

# Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:



ENVIRONMENTAL FOOTPRINT INSTITUTE



## PIR Sandwich Panels

From

**Technical Supplies and Services Co LLC (TSSC)**

<b>Programme :</b>	<b>The EFI Program</b>
<b>Programme Operator :</b>	<b>The Environment Footprint Institute</b>
<b>EPD Registration No :</b>	<b>260201EPD CPR-3100</b>
<b>Issue Date :</b>	<b>16-02-2026</b>
<b>Valid Until :</b>	<b>15-02-2031</b>
<b>Geographical Scope :</b>	<b>United Arab Emirates</b>



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 Technical Supplies and Services Co LLC (TSSC)

## General Information

Programme :	The EFI Programme
Address :	The Environment Footprint Institute Calle Circe 49A Madrid, Spain
Website :	<a href="http://www.environmentalfootprintinstitute.com">www.environmentalfootprintinstitute.com</a>
Email :	<a href="mailto:info@environmentalfootprintinstitute.com">info@environmentalfootprintinstitute.com</a>

<b>Product Category Rules (PCR)</b>	
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PCR review was conducted by: The Environmental Footprint Institute.	
Product category rules (PCR): Under the general rules of the Environmental Footprint Institute and PCR P-3100: Construction products in general (EN-15804)	
PCR review was conducted by: Environmental Footprint Institute	
<b>Life Cycle Assessment (LCA)</b>	
LCA accountability: CQES International LLC	
<input type="checkbox"/> Internal Verification	<input checked="" type="checkbox"/> Third Party Verification
Accredited by: THE ENVIRONMENTAL FOOTPRINT INSTITUTE	
<b>Third party verifier:</b> Manuel Rama Calle Circe 49A Madrid, Spain  <a href="http://www.environmentalfootprintinstitute.com">www.environmentalfootprintinstitute.com</a> <a href="mailto:info@environmentalfootprintinstitute.com">info@environmentalfootprintinstitute.com</a>	
	
ENVIRONMENTAL FOOTPRINT INSTITUTE	
Procedure for follow-up of data during EPD validity involves Internal verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

The EPD owner has the sole ownership, liability and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programs 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison.

## Company Information

Owner of the EPD :

### Technical Supplies and Services Co LLC (TSSC)

Contact : Shaik Mansoor

Email: [mansoor@tsscuae.com](mailto:mansoor@tsscuae.com) , [info@tsscuae.com](mailto:info@tsscuae.com)

TSSC, is the largest manufacturer of insulated panels for roofing and cladding in the Middle East and produces a range of building materials for the construction industry such as cladding sheets, seamless roofing systems, unitised glass systems, doors and windows, cold rooms, prefabricated shelters, porta-cabins, factory manufactured houses, stainless steel kitchen equipment's, merchandising refrigerators, cable trays and metal sheds. TSSC also offers galvanizing services to its customers around the region. The building materials manufactured by TSSC are fire rated and carry individual product certifications.

With over 6 decades of experience, state of the art manufacturing facilities and the largest production capacity in the Middle East, TSSC manufactures products to international quality standards and cater to customer demands by ensuring timely delivery and providing exceptional service.

## Certifications



TSSC composite panels are certified by Dubai Central Laboratories (DCL) and approved by relevant Civil Defense authorities, with additional third-party certifications from bodies such as IPS Certification Services & Emirates Safety Lab (ESL) and FM. The PIR core technology is subject to internal qualification procedures and external assessments to ensure consistent thermal, structural, and fire performance. TSSC operates an Environmental Management System certified to ISO 14001 across its manufacturing facilities in Dubai, UAE, and maintains OHSAS / ISO 45001 certification for occupational health and safety. Product quality and conformity are supported through structured quality management and continuous improvement activities aligned with ISO 9001 principles, as well as a defined vendor qualification process for suppliers.

### Sustainable development

TSSC implements environmentally responsible practices across its operations, including recycling of aluminum scrap, production of biodegradable plastic bags, and manufacturing CFC free refrigeration products and energy efficiency is improved through equipment upgrades and process optimization. All electricity used at the manufacturing plant is supplied by an on-site rooftop solar photovoltaic system, reducing reliance on grid electricity and associated emissions.

## Product Information

Product Name : **TSSC PIR Sandwich Panels**

Product identification : Prefabricated roof and wall cladding panels with rigid PIR insulation core

Intended use: Building envelope solutions for roof & wall cladding, sheds, garages, industrial buildings, poultry farms, warehouses, and commercial buildings.

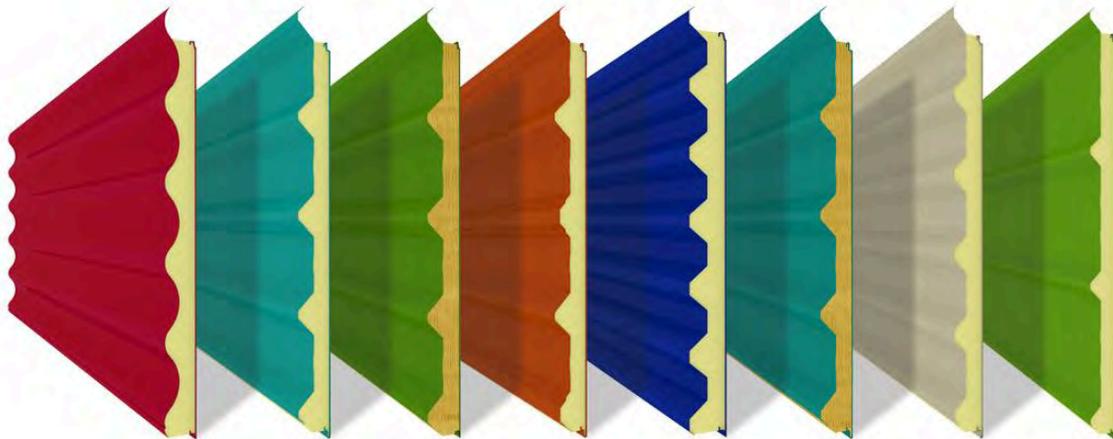
Key properties: High thermal performance, fire resistance, rigid construction, color durability, lightweight, and easy to install.

UN CPC Code 37522 – “Prefabricated insulated panels for building construction”

Geographical Scope United Arab Emirates

Location of Production Site : Dubai Investments Park – Phase 1, Dubai (UAE)/ Industrial Area 2, Riyadh (KSA)

Product Picture :



Product Description :

TSSC PIR Sandwich Panels are rigid, lightweight prefabricated panels designed for roof and wall cladding, providing high thermal insulation, fire resistance, structural rigidity, and color durability while enabling installation on lighter building frameworks. Manufactured by TSSC Group, Dubai, UAE, and classified under UN CPC 37522, these panels are suitable for sheds, garages, industrial buildings, poultry farms, warehouses, and commercial structures. Thicknesses range from 30 mm to 200 mm for specialized applications, with effective widths of 900mm, 1000 mm, 1100 mm, and 1150 mm, customization lengths, and profiles including TSP 45/250, TSP 35/205, TSP 32/366, and TSP 45/150. The core material is PIR foam, offering excellent thermal insulation and fire resistance (up to 2 hours 47 minutes for 200 mm thickness) and 83 minutes for 100mm thick. The panels are easy to install, environmentally conscious, and designed to meet consistent performance standards, making them ideal for a wide range of building envelope applications.

## LCA Information

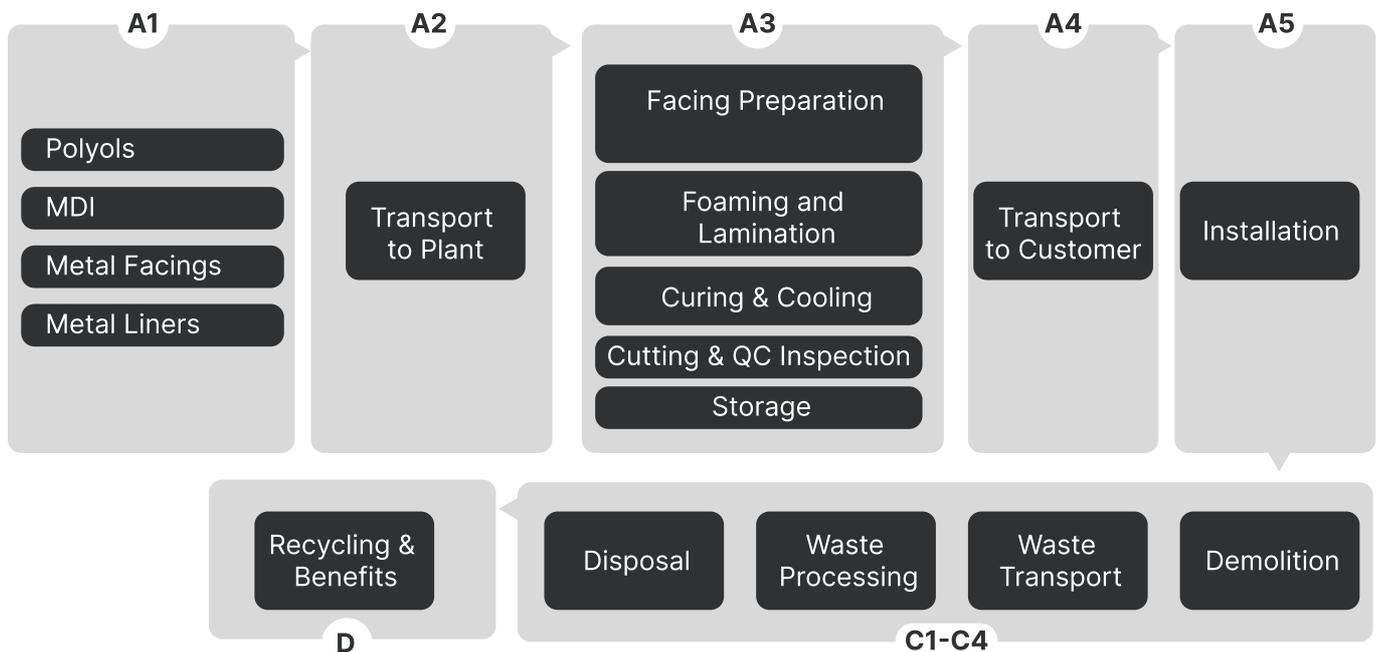
<u>Declared Unit :</u>	The declared unit of the Life Cycle Assessment is 1 m <sup>2</sup> of TSSC PIR Sandwich Panel at a reference thickness of 50 mm. Environmental impacts and resource use are reported for this reference thickness and can be scaled linearly for other panel thicknesses ranging from 30 mm to 200 mm, using the ratio of actual thickness to the reference thickness (Impact per 1 m <sup>2</sup> at thickness t mm = Impact at 50 mm × t/50). Effective panel widths are 1000 mm, 1100 mm, and 1130 mm; all results are normalized per square meter and are independent of width. This approach ensures that LCA data is applicable to all panel variants while remaining compliant with EN 15804 requirements.
<u>Time Representativeness :</u>	The Life Cycle Inventory (LCI) data used in this EPD are representative of production activities during the reference period from January 2025 to December 2025.
<u>Database(s) and LCA software used:</u>	The LCA modelling and impact calculations were performed using Air. LCA™ software (version 3.20.1.0) in combination with the Ecoinvent™ database (version 3.11.0). The EN 15804 system model was applied for the assessment of environmental impacts, using the characterization factors from EN 15804:2012+A2:2019.
<u>Electricity usage in A3 :</u>	On-site rooftop solar PV provides 100% of manufacturing electricity, modelled as zero-emission input with no grid consumption.
<u>Cut-off rules:</u>	More than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.
<u>Allocation method:</u>	No allocation was required, as the production of TSSC PIR panels does not generate co-products with economic value. Where background datasets required allocation, the allocation rules applied within the selected databases and system model were followed in accordance with EN 15804.

### Description of system boundaries:

This EPD follows a cradle-to-gate with options approach in accordance with EN 15804. It covers Modules A1–A3 (raw material supply, transport, and manufacturing), Module A4 (transport to the construction site), and Module A5 (installation at the construction site).

In addition, end-of-life Modules C1–C4 (deconstruction/demolition, transport, waste processing, and disposal) and Module D (benefits and loads beyond the system boundary) are included based on standardized and scenario-based assumptions applicable to PIR Panels.

Use-stage Modules B1–B7 are excluded, as TSSC PIR panels are construction products whose environmental performance during the use phase depends on building-specific design, installation, and operating conditions, which are outside the declared scope of this EPD



## Core Processes

**A1-Raw Material Supply:** Module A1 includes the extraction and processing of raw materials used in the production of PIR sandwich panels. This covers the production of polyols, isocyanates, blowing agents, additives, metal facings, and packaging materials. Upstream energy use and emissions associated with raw material production.

All raw materials are sourced locally within the UAE or imported through international suppliers. This stage also accounts for energy consumption and emissions from per-processing activities prior to panel production.

**A2 - Transport:** Module A2 includes the transportation of all raw materials and ancillary materials from suppliers to the manufacturing site. Transport impacts are modeled based on average transport distances, transport modes, and load factors representative of the supply chain.. Transport of raw materials to production site is taken as the weight average values for transport from supplier for the year of 2025.

- Vehicle used for transport - 3.5-7.5t & >32t trucks, Euro 5
- Vehicle capacity - 3.5 -7.5 tons and 25 tons
- Fuel type and consumption - Diesel, 0.38 liters per km
- Bulk transportation - Mass of the transported product.

**A3 - Manufacturing:** Module A3 covers the manufacturing of TSSC PIR sandwich panels at the production facility, including the preparation and handling of raw materials, continuous foaming and lamination of the PIR core between metal facings, curing, cooling, cutting, edge profiling, quality control, and packaging of finished products.

Electricity used in the manufacturing process is supplied entirely by on-site photovoltaic solar systems and is modelled using a physical energy flow approach in accordance with the Environmental Footprint methodology. No market-based instruments (e.g., guarantees of origin or certificates) are applied.

Internal material handling, auxiliary materials, and manufacturing waste management are included.

Production waste, such as PIR foam offcuts, is modelled according to actual on-site recycling or disposal practices. No thermal energy is consumed in the manufacturing process.

#### A4 - Transportation of Goods:

Stage A4 represents the transport of finished Panels from the manufacturing facility to customers or points of sale. This includes fuel combustion emissions from road transport, considering distances, vehicle types, and modes.

- Vehicle used for transport - 3.5-7.5t & >32t trucks, Euro 5
- Vehicle capacity - 3.5 -7.5 tons and 25 tons
- Fuel type and consumption - Diesel, 0.38 liters per km
- Bulk transportation - Mass of the transported product.

#### A5 – Construction Installation Process:

Module A5 covers the installation of TSSC PIR Sandwich Panels, including on-site activities and packaging waste treatment. Installation energy consumption is assumed to be zero based on minimum impact from manual handling and low-energy mechanical fixing. All packaging materials (stretch film, pallets, caps, edge protectors) generated during installation are allocated 100% to this module and are modelled according to local waste treatment practices. Module A5 impacts are therefore driven solely by the disposal of packaging waste.

#### End-of-Life Modules (C1–C4)

##### C1 – Deconstruction / Demolition :

For Module C1 (Deconstruction/Demolition), the energy required to dismantle TSSC PIR sandwich panels is estimated at 0.89 MJ per m<sup>2</sup> (0.247 kWh/m<sup>2</sup>) of panel, based on published EPD industry models for sandwich panel products. This energy reflects the electricity consumption of dismantling activities and is included in the life cycle inventory modelling in accordance with EN 15804 requirements.

##### C2 – Transport :

Module C2 accounts for the transportation of demolished panels disposal sites. For TSSC Panels, the assumed transport distance to disposal or recycling facilities is 50 km by road. the dataset used in transport C2, as described in modules A2 and A4

##### C3 – Waste Processing

Waste management includes mechanical processing and recycling of metal facings and other recoverable materials. PIR foam that cannot be recycled is sent to energy recovery or disposal.

##### C4 – Disposal :

At end-of-life, 100% of the PIR foam core and 5% of the metal facings from PIR sandwich panels are sent to landfill. The remaining 95% of the metal facings are recycled according to local recycling practices. No energy recovery or recycling is assumed for the PIR foam.

##### Module D – Benefits and Loads Beyond the System Boundary :

Recycled metal facings displace the production of primary metals, providing environmental credits. Credits are calculated based on the actual recycling efficiency (95%) and local recycling practices. No benefits are assumed for the PIR foam core.



## More Information

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

Module	Product Stage			Construction Process Stage		Use Stage	End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use, maintenance, repair, replacement, refurbishment, operational energy and water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	X	X	X	X	X
Geography	AE	AE	AE	AE	AE	--	AE	AE	AE	AE	AE
Specific data used	>90%			--	--	--	--	--	--	--	--

**Legend:** X = Included | ND = Not Declared | AE = United Arab Emirates

### Assumptions :

This Environmental Product Declaration (EPD) is based on specific data for the 2025 production period at the Technical Supplies and Services Co LLC (TSSC) facility in Dubai, UAE. The declared unit is 1 m<sup>2</sup> of TSSC PIR Sandwich Panel, with a reference thickness of 50 mm. Environmental flows and resource use are reported for this reference thickness. For panels of other thicknesses (30 mm to 200 mm), impacts are assumed to scale linearly with panel thickness, using the ratio of actual thickness to the reference thickness. Production waste, including metal scrap, PIR foam offcuts, and off-specification panels, is estimated at approximately 5% of input mass. Metal facings are recycled according to on-site practices, while PIR foam and other non-recyclable residues are sent to landfill, in line with local waste management procedures, and the environmental burdens associated with waste management are included in Module A3 (manufacturing). At end-of-life (Module C4), 100% of the PIR foam core and 5% of the metal facings are assumed to be disposed of in landfill, while 95% of the metal facings are recycled according to local practices. Recycled metals displace the production of primary metals, providing environmental credits accounted for in Module D, whereas no recycling or energy recovery is assumed for the PIR foam core. All credits reflect actual recycling efficiency and local recycling practices.

## Content Information

### Product Content:

Product Components	Weight %	Post-Consumer material weight -%	Biogenic material, kg C/kg
Metal Facing	65-75	-	-
Polyol	7-10	-	-
MDI	12-18	-	-
Catalysts / additives	0.20-0.50	-	-
Glue	0.2-0.5	-	-
Total	100%	-	-

### Packaging Material Content:

Packaging Material	Weight (kg)/DU	Weight % (Versus the Product)	Weight biogenic carbon, kg C/kg
Shrink wrap	7.00E-02	7.00E+00	0.00E+00

### Dangerous substances from the candidate list of SVHC for Authorisation:

Dangerous substances from the candidate list of SVHC for Authorisation:	EC No.	CAS No.	Weight-% per declared unit
None	--	--	--
None	--	--	--

### Biogenic carbon content:

Biogenic carbon content	A1-A3/Unit
Biogenic carbon content in product	0.00E+00 kg C
Biogenic carbon content in accompanying packaging	0.00E+00 kg C

### Manufacturing Process:

The manufacturing of TSSC PIR sandwich panels at the Dubai facility involves the preparation and handling of raw materials, including metal facings, PIR foam components, and auxiliary materials, followed by the continuous foaming and lamination of the PIR core between the metal facings. Panels undergo curing and cooling to achieve the required thermal and structural properties, then are cut to size and edge-profiled according to project specifications. Quality control checks ensure thermal performance, fire resistance, structural integrity, and surface finish, after which panels are packaged for transport. Production electricity is supplied entirely by on-site photovoltaic solar systems, with no thermal energy used, and consumption is modeled using a physical energy flow approach.

## Technical information:

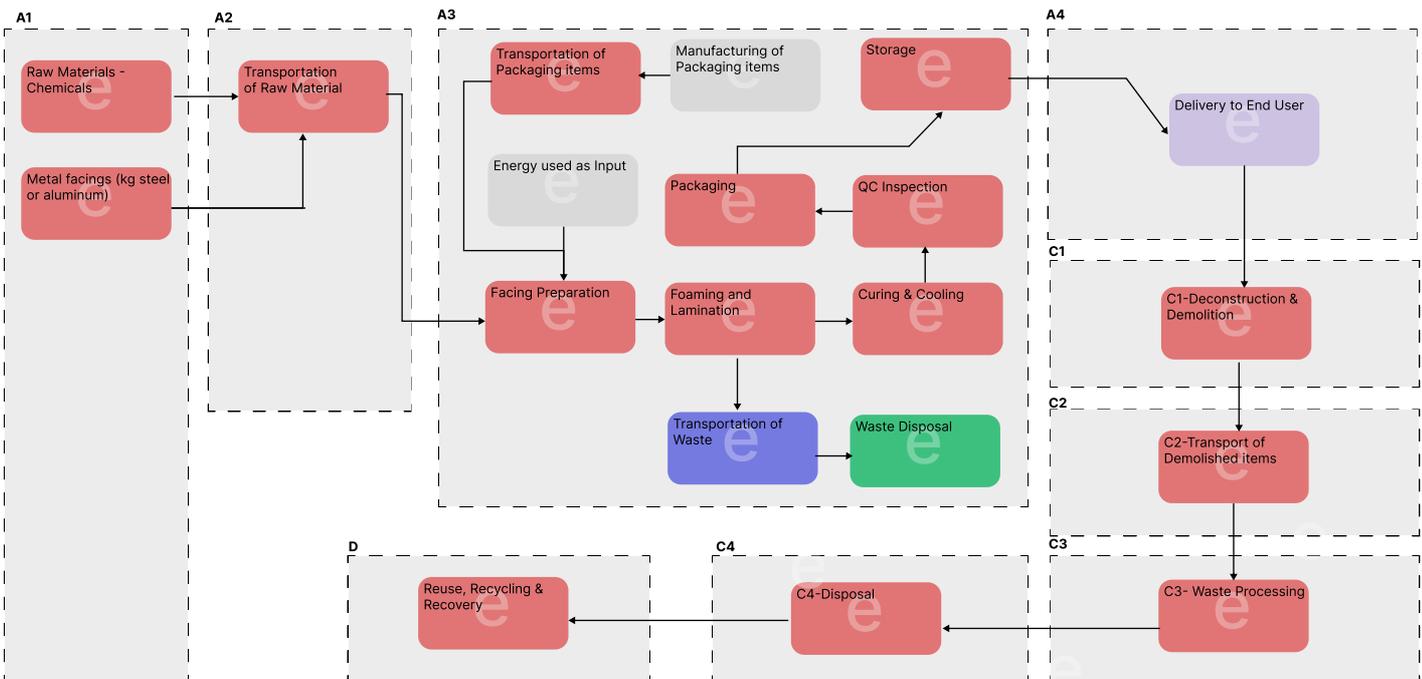
For more technical information about the TSSC PIR panels, please refer to the product TDS

## Data quality:

This EPD was developed in compliance with ISO 14025, ISO 14040/14044, and the core rules of EN 15804:2012+A2:2019, following PCR 2015:03 v2.0 for construction products (UN CPC 37520). Primary, site-specific data for the 2025 reference period were collected for raw material supply, transport, and manufacturing (Modules A1-A3) at the TSSC facility. Background system data were sourced from the Ecoinvent 3.11.0 database.

The LCA was modelled using Air.e LCA software v3.20.1.0, applying EN 15804 characterization factors. Data quality objectives prioritized temporal, geographical, and technological representativeness, with over 90% of the mass and energy flows in Modules A1-A3 based on measured plant data.

## Life Cycle Assessment Modelling



## Environmental Performance

### Potential Environment Impacts

The following tables present the environmental performance for the declared unit of 1 m<sup>2</sup> of TSSC PIR Sandwich Panel at reference thickness 50 mm. Due to the integrated nature of the production process, it was not feasible to isolate the consumption of electricity, auxiliary materials, and other inputs specifically for individual panel variants. Consequently, the Life Cycle Inventory (LCI) was calculated by allocating the plant's total annual consumption of materials, electricity, and other inputs based on the mass share of PIR sandwich panels within the total production output. Environmental impacts for other panel thicknesses (30 mm to 200 mm) can be calculated proportionally using the linear thickness-scaling approach.

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

## Core Environmental Impact Indicators

Impact category indicators according to EN 15804 (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-Total	kg CO <sub>2</sub> eq.	2.75E+01	2.94E-01	3.85E-02	ND	8.95E-02	1.20E-01	6.00E-01	2.11E-02	-4.43E+00						
GWP-fossil	kg CO <sub>2</sub> eq.	2.70E+01	2.93E-01	3.89E-03	ND	8.95E-02	1.20E-01	2.44E-01	2.11E-02	-4.40E+00						
GWP-biogenic	kg CO <sub>2</sub> eq.	3.85E-01	6.59E-05	3.46E-02	ND	8.91E-06	2.74E-05	3.56E-01	6.53E-06	-2.21E-02						
GWP-luluc	kg CO <sub>2</sub> eq.	1.23E-01	1.32E-04	1.08E-06	ND	9.16E-06	5.49E-05	2.89E-04	1.21E-05	-7.10E-03						
ODP	kg CFC 11 eq.	1.08E-06	3.72E-09	2.88E-11	ND	1.33E-09	1.62E-09	1.39E-09	5.87E-10	-4.59E-08						
AP	mol H <sup>+</sup> eq.	1.25E-01	1.00E-03	1.19E-05	ND	8.00E-04	2.88E-04	1.59E-03	1.48E-04	-2.53E-02						
EP-freshwater	kg P eq.	8.55E-03	3.22E-05	5.11E-06	ND	2.88E-06	1.31E-05	1.14E-04	1.84E-06	-2.36E-03						
EP-marine	kg N eq.	3.15E-02	3.19E-04	1.25E-04	ND	3.73E-04	6.68E-05	7.62E-04	5.69E-05	-5.13E-03						
EP-terrestrial	mol N eq.	2.71E-01	3.45E-03	3.67E-05	ND	4.08E-03	7.12E-04	4.68E-03	6.19E-04	-5.65E-02						
POCP	kg NMVOC eq.	1.08E-01	1.36E-03	2.56E-05	ND	1.22E-03	3.88E-04	1.54E-03	2.23E-04	-1.64E-02						
ADP-minerals & metals*	kg Sb eq.	1.95E-04	9.60E-07	4.01E-09	ND	3.12E-08	4.00E-07	4.74E-06	3.07E-08	-9.13E-04						
ADP-fossil*	MJ	4.35E+02	4.06E+00	2.89E-02	ND	1.17E+00	1.66E+00	2.05E+00	5.16E-01	-5.23E+01						
WDP*	m <sup>3</sup>	8.82E+00	2.23E-02	-1.13E-02	ND	3.05E-03	9.38E-03	3.78E-02	2.28E-02	-8.95E+00						
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

### Note on Declared Modules:

\*CO<sub>2</sub> emissions from fuel combustion in A3 were calculated using standard carbon content factors and the 44/12 molecular weight ratio, in accordance with IPCC guidelines.

## Use of Natural Resources

Resource use indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	3.45E+01	5.63E-02	-6.43E-01	ND	7.31E-03	2.34E-02	2.90E-01	4.82E-03	8.29E+00						
PERM	MJ	5.85E+00	0.00E+00	6.43E-01	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
PERT	MJ	4.04E+01	5.63E-02	5.45E-04	ND	7.31E-03	2.34E-02	2.90E-01	4.82E-03	8.29E+00						
PENRE	MJ	3.18E+02	4.06E+00	-3.92E-01	ND	1.17E+00	1.66E+00	2.05E+00	5.16E-01	6.02E+01						
PENRM	MJ	1.18E+02	0.00E+00	4.21E-01	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
PENRT	MJ	4.35E+02	4.06E+00	2.89E-02	ND	1.17E+00	1.66E+00	2.05E+00	5.16E-01	6.02E+01						
SM	kg	1.80E-01	1.79E-03	1.06E-05	ND	4.82E-04	7.41E-04	3.70E-03	1.28E-04	9.04E+00						
RSF	MJ	1.49E-03	2.31E-05	1.78E-07	ND	1.26E-06	9.61E-06	2.93E-04	2.68E-06	5.79E-04						
NRSF	MJ	8.92E-01	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
FW	m <sup>3</sup>	2.19E-01	5.44E-04	-2.62E-04	ND	7.46E-05	2.29E-04	9.83E-04	5.34E-04	2.14E-01						
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

## Environmental Impact -GWP-GHG

Additional mandatory and voluntary impact category indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO <sub>2</sub> eq.	2.77E+01	2.96E-01	4.05E-02	ND	9.09E-02	1.21E-01	6.31E-01	2.16E-02	5.06E+00						

## End of Life - Outflows

Output flow indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Material for recycling	kg	2.89E-02	4.58E-05	5.00E-07	ND	5.19E-06	1.90E-05	1.16E+01	5.59E-06	1.87E-02						
Materials for energy recovery	kg	3.65E-05	2.71E-07	2.02E-09	ND	1.66E-08	1.13E-07	4.54E-07	9.94E-09	2.19E-05						
Exported energy, electricity	MJ	1.69E-01	3.39E-04	3.38E-06	ND	5.51E-05	1.40E-04	9.94E-04	3.35E-05	4.97E-02						
Exported energy, thermal	MJ	1.00E-01	6.04E-04	3.16E-06	ND	2.58E-05	2.51E-04	2.81E-04	1.78E-05	1.45E-02						

## End of Life - waste

Waste indicators (Results per functional or declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2.44E+00	9.29E-03	6.47E-05	ND	1.31E-03	3.79E-03	2.16E-02	5.88E-04	6.41E-01						
Non-hazardous waste disposed	kg	6.40E+01	1.79E-01	1.90E-01	ND	1.90E-02	7.30E-02	8.67E-01	1.36E-02	9.46E+00						
Radioactive waste disposed	kg	4.02E-04	8.02E-07	8.36E-09	ND	1.22E-07	3.31E-07	2.63E-06	7.53E-08	1.13E-04						

## Additional information

No additional information is provided.

## Information related to Sector EPD

This is not sector EPD.

## Differences versus previous versions

This is the first version of the EPD.

## References

- *LCA Report: Life Cycle Inventory of **Technical Supplies and Services Co LLC (TSSC)**, Dubai (UAE).*
- *Software: Air.e LCA Version 3.20.1.0 [www.solidforest.com](http://www.solidforest.com)*
- *Main database: Ecoinvent 3.11.0 [www.ecoinvent.org](http://www.ecoinvent.org)*
- *Geographical scope of the EPD: United Arab Emirates*
- *ISO 14040:2006 “Environmental management -- life cycle assessment -- principles and framework”;*
- *ISO 14044:2006 “Environmental management -- life cycle assessment -- requirements and guidelines”;*
- *ISO 14020:2000 “Environmental Labels and declarations - General Principles*
- *ISO 14025:2006 “Environmental labels and declarations -- type III environmental declarations - principles and procedures”.*
- *EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.*
- *Construction and Demolition Waste Management in Dubai*
- *UAE Ministry of Climate Change and Environment (MOCCA)*



## **Technical Supplies and Services Co LLC**

### **Dubai**

United Arab Emirates  
Corporate Head office

P.O.Box : 77031  
Dubai Investments Park – Phase 1  
Tel: (+971) 4 8850474  
Fax: (+971) 4 8850343  
Email: [sales@tsscgroup.com](mailto:sales@tsscgroup.com)

### **Riyadh**

Saudi Arabia  
Regional Head Office

New Industrial Area  
P.O. BOX: 3860,S.I.C. 14332  
Tel: +966 11 4992800  
Fax: +966 11 4992021  
Email: [sales@tsscgroup.com](mailto:sales@tsscgroup.com)