



# **ENVIRONMENTAL PRODUCT DECLARATION**

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Recycled Polypropylene Injection Moulded Cavity Trays with Lead Flashing Cavity Trays Ltd.







# **GENERAL INFORMATION**

### MANUFACTURER

Manufacturer	Cavity Trays Ltd.
Address	Administration Centre, Yeovil, Somerset, BA22 8HU
Contact details	enquiries@cavitytrays.co.uk
Website	https://www.cavitytrays.com/

### **EPD STANDARDS, SCOPE AND VERIFICATION**

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Sam McGarrick (Blue Marble Environmental Partnerships Ltd.)
EPD verification	Independent verification of this EPD and data, according to ISO 14025:
	Internal certification External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.





## PRODUCT

Product name	Recycled Polypropylene Injection Moulded Cavity Trays with Lead Flashing
Additional labels	Type X Cavitray, Type X Multi-course, Type G Cavitray
Product reference	-
Place of production	Somerset, UK
Period for data	May 2022 - May 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

### **ENVIRONMENTAL DATA SUMMARY**

Declared unit	1kg of Injection Moulded Cavity Trays with Lead Flashing
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	1.03E0
GWP-total, A1-A3 (kgCO2e)	-3.98E-1
Secondary material, inputs (%)	107.0
Secondary material, outputs (%)	91.5
Total energy use, A1-A3 (kWh)	6.88
Total water use, A1-A3 (m3e)	2.37E-2





# **PRODUCT AND MANUFACTURER**

### **ABOUT THE MANUFACTURER**

In the 1920s a West Country family of builders started fabricating dampcourses and other devices to allay the fears of the unpredictable and volatile English climate. Today the fourth generation of the same family continue the tradition. The Company is now called Cavity Trays Limited and can claim more experience, more case histories and more know-how than any other company in this specialised field. Cavity Trays Limited is the first and only tray manufacturer awarded European Technical Approval - there is no higher standard. Cavitrays with high performance categorisation are accompanied with product performance liability, for the benefit of Architect, Builder and Client.

### **PRODUCT DESCRIPTION**

### **Type X Cavitray**

Preformed DPC cavitray complete with an attached ready-shaped lead flashing to form a stepped cavity DPC and flashing at the abutment of a pitched roof with a cavity wall. The Type X is the only "high performance classified Cavitray for gable abutments, and offers the builder numerous benefits. Ideal for new-build applications.







### **Type X Multi-course**

Type X Multi-course are suitable for different masonry dimensions and styles. Where different masonry dimensions and/or skin thicknesses are encountered, trays are available from the Multi range to suit. Tray style and functionality is based on the Type X design.



### Type G Cavitray

The Type G is supplied in preformed lengths and preformed angles. Long runs can be rapidly laid with adjoining sections interlocking via integral stopends that coincide with masonry perp joints. All arrested water is discharged via caviweeps. The standard Type G profile suits cavity widths from 50mm up to 160mm and is available in lengths to suit masonry coursings. The Type G is usually supplied with a flashing already attached or with an external bed lip (see Type G - No flashing page). The Type G is suitable for traditional and timber frame construction and cannot deform or misplace like conventional roll dpc.



Further information can be found at https://www.cavitytrays.com/.





#### **PRODUCT RAW MATERIAL MAIN COMPOSITION**

Raw material category	Amount, mass- %	Material origin
Metals	92.2	UK
Minerals	-	
Fossil materials	7.8	UK
Bio-based materials	-	

### **BIOGENIC CARBON CONTENT**

## Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.392

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg of Injection Moulded Cavity Trays with Lead Flashing
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

### SUBSTANCES, REACH - VERY HIGH CONCERN

Substances of very high concern	EC	CAS
Lead	231-100-4	7439-92-1





# **PRODUCT LIFE-CYCLE**

### SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

P	roduct sta	ge	Assemt	oly stage	Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B1 B2 B3 B4 B5 B6 B7						C1	C2 C3		C4	D		
x	x	x	x	x	MND	MND MND MND MND MND MND					x x x x			x				
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./dem ol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

### **MANUFACTURING AND PACKAGING (A1-A3)**

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The product comprises a polypropylene cavity tray with attached lead flashing. The polypropylene contains 100% recycled content from battery feedstock. The polypropylene from the battery cases is removed by a breaking process. The polypropylene is then washed prior to a further griding process before the material is pelletised and packaged. The other raw material input is code 4 BS EN 12588 cold rolled lead (100% recycled). The polypropylene is formed off-site through an injection moulding process and transported to Cavity Trays for packing and onward distribution. The lead is sourced from three suppliers and a weighted average of transportation distances has been calculated (A1, A2).

Manufacturing losses in the polypropylene of up to 5% have been accounted for, which are then reintroduced back into the injection moulding process. Manufacturing losses of up to 7% of the lead have been accounted for, this is returned to the lead suppliers for recycling. The lead flashing is attached to the polypropylene tray with stainless steel staples through a process of air tacking using a compressor. Energy consumption is from medium voltage electricity drawn from the UK grid (A3). Packaging includes cardboard boxes and wooden pallets (A3).

### **TRANSPORT AND INSTALLATION (A4-A5)**

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

A weighted average of transportation distances was calculated for the period May 2022 to May 2023 for transport to installation site (A4). No installation losses are anticipated. The product is introduced into the building as the outer skin is constructed. No specialist tools or energy consumption is necessary to build in the product (A5). Cardboard packaging waste is assumed to be recycled. Pallets reaching end of life are assumed to be incinerated with energy recovery (A5).





### **PRODUCT USE AND MAINTENANCE (B1-B7)**

The product is designed to remain in-situ for the lifetime of the building and no maintenance, repair or replacement is anticipated.

Air, soil, and water impacts during the use phase have not been studied.

#### **PRODUCT END OF LIFE (C1-c4, D)**

The product reaches the end of life stage at the point the building / outer skin of building is demolished. No specialist tools are necessary to remove the product. Transportation to waste treatment is conservatively assumed to be 100km. End of life waste treatment for polypropylene has been modelled on the basis of 50% going to landfill, 50% incinerated. End-of-life waste treatment for the lead has been modelled on the basis of 95% recycled, 5% reaching landfill (C3,C4). Benefits and loads for the recycling of cardboard packaging, and energy recovery from incineration of the pallet and polypropylene have been accounted for. No credit is claimed for the recycling of lead, which comes into the system burden free (D).





# **MANUFACTURING PROCESS**







# LIFE-CYCLE ASSESSMENT

### **CUT-OFF CRITERIA**

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

### ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	No allocation

### AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	- %

This EPD is product and factory specific and does not contain average calculations.

### LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent v3.8 and One Click LCA databases were used as sources of environmental data.



Created with One Click LCA





## **ENVIRONMENTAL IMPACT DATA**

### CORE ENVIRONMENTAL IMPACT INDICATORS - EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
GWP – total <sup>1)</sup>	kg CO₂e	6.49E-01	4.80E-02	-1.10E+00	-3.98E-01	6.98E-02	1.46E+00	MND	0.00E+00	9.36E-03	1.11E-01	-1.24E-03	-1.53E+01						
GWP – fossil	kg CO₂e	6.34E-01	4.80E-02	3.46E-01	1.03E+00	6.97E-02	2.28E-02	MND	0.00E+00	9.35E-03	1.18E-01	5.31E-03	-1.39E+01						
GWP – biogenic	kg CO₂e	1.41E-02	8.76E-06	-1.44E+00	-1.43E+00	2.82E-05	1.44E+00	MND	0.00E+00	0.00E+00	-6.55E-03	-6.55E-03	-1.41E+00						
GWP – LULUC	kg CO₂e	9.66E-04	2.27E-05	2.05E-03	3.04E-03	2.71E-05	2.52E-05	MND	0.00E+00	3.46E-06	2.54E-05	8.60E-07	-4.53E-03						
Ozone depletion pot.	kg CFC-11e	3.73E-08	1.07E-08	4.74E-08	9.53E-08	1.64E-08	2.98E-09	MND	0.00E+00	2.16E-09	2.45E-09	2.89E-10	-1.86E-06						
Acidification potential	mol H⁺e	2.37E-02	1.52E-04	1.96E-03	2.58E-02	2.27E-04	9.22E-05	MND	0.00E+00	3.89E-05	2.56E-04	6.86E-06	-2.01E-02						
EP-freshwater <sup>2)</sup>	kg Pe	1.10E-04	4.53E-07	2.38E-05	1.35E-04	5.91E-07	1.05E-06	MND	0.00E+00	7.68E-08	1.04E-06	1.21E-08	-7.76E-05						
EP-marine	kg Ne	1.30E-03	3.14E-05	7.52E-04	2.08E-03	4.99E-05	1.76E-05	MND	0.00E+00	1.14E-05	5.73E-05	3.04E-06	-5.03E-03						
EP-terrestrial	mol Ne	1.79E-02	3.50E-04	6.11E-03	2.44E-02	5.54E-04	1.87E-04	MND	0.00E+00	1.26E-04	6.62E-04	2.42E-05	-5.75E-02						
POCP ("smog") <sup>3)</sup>	kg NMVOCe	5.49E-03	1.34E-04	1.91E-03	7.53E-03	2.15E-04	6.17E-05	MND	0.00E+00	4.06E-05	1.81E-04	8.22E-06	-1.71E-02						
ADP-minerals & metals <sup>4)</sup>	kg Sbe	5.27E-04	1.80E-07	2.83E-06	5.30E-04	1.70E-07	1.07E-07	MND	0.00E+00	2.20E-08	2.59E-06	2.47E-09	-1.28E-05						
ADP-fossil resources	MJ	8.28E+00	7.24E-01	5.91E+00	1.49E+01	1.09E+00	3.60E-01	MND	0.00E+00	1.41E-01	2.65E-01	2.11E-02	-2.64E+02						
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	6.12E-01	3.51E-03	2.60E-01	8.76E-01	4.88E-03	6.17E-03	MND	0.00E+00	6.31E-04	5.90E-03	9.82E-05	-8.95E-01						

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

### ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS - EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
Particulate matter	Incidence	7.07E-08	4.50E-09	3.06E-08	1.06E-07	7.93E-09	1.56E-09	MND	0.00E+00	1.08E-09	3.29E-09	1.29E-10	-8.52E-08						
Ionizing radiation <sup>6)</sup>	kBq U235e	7.53E-02	3.44E-03	5.61E-02	1.35E-01	5.23E-03	5.69E-03	MND	0.00E+00	6.72E-04	2.92E-03	9.73E-05	-3.07E+00						
Ecotoxicity (freshwater)	CTUe	2.09E+02	6.84E-01	7.79E+00	2.18E+02	9.72E-01	3.96E-01	MND	0.00E+00	1.27E-01	1.20E+00	3.90E-01	-5.25E+01						
Human toxicity, cancer	CTUh	4.15E-09	1.95E-11	1.51E-09	5.68E-09	2.38E-11	1.73E-11	MND	0.00E+00	3.11E-12	4.96E-11	1.07E-09	-1.67E-09						
Human tox. non-cancer	CTUh	2.94E-07	6.25E-10	6.72E-09	3.01E-07	9.35E-10	3.35E-10	MND	0.00E+00	1.25E-10	1.70E-09	7.34E-08	-3.40E-08						
SQP <sup>7)</sup>	-	8.79E+00	6.71E-01	1.03E+02	1.12E+02	1.26E+00	2.33E-01	MND	0.00E+00	1.62E-01	5.25E-01	6.75E-02	-4.05E+01						



# Cavity Trays 🕿

6) EN 15804+A2 disclaimer for lonizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

### **USE OF NATURAL RESOURCES**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	СЗ	C4	D
Renew. PER as energy <sup>8)</sup>	MJ	1.51E+00	9.45E-03	8.68E+00	1.02E+01	1.23E-02	3.48E-02	MND	0.00E+00	1.59E-03	4.64E-02	2.92E-04	-1.70E+01						
Renew. PER as material	MJ	0.00E+00	0.00E+00	1.26E+01	1.26E+01	0.00E+00	-1.26E+01	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-01						
Total use of renew. PER	MJ	1.51E+00	9.45E-03	2.13E+01	2.28E+01	1.23E-02	-1.26E+01	MND	0.00E+00	1.59E-03	4.64E-02	2.92E-04	-1.65E+01						
Non-re. PER as energy	MJ	8.28E+00	7.24E-01	5.20E+00	1.42E+01	1.09E+00	3.60E-01	MND	0.00E+00	1.41E-01	2.65E-01	2.11E-02	-2.64E+02						
Non-re. PER as material	MJ	0.00E+00	0.00E+00	7.08E-01	7.08E-01	0.00E+00	-7.08E-01	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.73E-02						
Total use of non-re. PER	MJ	8.28E+00	7.24E-01	5.91E+00	1.49E+01	1.09E+00	-3.49E-01	MND	0.00E+00	1.41E-01	2.65E-01	2.11E-02	-2.64E+02						
Secondary materials	kg	1.07E+00	2.58E-04	2.03E-01	1.27E+00	3.03E-04	1.96E-04	MND	0.00E+00	3.91E-05	3.02E-04	5.50E-06	3.84E-03						
Renew. secondary fuels	MJ	1.17E-03	3.14E-06	3.65E-01	3.66E-01	3.06E-06	9.34E-07	MND	0.00E+00	3.95E-07	1.51E-05	2.27E-07	2.84E-03						
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Use of net fresh water	m <sup>3</sup>	1.75E-02	9.70E-05	6.12E-03	2.37E-02	1.41E-04	1.87E-04	MND	0.00E+00	1.83E-05	1.73E-04	2.40E-05	-2.32E-02						

8) PER = Primary energy resources.

#### **END OF LIFE – WASTE**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
Hazardous waste	kg	1.29E-01	1.12E-03	2.26E-02	1.53E-01	1.44E-03	1.33E-03	MND	0.00E+00	1.87E-04	1.77E-03	4.61E-02	-2.14E-01						
Non-hazardous waste	kg	6.97E+00	1.80E-02	5.17E-01	7.51E+00	2.36E-02	5.03E-02	MND	0.00E+00	3.07E-03	9.54E-02	3.90E-02	-2.05E+00						
Radioactive waste	kg	2.68E-05	4.78E-06	2.30E-05	5.46E-05	7.36E-06	2.45E-06	MND	0.00E+00	9.44E-07	1.52E-06	0.00E+00	-8.48E-04						

#### **END OF LIFE – OUTPUT FLOWS**

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	СЗ	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-01	MND	0.00E+00	0.00E+00	8.76E-01	0.00E+00	0.00E+00						
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						



# Cavity Trays 🕿

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
Global Warming Pot.	kg CO₂e	6.32E-01	4.75E-02	3.49E-01	1.03E+00	6.91E-02	2.40E-02	MND	0.00E+00	9.26E-03	1.18E-01	4.39E-03	-1.36E+01						
Ozone depletion Pot.	kg CFC-11e	3.14E-08	8.45E-09	4.00E-08	7.98E-08	1.30E-08	2.40E-09	MND	0.00E+00	1.71E-09	1.99E-09	2.29E-10	-1.64E-06						
Acidification	kg SO₂e	2.07E-02	1.24E-04	1.45E-03	2.23E-02	1.84E-04	7.60E-05	MND	0.00E+00	3.03E-05	2.05E-04	5.26E-06	-1.58E-02						
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	6.43E-03	2.81E-05	9.67E-04	7.43E-03	4.03E-05	5.33E-05	MND	0.00E+00	6.89E-06	8.23E-05	1.85E-04	-4.04E-03						
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	8.16E-04	5.97E-06	1.55E-04	9.76E-04	8.49E-06	4.45E-06	MND	0.00E+00	1.20E-06	7.79E-06	8.92E-07	-1.07E-03						
ADP-elements	kg Sbe	5.27E-04	1.75E-07	2.64E-06	5.29E-04	1.65E-07	1.05E-07	MND	0.00E+00	2.13E-08	2.58E-06	2.40E-09	-1.27E-05						
ADP-fossil	MJ	8.28E+00	7.24E-01	5.89E+00	1.49E+01	1.09E+00	3.60E-01	MND	0.00E+00	1.41E-01	2.65E-01	2.11E-02	-2.64E+02						



# Cavity Trays

## **VERIFICATION STATEMENT**

#### **VERIFICATION PROCESS FOR THIS EPD**

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

#### **THIRD-PARTY VERIFICATION STATEMENT**

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard. I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

16.11.2023



