

# Environmental Product Declaration for Solid Chromacoat Interior Wall (Calgary)



This Environmental Product Declaration, covering all life cycle stages, was prepared in conformity with ISO 14025, ISO 14040, ISO 14044, and ISO 21930, and in accordance with the Earthsure Product Category Rule 30162403:2014 for Interior Wall Systems. PCR Review Chair Thomas Gloria, LCACP # 2008-3. EPDs prepared under other programs may not be comparable.

## Life cycle assessment



### PRODUCER

DIRTT Environmental Solutions, the manufacturer of this product, is a building process powered by technology. We're changing the face of construction with software and advanced manufacturing. Custom interior spaces are built faster, cleaner and more sustainably. DIRTT's technology provides certainty on cost, schedule and the final results, while creating a future proof space.

### PROGRAM OPERATOR

ASTM International  
100 Barr Harbor Drive  
West Conshohocken, PA 19428



### INDEPENDENT VERIFICATION

Independent verification of the declaration and data, according to ISO 14025:  \_internal  \_external  
Verifier: Thomas Gloria, t.gloria@industrial-ecology.com

ASTM Declaration Number: EPD 091  
Dates of Validity: 5/6/2019 to 5/6/2024

Average Life Cycle Impacts and Inventory per m <sup>2</sup> -30 yr-meeting IBC requirements for interior walls		
Climate Change	158	kg CO <sub>2</sub> -eq
Acidification	0.83	kg SO <sub>2</sub> -eq
Eutrophication	0.42	kg N-eq
Ozone Depletion	6.19E-6	kg CFC-11-eq
Photochemical Smog	10.2	kg O <sub>3</sub> -eq
Ecotoxicity	0.48	PAF.m <sup>3</sup> .day
Human Health – Air	0.02	kg PM <sub>2.5</sub> -eq
Primary Energy Consumption	1,840 422	MJ non-renewable MJ renewable
Freshwater Consumption	1,661	L
Waste Production	6.46E-3 30.0	kg hazardous kg non-hazardous
Material Resource Consumption	31.0 38.3	kg non-renewable kg renewable
Land Use	5.31	m <sup>2</sup> -yr

## Life cycle assessment continued

### PRODUCT

This EPD is for an interior solid wall, consisting of an aluminum frame, cotton-denim insulation and a NAF (no added formaldehyde) MDF (medium density fiberboard) tile with a chromacoat paint finish. This assembly is manufactured at: 7303 30 St SE, Calgary, AB T2C 1N6 Canada.

DIRTT's interior walls are designed and manufactured offsite, then installed in a building with a floor-to-ceiling vertical span. They provide a sight, sound, and air barrier; allow for integrated technology and can be disassembled and moved without losing any performance characteristics.

### Functional Unit

The functional Unit is one square meter (1 m<sup>2</sup>) of demountable interior wall for 30 years, meeting the performance standards of the International Building Code.

### System Boundary

This EPD is a cradle-to-grave EPD covering all stages of the life cycle of the interior wall system.

Production Stage (Mandatory)			Construction Stage		Use Stage					End-of-Life Stage			
Extraction and Upstream Production	Transport to Factory	Manufacturing	Transport to Site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	De-construction / Demolition	Transport to Waste Processing or Disposal	Waste Processing	Disposal of Waste
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4

### Cut-off

Items excluded from system boundary include:

- production and disposal of capital goods and infrastructure;
- personnel impacts (travel, operation of lunchrooms);
- company management and sales activities that may be located either within the factory site or at another location (furniture, office supplies, energy and water use); and
- installation/demounting/reinstallation.

### Allocation Procedure

Allocation follows the requirements and guidance of ISO 14044:2006, Clause 4.3.4. Recycling and recycled content is modeled using the cut-off rule.

### Life Cycle Inventory (LCI)

Primary data was used for 26% of all technosphere flows.






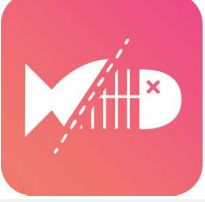

### For additional explanatory material please contact:

Green Team  
[greenteam@DIRTT.net](mailto:greenteam@DIRTT.net)

7303 30 Street SE  
 Calgary, AB T2C 1N6 Canada  
 1-800-605-6707

## Life cycle impact assessment results - Calgary

For one square meter of interior wall conforming to the International Building Code for thirty years, using TRACI 2.1 Life Cycle Indicators:

Life Cycle Impact		Total	Stage I: Production	Stage II: Installation	Stage III: Use	Stage IV: End of Life	Units
	<b>Climate Change</b>	158	132	11.9	0.13	14.1	Kg CO <sub>2</sub> -eq
	<b>Acidification</b>	0.83	0.74	0.09	0.00	0.01	kg SO <sub>2</sub> -eq
	<b>Eutrophication</b>	0.42	0.37	0.01	0.00	0.03	kg N-eq
	<b>Ozone Depletion</b>	6.19E-6	4.31E-6	1.84E-6	4.84E-9	3.50E-8	kg CFC-11-eq
	<b>Photochemical Smog</b>	10.2	7.67	2.19	0.01	0.34	kg O <sub>3</sub> -eq
	<b>Ecotoxicity</b>	0.48	0.43	0.02	0.03	0.00	PAF.m3.day
	<b>Human Health - Air</b>	0.02	0.02	0.00	0.00	0.00	kg PM <sub>2.5</sub> -eq

## Life cycle inventory information

For one square meter of interior wall conforming to the International Building Code for thirty years:

Inventory Item	Units	
<b>Primary Energy Consumption</b>	1,840	MJ non-renewable
	422	MJ renewable
<b>Freshwater Consumption</b>	1,661	L
<b>Waste Production</b>	6.46E-3	kg hazardous
	30.0	kg non-hazardous
<b>Material Resource Consumption</b>	31.0	kg non-renewable
	38.3	kg renewable
<b>Land Use</b>	5.31	m <sup>2</sup> -yr

## Hazardous material content

For one square meter of interior wall conforming to the International Building Code for thirty years (at least 0.1% using California DTSC Candidate Chemical List).

Material	CAS number	Amount (%)
<b>Aluminum</b>	7429-90-5	23.92
<b>Polymerized methylene-diphenyldiisocyanate (pMDI)</b>	9016-87-9	3.35

## Additional environmental information

**Forest Stewardship Council (FSC) (*\*must be specified*)**

**Recycled Content** 70.3% (pre-consumer)  
5.3% (post-consumer)

**SCS Indoor Advantage Gold Certified**

**Chromacoat paint is a no-VOC formula**

**Insulation has 70% rapidly-renewable content**