Environmental Product Declaration

ASSA ABLOY
Opening Solutions

In accordance with ISO 14025 and EN15804:2012 + A2:2019/AC:2021 for:

Lockwood 1800 Series Plate Door Furniture - Lever and Thumb Turn Knob 1904/70SC from ASSA ABLOY Opening Solutions Australia Pty Ltd

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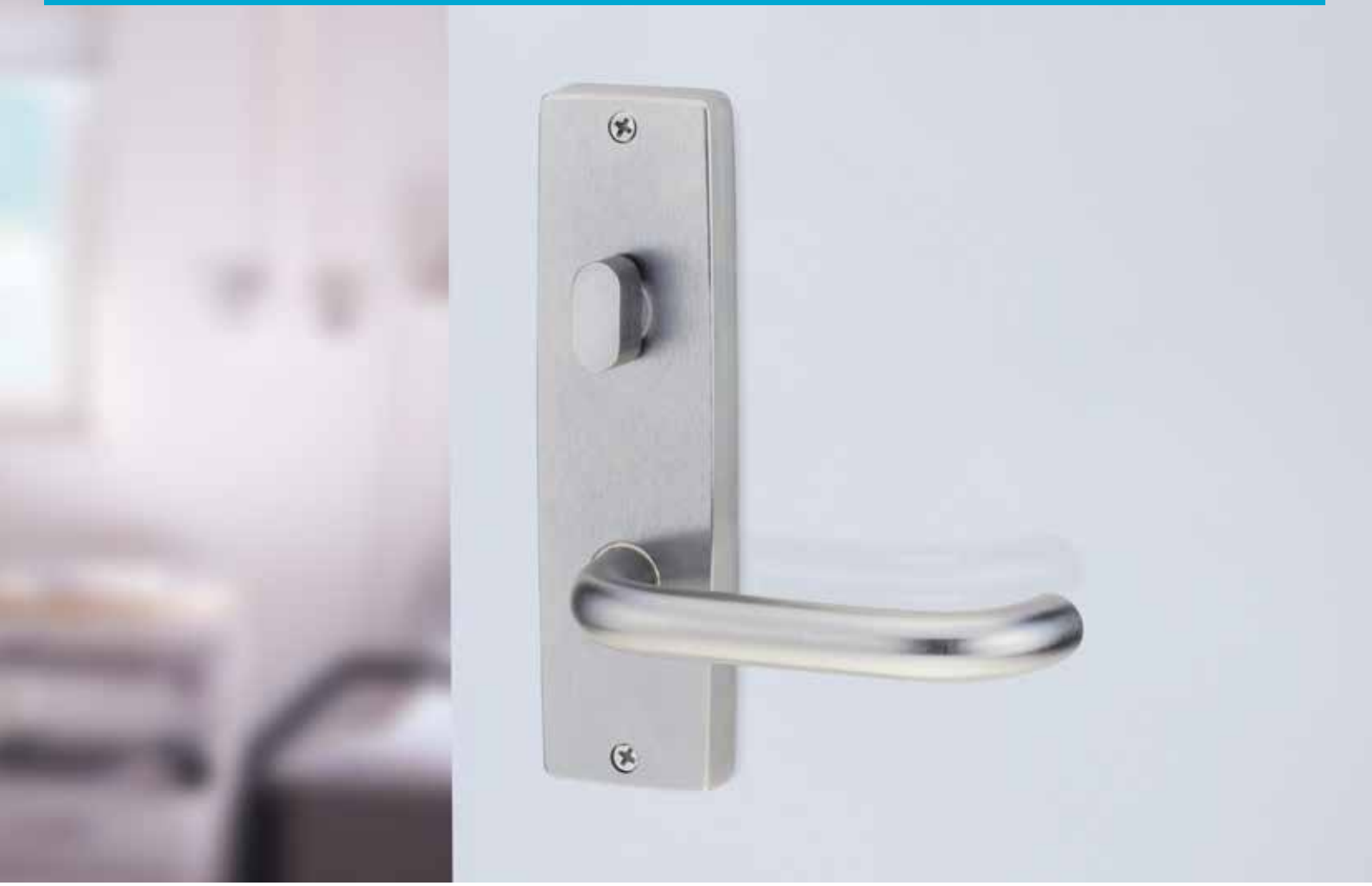

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An EPD should provide current information and may be updated if conditions change.
The stated validity is therefore subject to the continued registration and publication at www.environdec.com.
This EPD is of a specific product.

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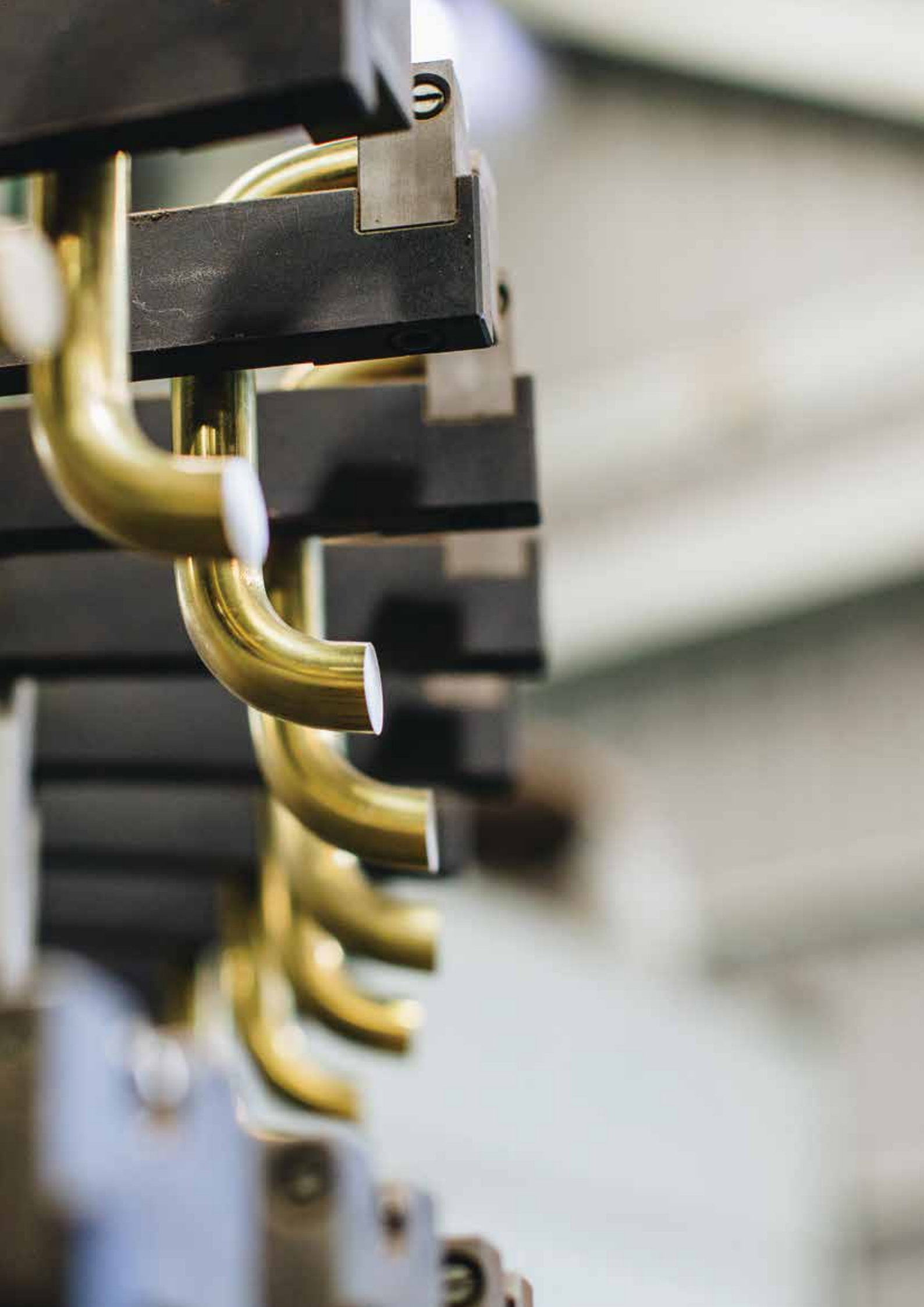

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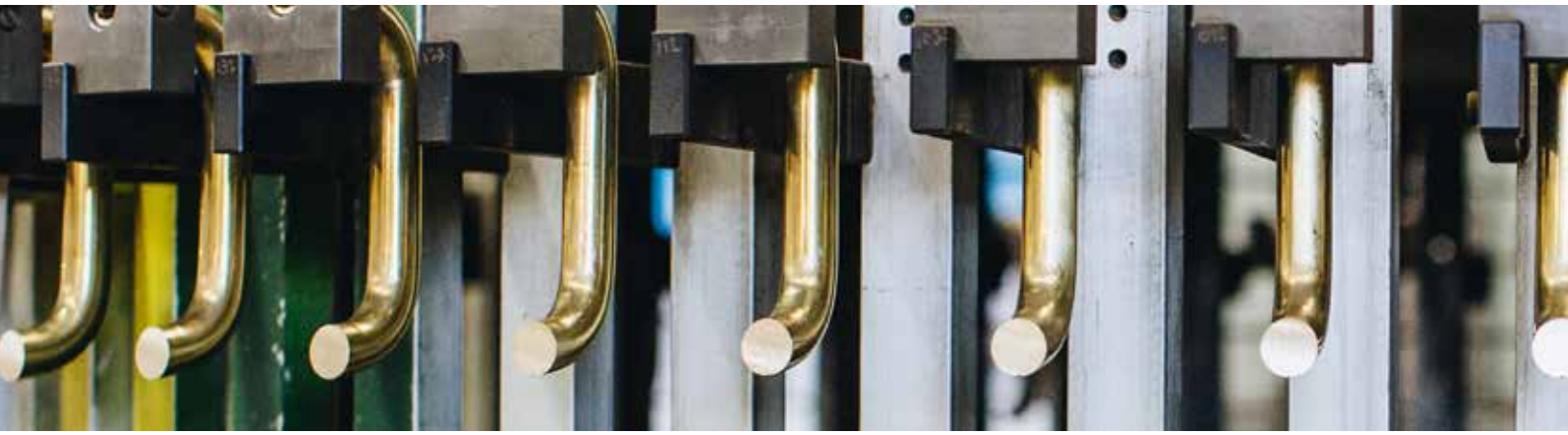
Company Information

ASSA ABLOY Australia is a leading supplier of security products to the Australian market. With iconic brands such as Lockwood, ASSA ABLOY Australia has a well-established reputation for high quality products that offer a wide range of locking solutions to residential housing, commercial building and industrial application markets, supported by an extensive distribution and after-sales support network.

With a proud history of Australian Manufacturing our facility in Melbourne is certified for quality and environmental management against ISO 9001:2015 and ISO 14001:2015.

ASSA ABLOY Australia Pty Ltd, 235 Huntingdale Rd, Oakleigh VIC 3166, Australia



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Product Information

Product(s) Covered by EPD

This EPD covers the 1904/70SC a product of the brass door furniture series manufactured by ASSA ABLOY in Australia.

- Product number: 1904/70SC
- Product characteristic:

Lockwood 1800 series plate door furniture consist of a brass lever on a brass base plate, which are satin chrome plated using a chrome 3 process. The lever handle operates a mortice lock mechanism and the plate includes a thumb turn knob to operate the lock.

- The internal plate with 70 lever and thumb turn knob needs stainless steel fixing screws that are included with matching exterior plate for a complete door assembly.
- The product can be used on timber or aluminium frame doors and has been approved for use on fire door assemblies as per AS1905.1-2015.

Matching Lockwood 1800 series plate door furniture products have a range of features that may include exterior and interior plate cylinder, square-end levers, turn knobs, emergency turn and disabled accessible turn knobs. For more details on the product, the accompanying range, or for installation procedures, refer to the Lockweb website.

https://www.lockweb.com.au/

Declared Unit

The declared unit for the EPD is 1 kg of product, as per EN 17610:2022 and c-PCR-020.

One unit of 1904/70SC weighs 0.534 Kg.

This is the mass of the product excluding the mass of accessories and packaging.

Table 1: Industry classification

Product	Classification	Code	Category
ASSA ABLOY hardware	UN CPC Ver.2.1	42992	Padlocks and locks, of base metal; clasps and frames with clasps, incorporating locks, of base metal; keys and parts thereof, of base metal; base metal fittings for furniture, doors, saddlery and the like
	ANZSIC 2006	C2299	Other Fabricated Metal Product Manufacturing n.e.c. - Door handle, metal, manufacturing

Content Declaration

Table 2: Product Composition per 1 kg of product

Product composition	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material, kg C/product or declared unit
Brass	0.958	19.16	0	0
Zinc	0.00270	0	0	0
Galvanised steel	0	0	0	0
Stainless steel	0.00722	0	0	0
Carbon steel	0.0283	0	0	0
Nylon 6	0	0	0	0
Nylon 66	0.00380	0	0	0
TOTAL	1.00	19.2	0	0

Table 3: Packaging materials per 1 kg of product

Materials	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/product or declared unit
Cardboard	0.0367	3.67	0.0184
PE plastic	0	0	0
PP plastic	0	0	0
TOTAL	0.0367	3.67	0.0184

Table 4: Dangerous substances from the candidate list of SVHC for Authorisation.

Materials / chemical substances	EC No.	CAS No.	Mass % per functional/ declared unit
Lead*	231-100-4	7439-92-1	1.72%

Articles which are not listed, do not contain substances of very high concern (SVHC) above 0.1% by weight threshold.

Emissions to indoor air.

Components within brass furniture products are all in solid form making it highly unlikely the product will produce air emissions that could pose a risk. Thus ASSA ABLOY does not measure indoor emissions to air derived from their brass furniture products.

* The concentration by weight in those articles or accessible parts thereof is equal to or greater than 0.05% by weight, and those articles or accessible parts thereof may, during normal or reasonably foreseeable conditions of use, be placed in the mouth by children. Lead (Pb) was added to the candidate list as a SVHC to minimize exposure to children between ages 3 and 36 months who exhibit "mouthing behaviour". Most ASSA ABLOY products containing lead are exempted from the REACH directive as fixed furnishings, since the installation and use of the products makes it difficult for children up to 3 years of age to reach or ingest the products. The products are therefore safe to use and complies with the latest REACH directive. REACH exemptions include for lead Keys, locks, padlocks, and musical instruments. This derogation is based on socio-economic grounds including lack of suitable alternatives and for enforcement reasons.

Manufacturing Process

The Brass Furniture Range is assembled at the ASSA ABLOY Australia production facility. Brass forgings are produced at one of a number of suppliers, then the machining, polishing and plating processes are completed at the ASSA ABLOY Australia production facility. Extruded brass parts are also formed, machined, polished and plated on site. Final products are packaged and shipped directly from the production facility or stored and shipped from our nearby warehouse.

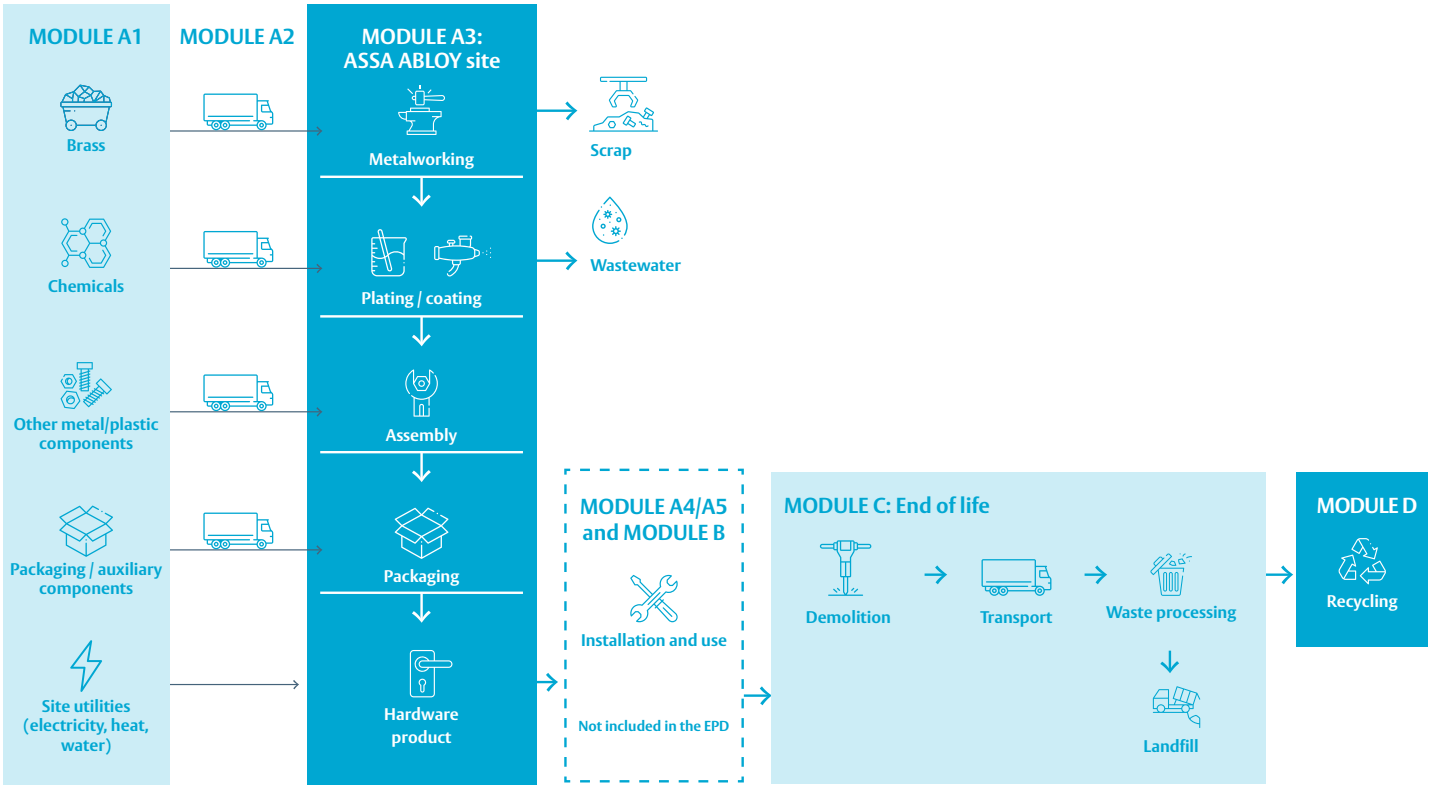

Figure 1: High level processes (A-D) for ASSA ABLOY brass furniture products

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System Boundaries

This EPD is in conformity with the following standards:

- Complementary Product Category Rules (c-PCR) to PCR 2019:14 – c-PCR-020 Building Hardware (published on 2024-04-30)
- Product Category Rules (PCR) – PCR 2019:14 (v1.3.4, published on 2024-04-30, valid until 2025-06-20), which typically sets the most specific rules
- EN15804+A2, as compliance is crucial for international acceptance of the EPD
- Instructions of the Australasian EPD Programme v4.2
- General Programme Instructions for the International EPD® System v4.0
- ISO 14025, as the core (general) standard for EPD
- ISO 14040 and 14044 as core standard for LCA

As shown in the table below, this EPD for the ASSA ABLOY brass door furniture series, considering Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). Other life cycle stages (Modules A4-A5, B1-B7 and C1-C2) are dependent on particular scenarios and best modelled at the building level.

Table 5: Modules included in the scope of the EPD

	Product stage			Construction process stage		Use stage							End-of-life stage				Recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Future reuse, recycling or energy recovery potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	AU	-	-	-	-	-	-	-	-	-	AU	AU	AU	AU	AU
Specific data	62%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = included in the EPD; ND = Module not declared (such a declaration shall not be regarded as an indicator result of zero)

Production (Modules A1-A3)

The production stage includes the environmental impacts associated with raw materials extraction and processing of inputs, transport to, between and within the manufacturing site, manufacturing of product at the exit gate of the manufacturing site and transport of product to customer.

Since Module C is included in the EPD, the use of Module A1-A3 results without considering the results of Module C is discouraged.

End of Life (Modules C1-C4)

When a building reaches its end-of-life, ASSA ABLOY brass door furniture series products are disposed of. In Australasia, the waste materials are typically disposed of in a landfill or recycled. Module C includes waste processing followed by recycling/landfill of the product. As per c-PCR-020 and EN 17610, two scenarios for end-of-life are given: recycling (main scenario) and landfill (additional scenario).

Recovery and Recycling Potential (Module D)

Module D declares a potential credit or burden for the net scrap associated with ASSA ABLOY brass door furniture series products. Net scrap is the amount of scrap left after scrap from post-consumer needs are removed from scrap produced from product. That is, secondary product used in product manufacture is subtracted from the overall amount of recycled product after the first life cycle. If the net balance is positive, a credit given. The credit is calculated by comparing the impacts associated with primary product produced.

This module is modelled considering the avoided virgin brass, steel, and polyethylene production. The energy recovered from landfill is also accounted for.

Omissions of Life Cycle Stages

Other life cycle stages (Modules A4-A5 and Modules B1-B7) are either not relevant or dependent on particular scenarios and are best modelled at the building level.

Modules A5 (installation) is not considered due to the uncertainty associated with the installation process. For example, in small construction projects, like residential buildings, some of the products are installed manually and don't require any resources; hence, the associated impacts are negligible. But in large construction projects, there might be impacts associated with loading and unloading product to site, and energy used in drills for fixing; these impacts might be relevant, but are case specific.

Modules B1 – B7 (use stage) produce no relevant emissions given that:

- Use (B1): The use of ASSA ABLOY products is passive and releases no significant emissions.
- Maintenance (B2): Maintenance related impacts of these products are assumed negligible (eventual cleaning or polishing).
- Repair (B3): Under standard conditions no repair is necessary.
- Replacement (B4): No single sub-component can be replaced, in general. Replacements can be treated the same as end-of-life of the product.
- Refurbishment (B5): No single sub-component can be refurbished, in general. Refurbishments can be treated the same as end-of-life of the product.
- Operational energy use (B6): During the use stage, no energy is used by the installed product.
- Operational water use (B7): During the use stage, no water is used by the installed product.

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Life Cycle Inventory (LCI) Data and Assumption

Primary data were used for all manufacturing operations up to the factory gate, including bill of materials, plating chemicals, and site utilities (thermal energy, electricity, and water). Primary data for upstream operations was sourced from the period 2021-01-01 to 2021-12-31.

Sphera Solutions LCA for Experts (LCAFE) software version 10.8 was used. Data for all energy inputs, transport processes, packaging and raw materials are from Managed LCA Content (MLC) database version 2024.1 (Sphera, 2024). Most datasets have a reference year between 2017 and 2021 and all fall within the 10- year limit allowable for generic data under EN 15804.

Electricity

National averages for fuel inputs and regional average for electricity grid mixes were obtained from the MLC databases. Purchased electricity accounts for all of electricity use at ASSA ABLOY site; a conservative estimate of residual electricity grid is assumed for direct consumption. The composition of the electricity grid mix is modelled in LCA FE and updated annually. Location-based grid mix EFs (using the published grid mix for Victoria) is used for other electricity consumption including modules C and D.

The composition of the residual electricity grid mix of Victoria is modelled in LCA FE based on published data for the financial year 1st July 2022 – 30st June 2023 (Australian Energy Council, 2024) and the National Electricity Mix trade between states (Australian Energy Council, 2024). The Victorian residual electricity mix is made up of lignite (91.6%), and natural gas (3.07%). Of the remaining electricity, 2.38% is imported from Southern Australia, 1.56% is imported from Tasmania, and 1.43% is imported from New South Wales.

Onsite consumption (6.98%), and the medium voltage (1kV-60 kV) grid's transmission and distribution losses (2.31%) are calculated based on data from the Australian Energy Market Operator (AEMO, 2022).

The emission factor for the Victoria residual grid mix for the GWP-GHG indicator is 1.24 kg CO2-eq/kWh (based on EF3.1).

Water Use

Tap water is regionalised, with water sources split to surface water, and desalinated water (from sea water), specific for Melbourne (26% from desalination, 74% from surface water), which is based on publicly available data. The tap water model includes the different mixes of the water sources. The freshwater sources are further regionalised by catchment in the South East Coast in Australia, as required by EN15804+A2 to allow calculation of water scarcity footprint.

End of Life

As per c-PCR-020 and EN 17610, two scenarios for end-of-life are given: recycling (main scenario) and landfill (additional scenario).

Table 6: End-of-life Assumptions (main scenario)

Process	Main scenario per 1 kg of product	Additional scenario per 1 kg of product
Collection process specified by type	0 kg collected separately	0 kg collected separately
	1 kg collected with mixed construction waste	1 kg collected with mixed construction waste
Recovery system specified by type	0 kg for re-use	0 kg for re-use
	1 kg for recycling	0 kg for recycling
	0 kg for energy recovery	0 kg for energy recovery
Disposal specified by type	0 kg product or material for final deposition	1 kg product or material for final deposition
Assumptions for scenario development	Module C1: The deconstruction or demolition of the building, including hardware, is modelled using mass allocation based on a 100-kW construction excavator. Fuel consumption is calculated at 0.172 g diesel per kg of brass furniture products.	
	Module C2: After demolition, all waste is assumed to be landfilled (main scenario) or recycled (additional scenario). The estimated transport distance by truck is 50 km with a capacity utilisation of 45%.	
	Module C3: Main scenario: For the waste that is recycled (additional scenario), an assumption of 0.063 kWh of electricity per kg of waste was assumed for waste separation.	Module C3: Additional scenario: For the waste to landfill at end-of-life, there is no processing involved. Therefore, waste processing impacts have been modelled as zero for this share.
	Module C4: Main scenario: all waste brass furniture products are recycled and this module is calculated as zero.	Module C4: Additional scenario: all waste brass furniture products are disposed on landfill, an emission related to the landfill of construction products is calculated.

Transport

Transport data is provided for the transport of primary materials to the manufacturing facility. Average transportation distances and modes of transport are included for the transport of the raw materials, operating materials, and auxiliary materials to production and assembly facilities.

The MLC database was used to model transportation. Transportation was modelled using the MLC global transportation datasets. Fuels were modelled using the geographically appropriate datasets.

Cut Off Criteria

Environmental impacts relating to personnel, infrastructure, and production equipment not directly consumed in the process are excluded from the system boundary as per the PCR (EPD International, 2024). All other reported data were incorporated and modelled using the best available life cycle inventory data.

Allocation

Where subdivision of processes was not possible, allocation rules listed in PCR chapter 6.7 have been applied. Energy and water data are economically allocated based on revenue of products following the rules of allocation of co-products (PCR 2019:14 v1.3.4, section 4.5.1). The first two preferred methods for allocation of co-products in the PCR are not applied: subdividing unit processes could not be performed and, although there is physical relationship between products, the difference in revenue per mass of product is higher than 25%; hence, economic allocation was applied.

End-of-life allocation follows the requirements of EN 15804:2012+A2:2019 and generally follows the polluter pays principle. Any open scrap inputs into manufacturing remain unconnected. At the end of life of product, scrap is collected for recycling and is thus available to produce a recycling credit within Module D. A credit for net scrap is given in Module D based on the base metal used in the product.

Data Quality

The quality of inventory data is assessed based on four key factors:

Precision – how accurately the data is measured, calculated, or estimated.

Completeness – whether all relevant data is included (e.g., no missing or unreported emissions).

Consistency – how reliably the same methods are applied across the data.

Representativeness – how well the data reflects real-world conditions across different locations, time periods, and technologies.

In this report:

The data has high precision and completeness.

The methodology is applied consistently throughout.

The data is very representative in terms of time and technology. However, its geographical representativeness is very strong for energy systems but only fair for raw materials.

Assessment Indicators

The results tables describe the different environmental indicators for each product per declared unit, for each declared module. The first section of each table contains the environmental impact indicators, describing the potential environmental impacts of the product as shown in Table 12. The second section shows the resource indicators, describing the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water, as shown in Table 13. Impact indicators are based on EF3.1 package.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

The use of primary energy is separated into energy used as raw material and energy used as energy carrier as per option C in Annex 3 in the PCR (EPD International, 2023). Energy indicators (MJ) are always given as net calorific value.

Table 7: Indicators for life cycle impact assessment

Impact category	Abbreviation
Climate change – total	GWP-total
Climate change – fossil	GWP-fossil
Climate change – biogenic	GWP-biogenic
Climate change – land use and land use change	GWP-luluc
Ozone depletion	ODP
Acidification	AP
Eutrophication aquatic freshwater	EP-freshwater
Eutrophication aquatic marine	EP-marine
Eutrophication terrestrial	EP-terrestrial
Photochemical ozone formation	POFP
Depletion of abiotic resources – minerals and metals**	ADP-minerals&metals
Depletion of abiotic resources – fossil fuels**	ADP-fossil
Water Depletion Potential**	WDP

Table 8: Life cycle inventory indicators on use of resources

Indicator	Abbreviation
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE
Use of renewable primary energy resources used as raw materials	PERM
Total use of renewable primary energy resources	PERT
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE
Use of non-renewable primary energy resources used as raw materials	PENRM
Total use of non-renewable primary energy resources	PENRT
Use of secondary material;	SM
Use of renewable secondary fuels	RSF
Use of non-renewable secondary fuels	NRSF
Total use of net fresh water	FW

Table 9: Life cycle inventory indicators on waste categories and output flows

Indicator	Abbreviation
Hazardous waste disposed	HWD
Non-hazardous waste disposed	NHWD
Radioactive waste disposed	RWD
Components for reuse	CRU
Materials for energy recovery	MER
Materials for recycling	MFR
Exported electrical energy	EEE
Exported thermal energy	EET

Disclaimer:

** The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Table 10: Additional Environmental Impact Indicators

Indicator	Abbreviation
Climate Change	GWP-GHG
Climate Change***	GWP-GHG (IPCC AR5)
Particulate Matter emissions	PM
Ionising Radiation – human health****	IR
Eco-toxicity (freshwater)**	ETP-fw
Human Toxicity, cancer**	HTP-c
Human Toxicity, non-cancer**	HTP-nc
Land use related impacts / soil quality**	SQP

Table 11: Biogenic carbon content indicators

Indicator	Abbreviation	Unit
Biogenic carbon content - product	BCC-prod	kg C
Biogenic carbon content - packaging	BCC-pack	kg C

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

Table 12: Environmental Impact Indicators in accordance with EN15804+A1

Indicator	Abbreviation
Global warming potential	GWP (EN 15804+A1)
Ozone depletion potential	ODP (EN 15804+A1)
Acidification potential	AP (EN 15804+A1)
Eutrophication potential	EP (EN 15804+A1)
Photochemical Ozone creation potential	POCP (EN 15804+A1)
Abiotic depletion potential for non-fossil resources	ADPE (EN 15804+A1)
Abiotic depletion potential for fossil resources	ADPF (EN 15804+A1)

Note: Results using the indicators and characterisation factors of EN15804+A1 are included to aid comparison and backwards compatibility with rating tools (Table 11). While the indicators and characterisation methods are from EN 15804:2012+A1:2013, other LCA rules for the study (system boundaries, allocation, etc.) are according to EN 15804:201+A2:2019; i.e., this study does not claim that the results of the "A1 indicators" are compliant with EN 15804:2012+A1:2013.

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*** GWP-GHG (IPCC AR5) is an additional GWP100 indicator that is aligned with the Intergovernmental Panel on Climate Change (IPCC) 2013 Fifth Assessment Report (AR5) (IPCC, 2013), national greenhouse gas reporting frameworks in Australia and New Zealand and previous versions of the Construction Products PCR (PCR2019:14v1.11). It excludes biogenic carbon and indirect radiative forcing.

**** This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Environmental Performance

Results are presented per 1 kg of product.

Table 13: Potential environmental impact: mandatory indicators according to EN15804+A2:2019

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	10.9	6.76E-04	0.00792	0.0486	0	-0.371
GWP-fossil	kg CO_2 eq.	10.9	6.76E-04	0.00792	0.0486	0	-0.369
GWP-biogenic	kg CO_2 eq.	0.0226	-6.21E-08	-8.46E-07	4.58E-05	0	-5.22E-04
GWP-luluc	kg CO_2 eq.	0.0132	1.75E-08	2.09E-07	1.56E-06	0	-8.53E-04
ODP	kg CFC 11 eq.	4.17E-11	6.69E-17	7.99E-16	4.78E-13	0	-2.23E-12
AP	mol H^+ eq.	0.0761	3.50E-06	4.85E-05	2.57E-04	0	-0.00468
EP-freshwater	kg P eq.	2.35E-05	1.03E-10	1.23E-09	2.70E-08	0	-8.94E-07
EP-marine	kg N eq.	0.00963	1.70E-06	2.43E-05	5.58E-05	0	-3.09E-04
EP-terrestrial	Mole of N eq.	0.104	1.86E-05	2.67E-04	6.09E-04	0	-0.00334
POCP	kg NMVOC eq.	0.0295	4.80E-06	4.89E-05	1.55E-04	0	-0.00110
ADP-minerals &metals**	kg Sb eq.	0.00246	8.79E-12	1.05E-10	2.14E-09	0	-2.54E-04
ADP-fossil**	MJ	119	0.00882	0.105	0.563	0	-4.96
WDP**	m^3 world equiv.	3.70	2.51E-06	3.00E-05	0.0198	0	-0.166

Table 14: Use of resources

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
PERE	MJ	25.5	3.82E-05	4.56E-04	0.184	0	-1.67
PERM	MJ	0	0	0	0	0	0
PERT	MJ	25.5	3.82E-05	4.56E-04	0.184	0	-1.67
PENRE	MJ	119	0.00882	0.105	0.684	0	-4.96
PENRM	MJ	0.122	0	0	-0.122	0	0
PENRT	MJ	119	0.00882	0.105	0.563	0	-4.96
SM	kg	0.281	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0
FW	m^3	0.0627	5.11E-08	6.10E-07	2.78E-04	0	-0.00300

Disclaimer:

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Table 15. Waste production and output flows

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
HWD	kg	2.91E-07	1.42E-13	1.70E-12	2.41E-10	0	-2.74E-09
NHWD	kg	1.21	2.17E-07	2.59E-06	1.79E-04	0	-0.0785
RWD	kg	0.00116	1.72E-09	2.06E-08	1.00E-07	0	-2.07E-04
CRU	kg	0	0	0	0	0	0
MER	kg	0	0	0	1.00	0	0
MFR	kg	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0

Table 16: Potential environmental impact – additional indicators according to EN15804+A2:2019

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP-GHG	kg CO_2-eq	10.9	6.76E-04	0.00793	0.0486	0	-0.371
GWP-GHG (IPCC AR5)***	kg CO_2-eq	10.9	6.76E-04	0.00793	0.0486	0	-0.370
PM	Disease incidences	8.55E-07	4.43E-11	3.72E-10	2.50E-09	0	-3.62E-08
IR****	kBq U235 eq.	0.129	1.85E-07	2.21E-06	1.34E-05	0	-0.0247
ETP-fw**	CTUe	60.7	0.00394	0.0471	0.136	0	-4.29
HTP-c**	CTUh	1.67E-06	6.47E-14	7.77E-13	5.20E-12	0	-1.20E-08
HTP-nc**	CTUh	2.27E-07	1.43E-12	1.70E-11	1.12E-10	0	-1.72E-08
SQP**	Dimensionless	41.6	1.80E-05	2.15E-04	0.0598	0	-2.81

Disclaimer:

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*** GWP-GHG (IPCC AR5) is an additional GWP100 indicator that is aligned with the Intergovernmental Panel on Climate Change (IPCC) 2013 Fifth Assessment Report (AR5) (IPCC, 2013), national greenhouse gas reporting frameworks in Australia and New Zealand and previous versions of the Construction Products PCR (PCR2019:14v1.11). It excludes biogenic carbon and indirect radiative forcing.

**** This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Table 17: Biogenic carbon content

Biogenic carbon content	Unit	A1-A3
BCC-prod	kg	0
BCC-pack	kg	0.0160

Table 18: Potential environmental impact – indicators according to EN15804+A1:2013

PARAMETER	UNIT	A1-A3	C1	C2	C3	C4	D
GWP (EN 15804+A1)	kg CO_2 eq.	10.8	6.70E-04	0.00784	0.0483	0	-0.366
ODP (EN 15804+A1)	kg CFC-11 eq.	4.91E-11	7.87E-17	9.41E-16	5.63E-13	0	-2.62E-12
AP (EN 15804+A1)	kg SO_2 eq.	0.0653	2.43E-06	3.30E-05	2.09E-04	0	-0.00413
EP (EN 15804+A1)	kg PO_4^{3-} eq.	0.00363	5.71E-07	8.17E-06	1.92E-05	0	-1.28E-04
POCP (EN 15804+A1)	kg C_2H_4 eq.	0.00390	2.52E-07	-1.21E-05	1.14E-05	0	-2.30E-04
ADPE (EN 15804+A1)	kg Sb eq.	0.00246	8.80E-12	1.05E-10	2.14E-09	0	-2.54E-04
ADPF (EN 15804+A1)	MJ (net calorific value)	114	0.00876	0.105	0.562	0	-4.20

Additional Results

Scenarios and Additional Technical Information

The main scenario assumes all materials are recycled at the end of life (modules C1–C4). An additional scenario assumes that all materials in the product are sent to landfill at the end. Results are presented per 1 kg of product.

Table 19: EN15804+A2 Core environmental impact indicators

PARAMETER	UNIT	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	6.76E-04	0.00792	0	0.0225	0.187
GWP-fossil	kg CO_2 eq.	6.76E-04	0.00792	0	0.0220	0.187
GWP-biogenic	kg CO_2 eq.	-6.21E-08	-8.46E-07	0	4.58E-04	-2.04E-04
GWP-luluc	kg CO_2 eq.	1.75E-08	2.09E-07	0	9.01E-05	2.99E-04
ODP	kg CFC 11 eq.	6.69E-17	7.99E-16	0	4.22E-14	6.54E-13
AP	mol H^+ eq.	3.50E-06	4.85E-05	0	1.51E-04	0.00175
EP-freshwater	kg P eq.	1.03E-10	1.23E-09	0	9.94E-08	3.09E-07
EP-marine	kg N eq.	1.70E-06	2.43E-05	0	4.96E-05	1.33E-04
EP-terrestrial	mol N eq.	1.86E-05	2.67E-04	0	5.46E-04	0.00140
POCP	kg NMVOC eq.	4.80E-06	4.89E-05	0	1.29E-04	4.77E-04
ADP-mineral &metals**	kg Sb eq.	8.79E-12	1.05E-10	0	1.08E-09	8.61E-05
ADP-fossil**	MJ	0.00882	0.105	0	0.294	2.23
WDP**	m3 world eq. deprived	2.51E-06	3.00E-05	0	0.00178	0.0605

Disclaimer:

** The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Table 20: Use of resources

PARAMETER	UNIT	C1	C2	C3	C4	D
PERE	MJ	3.82E-05	4.56E-04	0	0.0356	0.532
PERM	MJ	0	0	0	0	0
PERT	MJ	3.82E-05	4.56E-04	0	0.0356	0.532
PENRE	MJ	0.00882	0.105	0	0.415	2.23
PENRM	MJ	0	0	0	-0.122	0
PENRT	MJ	0.00882	0.105	0	0.294	2.23
SM	kg	0	0	0	0	0
RSF	MJ	0	0	0	0	0
NRSF	MJ	0	0	0	0	0
FW	m^3	5.11E-08	6.10E-07	0	5.40E-05	0.00741

Table 21: Waste production and output flows

PARAMETER	UNIT	C1	C2	C3	C4	D
HWD	kg	1.42E-13	1.70E-12	0	5.21E-11	5.62E-09
NHWD	kg	2.17E-07	2.59E-06	0	1.00	0.0192
RWD	kg	1.72E-09	2.06E-08	0	2.21E-06	6.84E-05
CRU	kg	0	0	0	0	0
MER	kg	0	0	0	0	0
MFR	kg	0	0	0	0	0
EEE	MJ	0	0	0	0	0
EET	MJ	0	0	0	0	0

Table 22: EN15804+A2 Additional Environmental Impact Indicators

PARAMETER	UNIT	C1	C2	C3	C4	D
GWP-GHG	kg CO_2-eq	6.76E-04	0.00793	0	0.0221	0.187
GWP-GHG (IPCC AR5)***	kg CO_2-eq	6.76E-04	0.00793	0	0.0220	0.187
PM	Disease incidences	4.43E-11	3.72E-10	0	1.67E-09	1.37E-08
IR****	kBq U235 eq.	1.85E-07	2.21E-06	0	2.60E-04	0.00679
ETP-fw**	CTUe	0.00394	0.0471	0	0.196	1.46
HTP-c**	CTUh	6.47E-14	7.77E-13	0	3.47E-12	4.11E-11
HTP-nc**	CTUh	1.43E-12	1.70E-11	0	1.21E-10	5.73E-09
SQP**	Dimensionless	1.80E-05	2.15E-04	0	0.0550	0.968

Table 23: EN15804+A1 Environmental Impact Indicators

PARAMETER	UNIT	C1	C2	C3	C4	D
GWP (EN 15804+A1)	kg CO_2 eq.	6.70E-04	0.00784	0	0.0222	0.185
ODP (EN 15804+A1)	kg CFC-11 eq.	7.87E-17	9.41E-16	0	4.97E-14	7.70E-13
AP (EN 15804+A1)	kg SO_2 eq.	2.43E-06	3.30E-05	0	1.15E-04	0.00154
EP (EN 15804+A1)	kg PO_4^{3-} eq.	5.71E-07	8.17E-06	0	1.78E-05	5.29E-05
POCP (EN 15804+A1)	kg C_2H_4 eq.	2.52E-07	-1.21E-05	0	-4.13E-06	1.04E-04
ADPE (EN 15804+A1)	kg Sb eq.	8.80E-12	1.05E-10	0	1.09E-09	8.60E-05
ADPF (EN 15804+A1)	MJ	0.00876	0.105	0	0.284	2.01

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**** This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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General Information

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. Results that are A1 compliant are given in an annex to this document to assist comparability across EPDs.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

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Declaration owner:

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Geographical Scope	Australasia
Reference Year for Data	2021-01-01 to 2021-12-31
EPD programme: EPD INTERNATIONAL EPD SYSTEM	EPD International AB **Web:** www.environdec.com **Email:** info@environdec.com **Post:** Box 210 60, SE-100 31 Stockholm, Sweden
EPD programme operator: EPD® AUSTRALASIA INTERNATIONAL EPD SYSTEM	EPD Australasia Limited **Web:** http://www.epd-australasia.com **Email:** info@epd-australasia.com **Post:** EPD Australasia Limited, 315a Hardy Street Nelson 7010, New Zealand

Accountabilities for PCR, LCA and independent, third-party verification:

Product Category Rules (PCR) PCR:	CEN standard EN 15804+A2 served as the core PCR, complemented by CEN standard EN 17610:2022 PCR 2019.14 Construction Products Version 1.3.4, 2024-04-30
c-PCR	C-PCR-020 Building hardware (EN 17610:2022), 2024-04-30
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com for a list of members.
Chair:	The most recent review chair: Claudia Peña, PINDA LCT SpA. The review panel may be contacted via the Secretariat: info@environdec.com
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EPD produced by	ASSA ABLOY Australia Pty Ltd
Third-party verification Independent verification of the declaration and data, according to ISO 14025: 2006, via:	☐ EPD verification by individual verifier ☑ EPD process certification
Process Certified by:	Epsten Group Inc. Email: in@epstengroup.com Accredited body certificate number: 3142.03
Procedure for follow-up of data during EPD validity involved third-party verifier	☐ Yes ☑ No
Version History	Original issue

The ASSA ABLOY Group is the global leader in access solutions. Every day, we help billions of people experience a more open world.

ASSA ABLOY Opening Solutions leads the development within door openings and products for access solutions in homes, businesses and institutions. Our offering includes doors, door and window hardware, mechanical and smart locks, access control and service.

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