENRM</b>	Use of non-renewable primary energy resources used as raw material
<b>PENRT</b>	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
<b>PERE</b>	Use of renewable primary energy excluding non-renewable primary energy resources used as raw material.
<b>PERM</b>	Use of renewable primary energy resources used as raw material
<b>PERT</b>	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	
<b>SM</b>	Use of secondary materials	<b>HWD</b>	Hazardous waste disposed
<b>RSF</b>	Use of renewable secondary fuels	<b>N-HWD</b>	Non-hazardous waste disposed
<b>NRSF</b>	Use of non-renewable secondary fuels	<b>RWD</b>	Radioactive waste disposed
<b>FW</b>	Net use of fresh water		
Output flow indicators		Optional indicators	
<b>CfRu</b>	Components for re-use	<b>Tot PE</b>	Total use of primary energy during the life cycle
<b>MfR</b>	Materials for recycling	<b>Efp</b>	Emissions of Fine particles
<b>MfER</b>	Materials for energy recovery	<b>IrHH</b>	Ionizing radiation, human health
<b>EE</b>	Exported Energy	<b>ETX FW</b>	Ecotoxicity, freshwater
		<b>HTX CE</b>	Human toxicity, carcinogenic effects
		<b>HTX N-CE</b>	Human toxicity, non-carcinogenic effects
		<b>IrLS</b>	Impact related to Land use / soil quality

# References

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