ENVIRONMENTAL PRODUCT DECLARATION

IPC WALL BASE

IPC DOOR AND WALL PROTECTION SYSTEMS

High Impact Wall Base

Since 1979, Inpro has been eliminating building-related worries by making and servicing products with an obsessive commitment to protecting safety, health, environment and appearance. Inpro, headquartered in Muskego, WI, is the nation's premier manufacturer of architectural products in five divisions including: door and wall protection, washroom systems and commercial surfaces, engineered metal products, privacy systems and architectural signage.

Inpro is committed to sustainable business practices in our dealings with employees, customers, suppliers, government entities and our community neighbors – all with an eye toward our obligation to future generations.

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ENVIRONMENTAL PRODUCT DECLARATION
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ENVIRONMENTAL PRODUCT DECLARATION

• IPC™
DOOR + WALL PROTECTION SYSTEMS
A DIVISION OF INPRO®

IPC Wall Base
UNCPC Code: 36950 – Builders' ware of products

According to ISO 14025 and EN 15804

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	**UL Environment**
DECLARATION HOLDER	Inpro
DECLARATION NUMBER	13CA36257.105.1
DECLARED PRODUCT	IPC Wall Base
REFERENCE PCR	Construction Products and CPC 54 Construction Services

DATE OF ISSUE	November 8, 2013
PERIOD OF VALIDITY	5 years
EXTENSION PERIOD	June 30, 2019
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	Martin Erlandsson Swedish Environmental Research Institute martin.erlandsson@ivl.se
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Paul Firth
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas Gloria

This EPD conforms with EN 15804

Environment

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Manufacturer Information

Inpro (IPC) is a manufacturer of building protection products. Products range from wall protection, privacy systems, building joining systems and signage. The World Headquarters and manufacturing campus is located in Muskego, Wisconsin. On-site manfuacturing processes include plastic extrusion, injection molding, coloring, assembly, and other processes.

Environmental Management System

Inpro has established, documented, and implemented an ISO 14001 certified environmental management system and maintains and continually improves the effectiveness of this system.

Environmental Policy

Inpro is committed to sustainable business practices in our dealings with employees, customers, suppliers, government entities and our community neighbors—all with an eye toward our obligation to future generations. Through our business operations, we shall:

- Communicate environmental practices to all employees.
- Develop products and processes to minimize adverse environmental impacts.
- Comply with environmental regulations and other requirements.
- Prevent pollution, conserve resources and reduce waste.
- Continually improve our environmental management system.
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Inpro
S80 W18766 Apollo Drive
Muskego, WI 53150

Product Specification

This EPD covers Inpro's wall base listed below. Also listed is the mass per unit length, including accessories and adhesives but excluding packaging materials.

Inpro wall base system is designed for wall protection and decoration. Wall base is comprised of an aluminum retainer and an extruded vinyl cover. Accessories include end caps and corners. An inner foam bumper improves impact protection. The cover material is rigid vinyl.

Representative Product	Products Included (Product ID)	Mass (kg/m)
Wall Base	WB4	0.83

Table 1: Product names and masses per unit length

Declared Unit

The environmental inventory and impacts are reported using a declared unit of one (1) meter.

Product Photo

High Impact Wall Base

Material Content and Chemical Substances

The breakdown of material content for each product family is shown in Table 2. These materials have been cross-reference against the "Candidate List of Substances of Very High Concern (SVHC)" from the European Chemicals Agency. No SVHC substances are present in the products and are thus not reported in this EPD.

Material	Material weight breakdown (%)
Polyvinyl Chloride (PVC)	38.7
Adhesive	1.8
Aluminum	58.4
Stainless steel	1.1

Table 2: Declaration of materials and chemical substances

Scope

This is a "cradle-to-gate with options" EPD. Manufacturing (A1, A2, A3), packaging (A3, A5), end-of-life disposal and recycling processes (C4) and credits (D) are included within the scope of the EPD. The scope excludes transport of the finished product (A4), the use stage (B1-7), de-construction and demolition (C1), and end-of-life transport (C2) modules because they are case-dependent. Module D is reported per PCR as "Other environmental information". The Reference Service Life (RSL) is declared as "not specified". A summary of included and excluded modules are shown in Table 3.

DESCRIPTION OF THE SYSTEM BOUNDARY																
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement[1]	Refurbishment[1]	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	MND	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X

Table 3: Summary of included and excluded modules (X = Included in LCA; MND = Module not declared)

Notes:

- A5: limited to disposal of packaging materials. Cardboard is assumed to be recycled, leading to zero values for all impact and most inventory categories, per the cut-off recycling allocation approach. Production of installation materials such as adhesives and brackets are accounted for in A1.
- C4: includes disposal of plastics and other materials
- D: includes recycling credits for aluminum and steel alloys. Recycling rates are 90% for aluminum and 92% for steel alloys, based on expectations for recycling in the building and construction sector.

The products declared in this EPD are only comparable to other products if their analyses follow the same scope and method, including compatibility with EN15804. Thus, EPDs from different programs may not be comparable.

Allocation is necessary to address recycled content, post-production scrap, and waste at end-of-life. The avoided burden allocation approach is applied to metal (aluminum and steel alloys). Under this approach, end-of-life scrap is first balanced out with any open scrap inputs into production. Only the remaining net scrap is then modeled as being sent to material recycling in order to avoid double-counting the benefits of using recycled content. If more scrap is recovered at product end-of-life than is required in the manufacturing stage, the product system receives a credit equal to the burden of primary material production minus the burden of recycling scrap into secondary material based on the mass of secondary material produced. This credit represents the avoided burden of primary material production.

The cut-off approach is applied for paper and corrugates since these contain significant recycled contents and primary and secondary material production is closely intertwined. Any open scrap inputs into manufacturing remain unconnected. The system boundary in end of life is drawn after scrap collection to account for the collection rate, which generates an open scrap output for the product system. The processing and recycling of the scrap then becomes part of the subsequent product system and is not considered in this study.

Environmental Inventory and Impacts

This section contains the absolute results for the product per the declared unit. The following section (interpretation) provides a visual breakdown of the relative impacts, allowing for a more intuitive understanding of where impacts occur in the product life cycle. Biogenic carbon is included in the global warming potential calculations. This is significant for products using G2 plastics, where biogenic carbon that is removed from the atmosphere will remain stored in the product throughout the end of life. The environmental inventory and impacts are reported per EN 15804, as follows

Environmental Impacts (CML 2001 and TRACI 2.1)

GWP	Global warming potential
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP	Eutrophication potential
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADPE	Abiotic depletion potential for non fossil resources (not available for TRACI 2.1)
ADPF	Abiotic depletion potential for fossil resources (not available for TRACI 2.1)
SP	Smog formation potential

Resource Use

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

Output Flows and Waste Categories

HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported energy per energy carrier

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(results given per meter of product)

ENVIRONMENTAL IMPACTS

CML 2001 (Nov 2010)

Wall Base		Manufacturing				End-of-Life	Credits
Parameter	**Unit**	**A1**	**A2**	**A3**	**A5**	**C4**	**D**
GWP	kg CO_2 eq	5.95E+00	4.54E-02	1.71E-01	0.00E+00	1.65E-02	-3.54E+00
ODP	kg CFC-11 eq	5.11E-09	1.17E-12	7.98E-11	0.00E+00	1.92E-12	9.02E-09
AP	kg SO_2 eq	2.94E-02	5.28E-05	8.21E-04	0.00E+00	2.56E-04	-1.99E-02
EP	kg PO_4^{3-} eq	1.56E-03	6.81E-06	3.69E-05	0.00E+00	1.00E-04	-8.98E-04
POCP	kg C_2H_4 eq	2.08E-03	1.36E-05	2.40E-05	0.00E+00	1.27E-04	-1.08E-03
ADPe	kg Sb eq	2.01E-05	5.44E-09	-2.37E-07	0.00E+00	6.17E-09	-1.61E-06
ADPf	MJ	8.64E+01	6.26E-01	1.87E+00	0.00E+00	2.63E-01	-4.31E+01

TRACI 2.1

Wall Base		Manufacturing				End-of-Life	Credits
Parameter	**Unit**	**A1**	**A2**	**A3**	**A5**	**C4**	**D**
GWP	kg CO_2 eq	5.95E+00	4.54E-02	1.71E-01	0.00E+00	1.65E-02	-3.54E+00
ODP	kg CFC-11 eq	5.95E-09	1.25E-12	8.49E-11	0.00E+00	2.04E-12	9.85E-09
AP	kg SO_2 eq	2.78E-02	5.37E-05	7.54E-04	0.00E+00	2.89E-04	-1.86E-02
EP	kg N eq	9.52E-04	3.41E-06	2.85E-05	0.00E+00	8.44E-05	-3.94E-04
SP	kg O_3 eq	2.74E-01	8.79E-04	5.23E-03	0.00E+00	1.89E-03	-1.63E-01

Wall Base		Manufacturing				End-of-Life	Credits
Parameter		**A1**	**A2**	**A3**	**A5**	**C4**	**D**
PERE	MJ	2.05E+01	3.65E-03	2.09E-01	0.00E+00	1.22E-02	-1.54E+01
PERM	MJ	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.08E+01	3.65E-03	2.09E-01	0.00E+00	1.22E-02	-1.54E+01
PENRE	MJ	8.65E+01	6.26E-01	1.87E+00	0.00E+00	2.63E-01	-4.29E+01
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.65E+01	6.26E-01	1.87E+00	0.00E+00	2.63E-01	-4.29E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	5.86E+01	6.14E-02	9.95E-01	0.00E+00	-6.29E-01	-4.19E+01

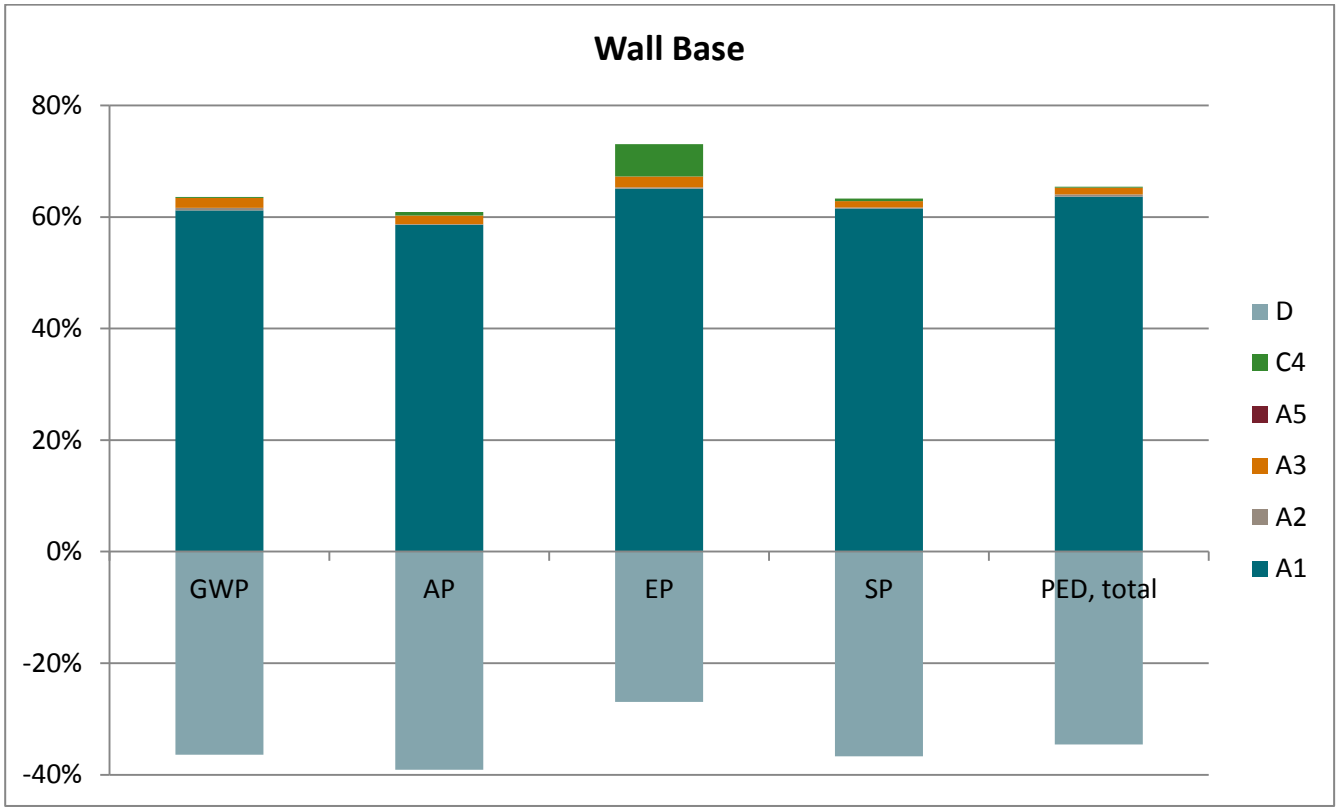
0

OUTPUT FLOWS AND WASTE CATEGORIES

Wall Base		Manufacturing				End-of-Life	Credits
Parameter		**A1**	**A2**	**A3**	**A5**	**C4**	**D**
Hazardous waste	kg	1.71E-03	0.00E+00	7.22E-04	0.00E+00	4.13E-05	1.84E-02
Non-hazardous Waste	kg	2.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-02
Radioactive waste	kg	5.86E-03	1.08E-06	2.37E-04	0.00E+00	3.39E-06	-3.77E-03

Interpretation

The following plot show the breakdown of environmental impacts (TRACI 2.1) and total Primary Energy Demand (PED, total) over the life cycle. The raw materials supply (A1), which includes the PVC, aluminum, steel, and other feedstocks, is the highest source of impact across all impact categories. In particular, aluminum has a large impact, making the onsite manufacturing processes small compared the impacts from aluminum manufacturing. Credits for recycling potential for aluminum and steel are represented in module D and appear as negative values on the plots.



Additional Information

Additional information, including product details and company information, can be found at Inpro's website: www.inprocorp.com.

References

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