

**Laminex<sup>®</sup>****Trade Essentials<sup>®</sup> Termite Treated Particleboard Flooring**

This Environmental Product Declaration (EPD) discloses potential environmental outcomes compliant with ISO 14025 for business to business communication.

The declared product Trade Essentials<sup>®</sup> Termite Treated Particleboard Flooring was made by The Laminex Group at their Dardanup plant in Australia in 2015 for sale with a 7 year warranty for commercial residential and industrial sector applications.

The Laminex Group is a leading manufacturer, distributor and marketer of decorative surfaces.

Laminex Trade Essentials<sup>®</sup> highly moisture resistant, extra fine grain, termite treated particleboard flooring features an easy to use tongue and groove system.

Through the GreenFirst corporate policy approach, Laminex employ a range of processes and latest technology to ensure carbon footprint reduction and delivery of environmentally preferable products.

Committed to sustainable building practices, The Laminex Group has undertaken initiatives on the product and manufacturing front to provide a range to assist with GBCA Green Star<sup>®</sup> rated projects.

Laminex recognises benefits from low emissions and are continually striving to reduce carbon emissions cross their supply chain.

The group also undertakes various initiatives to minimise water usage and wastage.

Their Gympie Plant has programs to improve self-sufficiency with the aim of a zero water emission site.

Laminex is committed to safer workplaces by ensuring that its sites are certified to AS/NZS 4801.

The group maintains ISO 14001 certificates for most sites as well.

Laminex also sources its timber raw materials as well other wood pulp paper products from certified responsible sources certified to FSC, CoC and AFS/PEFC.

The site <http://www.laminex.com.au> has more information.



**Figure 1 Termite Treated Particleboard Flooring**



## Trade Essentials® Termite Treated Particleboard Flooring

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Different program EPDs may not be comparable as e.g. Australian transport is more than elsewhere. Further explanatory information is found at <http://www.globalgreentag.com/certification1@globalgreentag.com> or contact: [certification1@globalgreentag.com](mailto:certification1@globalgreentag.com) © This EPD remains the property of Global GreenTag Pty Ltd.

**Trade Essentials® Termite Treated Particleboard Flooring****1. Details of This Declaration**

<b>Program Operator</b>	GreenTag Global Pty Ltd hereafter called Global GreenTag noted at <a href="http://www.globalgreentag.com">www.globalgreentag.com</a>
<b>EPD Number</b>	TLG-002-2018
<b>Date issue</b>	26 <sup>th</sup> November 2018
<b>Validity</b>	26 <sup>th</sup> November 2021
<b>Reference PCR</b>	Compliant with PCR MRSSF:2017 Moisture Resistant Self Supporting Flooring
<b>Time</b>	Made in and sold from 2015 for 60 years use
<b>Geography</b>	Made in Australia. Uses are assumed as for Australasia.
<b>Application</b>	Commercial, Residential and Industrial building interiors
<b>Declared Unit</b>	Trade Essentials® Termite Treated Particleboard Flooring per kg cradle to gate
<b>Functional unit</b>	Sixty years use of moisture resistant self supporting 13.1kg/m <sup>2</sup> area flooring Trade Essentials® Termite Treated Particleboard Flooring cradle to grave

**2. Product Characterisation**

<b>Definition</b>	Trade Essentials® Particleboard Flooring Termite Treated made by Laminex for use in commercial, residential and industrial buildings interiors.
<b>Standard</b>	ISO 14486:2012 Laminate Floor Covering – Specification AS/NZS 1860.1:2002 Particleboard Flooring – Specifications AS/NZS 1859.2:2004 Reconstituted wood-based panels

**3. Green Star® Certified Credits**

Products are relevant to the Green Building Council of Australia's (GBCA) Green Star® scheme. If required this EPD is evidence the declared product meets the following Green Star® credits. It may be used as evidence in Green Star® submissions for those credits.

The product is certified by GBCA recognised Global GreenTag GreenRate to meet the following credits of Green Star®:

- Interiors V1.2: Sustainable Products, Indoor Pollutants
- Design and As Built V1.2: Sustainable Product, Indoor Pollutants
- Performance V1.2: Refurbishment Materials

**GBCA Disclaimer**

Green Star® is a registered mark of the Green Building Council of Australia (GBCA). Assessments shall not be reproduced in part at any time. Rating Tools and Technical Manuals are subject to change by the GBCA. This EPD provides Technical Opinion and as such is not endorsed by the GBCA or its agents. Green Star® Technical Manuals give technical details of credit requirements.



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4. Sustainability Assessment Scores

Table 1 lists Global GreenTag Sustainability Assessment Criteria (SAC) scores prior to weighting and then used to determine the GreenTag EcoPOINT<sup>1</sup>.

Table 1 Cradle to Grave Normalised GreenTag EcoPOINT & SAC Scores

Category Potential	Results (-1 to +1)
Building Synergy	1.00
Health & Ecotoxicity	0.25
Biodiversity	0.22
LCA Score	0.19
Greenhouse Gas Emissions <sup>2</sup>	-0.59
Social Responsibility	0.90
GreenTag EcoPOINT	0.24

SAC scores are normalised against business as usual (BAU) product performing comparable functions under the same category rules. Lower scores show better environmental and social benefits with fewer impacts and damages. Considering sustainability:

- worst case BAU results = 1.0,
- neutral = 0.0 and
- net positive benefit = -1.0

5. Type 1 Ecolabel

The declared product Type 1 Ecolabel achieved

Global GreenTag<sup>Cert™</sup> Gold PLUS GreenRate Level A



6. Verification of this Declaration

This EPD was approved on 26<sup>th</sup> November 2018 according to requirements of ISO14025 8.1.3b.

Role	Name	Position	Signature
PCR Review Chair	Murray Jones	Ecquate Pty Ltd CEO	26/11/2018
LCI Developer	Delwyn Jones	The Evah Institute CEO	26/11/2018
LCARate, LCIA & EPD Developer	Nana Bortsie-Aryee	Global GreenTag Assessor	30/11/2018
3 <sup>rd</sup> Party LCI Verifier	Shloka Ashar	Global GreenTag Lead Auditor LCI Verifier	30/11/2018
Internal EPD Audit	David Baggs	Global GreenTag CEO & Program Director	07/12/18

<sup>1</sup> <http://www.ecospecifier.com.au/knowledge-green/glossary.aspx#greentagecopoint>

<sup>2</sup> Stocker et al (eds.) Climate Change 2013: The Physical Science Basis, CH8, IPCC AR5, Cambridge U Press, UK.



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5. Base Material Origin and Detail

Table 2 lists key components by function, type, key operations, sources and % mass share.

Table 2 Base Material

Function	Component	Production	Origin	%
Substrate	Pine wood	Forest, Hew, Chip, Bind, Press	Australia	>80 <85
Binder	MUF <sup>3</sup>	Extract, Refine, Compound	Australia	>15 <20.0
Water resist	Wax emulsion	Extract, Refine, Emulsify	Global	>1.0 <1.5
Insecticide	Proprietary	Extract, Refine, Emulsify, Blend	Global	>0.3 <0.5
Hardener	Citric acid	Grow, Refine, Crystallise	Australia	>0.2 <0.3
Hardener	Ammonium Sulphate	Extract, Refine, Crystallise	Australia	>0.1 <0.2
Binder	Urea	Extract, Refine, Compound	Australia	<0.1

6. Packaging, Installation, Use & Disposal

<b>Health Safety &amp; Environment</b>	Apart from compliance to occupational and workplace health safety and environmental laws no additional personal protection is considered essential.
<b>Cleaning &amp; Maintenance</b>	The recommended cleaning and maintenance raises no ecosystem or human health concerns. Care and maintenance guides are on company websites.
<b>Packaging</b>	Cardboard forms & cartons, plastic wrap & strapping on reused pallets.
<b>Residual Scrap</b>	No mill off-cuts. Installation scrap of 5% is assumed to landfill.
<b>Service life</b>	Residential and commercial refits vary but 60 year life is assumed typical.
<b>Scenario</b>	Flooring is assumed covered so no direct floor surface cleaning was modelled.
<b>Recycling</b>	Home mill, fabrication and installation scrap is reworked into new product.
<b>Re-use</b>	This study assumes 60% product is serviceable for reuse over 40 more years.
<b>Disposal</b>	It assumes 30% is recycled. Incineration is rare in Australia so none is modelled.

7. Whole of life Performance

<b>Health Protection</b>	The product does not contain levels of carcinogenic, toxic or hazardous substances that warrant ecological or human health concern cradle to grave. It passed the Ecospecifier Cautionary Assessment Process (ESCAP) and no issues or red light concerns existed for product human or ecological toxicity.
<b>Effluent Waste</b>	The LCI results and ESCAP raised no red light concerns in emissions to water <sup>4</sup> . Cradle to grave waste to landfill was 1% hazardous and 99% non-hazardous.
<b>Environmental Protection</b>	Continuous improvement under the maker’s certified ISO14001 EMS aims to avoid toxics, waste and pollution plus reduce their material and energy use.
<b>Environmental Health Effects</b>	Installed products are certified as having VOC’s compliant with Green Star® IEQ VOC credits for indoor environment <sup>5</sup> quality credits. No other potential in-use impacts on environment or health are known.

<sup>3</sup> Melamine Formaldehyde

<sup>4</sup> According with national standards in ANZECC Guideline For Fresh & Marine Water Quality (2000)

<sup>5</sup> in accordance with national standards and practice



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## 8. Life Cycle Inventory Results

Table 3 lists material and energy resource use per kilogram from the cradle to gate and per square metre (13.1kg/m<sup>2</sup>) from the cradle to grave including all phases and transport.

**Table 3 Inventory of Flows per Declared and Functional Unit**

Scope From Cradle		To Gate	To Grave
Measurement Unit		Declared	Functional
Total Flow	Unit	Result/kg	Result/m <sup>2</sup>
Embodied Water	litre	8.7	46.4
Recycled Water	litre	1.5	17.7
Finite Material	kg	1.0	12.9
Recycled Material	kg	4.6E-04	0.004
Renewable Material	kg	4.0	50.8
Carbon Brake CO <sub>2e 20</sub>	kg	1.7	22.9
Carbon Sink CO <sub>2e 100</sub>	kg	2.0	26.4
Ozone Depletion R11 <sub>e</sub>	kg	2.4E-09	3.1E-08
Recoverable Feedstock	MJ	33.6	436.7
Fossil Fuel <sup>6</sup>	MJ	15.0	183.1
Nuclear Energy	MJ	0.01	0.08
Hydrogen Energy	MJ	<0.01	0.01
Recovered Energy	MJ	0.03	0.05
Biomass Fuel	MJ	5.1	66.8
Hydro Power	MJ	0.03	0.16
Solar Energy	MJ	0.02	0.23
Wave/Tidal Energy	MJ	0.04	0.53
Fuel + Feedstock	MJ	48.0	622

## 9. Life Cycle Impact Results

Table 4 shows Life Cycle Impact Potential for 60 years of product use cradle to grave.

**Table 4 Impact Potential/m<sup>2</sup> Functional Unit Cradle To Grave**

Evaluation Category	Unit	Result
Ecolindicator 99 Score	ecopoint	0.50
Greenhouse Gas Emissions	CO <sub>2e 100</sub> kg	-25.9
Ecosystem Quality Damages	PDF*m <sup>2</sup> *yr	6.8E-05
Human Health Damages	DALY	2.7E-04
Acidification	SO <sub>2e</sub> kg	0.31
Fossil Fuel Depletion	MJ <sub>surplus</sub>	11.5
Mineral Resource	MJ <sub>surplus</sub>	0.05

<sup>6</sup> Peat, lignite, coal, gas, oil, sulphur, hydrogen, nuclear and unspecified fuel from ancient sources





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**10. Life Cycle Benefit Potential**

Manufacturer’s details on biomass and renewable energy flows confirm the product’s use has the following qualitative benefits and positive outcomes cradle to grave.

Climate, water and soil security benefits arise from reliance on renewable biomass and energy.

**Climate and Water Security Benefits of Renewable Content and Scrap Reuse as Fuel**

<b>Climate Security</b>	Carbon drawn down from air by flora sequestered in biomass in product Brakes climate change via carbon sequestered & retained in forests and farms Carbon sequestered in standing pine forestry also braking global warming
<b>Water Security</b>	Hectares intensive pine forest flora stabilising rain catchment and water table Forest leaf litter mulches retains soil water and reduces water stress
<b>Soil Carbon Security</b>	Carbon sequestered in unburnt tree roots in forest soil also brakes climate change Carbon locked in standing forest detritus and roots in soil brakes climate change

Forestry industry security benefits arise from reliance on renewable supply.

**Resource Supply Security Benefits of Renewable Content and Scrap Reuse as Fuel**

<b>Forestry Security</b>	Hectares certified pine forest and flora for foraging and grazing Hectares extensive certified forest flora for microbe, bird, bee and livestock forage Certified forest flora for microbe, bird, bee, pollinator forage and livestock grazing Hectares extensive certified pine forest flora stabilises soil and erosion
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Soil, biodiversity and habitat health and security benefits arise from reliance on renewable supply.

**Soil, Habitat and Biodiversity Security Benefits of Renewable Content and Scrap Reuse as Fuel**

<b>Soil Health and Security</b>	Extensive forest and farm leaf & litter mulching soil reducing temperature stress Extensive forest soil for microbe and worm biome nutrition and soil development
<b>Biodiversity Security</b>	Hectares extensive forest flora for biodiverse bird, pollinator and wildlife forage Hectares extensive standing forest for biodiverse wildlife and pollinator forage
<b>Habitat Security</b>	Hectares extensive standing forest flora for soil retention and soil biota refugia Hectares extensive standing forest flora for bird, bee and wildlife refugia

Local and global human and ecological health security benefits flow from reliance on renewable supply.

**Health Benefits of Renewable Content and Scrap Reuse as Fuel**

<b>Soil Habitat Health</b>	Forest soil microbe and worm biome nutrition enhances soils and CO <sub>2e</sub> drawdown Forest leaf & litter forage enhancing soil conditioning and mulching
<b>Land Use &amp; Space</b>	Saves landfill space by using scrap as energy instead of waste to landfill Saves natural land use in refugia around extensive pine resin forest
<b>Ecological health</b>	Health and safety benefits with climate security from braking global warming Environmental health benefit of avoided dust and pollution from fossil fuel use



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11. Life Cycle Benefit Results

This section shows quantitative Life Cycle Benefit Assessment (LCBA) for 60 years product use cradle to grave. Table 5 lists benefits calculated using the Evah 2020 LCBA method showing results /m<sup>2</sup>.

Table 5 Cradle to Grave Evah 2020 Gross Benefit Potential Results/m<sup>2</sup>

Benefit Layers	Units	Process Outcome	Result
<b>Climate Security (CLIMES)</b>			
Climate Brake	kg CO <sub>2e20</sub>	Carbon drawdown from air by biomass	46.9
Climate Bank	kg CO <sub>2e20</sub>	Carbon embodied in product biomass	22.9
Biomass Bank	kg CO <sub>2e100</sub>	Carbon sequestered in product over lifetime	26.6
Soil Carbon Bank	kg CO <sub>2e100</sub>	Standing forest roots and soil Carbon bank	53.3
<b>Supply Energy &amp; Resource Viability: Energy &amp; Fuel (SERV)</b>			
Energy Renewal	MJ <sub>surplus</sub>	37% Reliance on renewable energy	74.5
Energy Recovery	MJ <sub>surplus</sub>	0.2% Reliance on recovered energy	0.43
Fuel Recovery	MJ <sub>surplus</sub>	34% Reliance on recovered fuel	68.8
Fuel Renewal	MJ <sub>surplus</sub>	36% Reliance on biofuel	73.2
<b>Supply Energy &amp; Resource Viability: Renewables &amp; Biomass (SERV)</b>			
Material Biomass	MJ <sub>biogenic</sub>	81.7% Reliance on Renewable Feedstock	378.2
Forestry Security	MJ <sub>retain</sub>	Biome litter, roots biota & seed bank in soil	452.4
Resource Recovery	MJ <sub>reuse</sub>	34% Reliance on recovered resources	68.8
Water Recovery	litre <sub>reuse</sub>	17.3 % Reliance on recovered water	20.9
Water Catchment	litre <sub>rain</sub>	8.6% reliance on-site rain & groundwater	10.4
<b>Positive Ecosystem Replenishment Fraction (PERF)</b>			
Climate Security	kg CO <sub>2e100</sub>	Retained Ecosystem Potential	38.2
Habitat Security	m <sup>2</sup> *yr	Pine forest flora, wildlife and pollinator habitat	7.9E-02
Biodiversity Security	m <sup>2</sup> *yr	Standing forest leaf & litter bird & wildlife forage	1.6E-01
Soil Health & Security	m <sup>2</sup> *yr	Biome mulch, microbe & worm development	7.9E-02
	m <sup>2</sup> *yr	Standing forest retained soil & biota refugia	7.9E-02
<b>Hale Human Health Adjusted Life Years (HALY)</b>			
Human Wellness	HALY	Years gained by avoided death and disability risk	10E-05
Dust Avoidance	kg PM <sub>10</sub>	Avoided emission and captured dust pollution	0.21
Organic Safe Air	g NM VOC	Avoided volatile organic chemical pollution	189.0





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12. Supply Chain Modelling

Processes to acquire, refine, transport, fabricate, coat, use, clean, repair, reuse and dispose of metal, masonry, ceramic, timber, glass, plastic and composites are modelled.

These include those of:

- Mining, extracting and refining resources to make commodities and packaging;
- Acquiring, cultivating, harvesting, extracting, refining produce and biomass;
- Fuel production to supply power and process energy and freight;
- Chemicals use in processing resources, intermediates and ancillaries;
- Process energy, fuel and freight of resources, intermediates and ancillaries;
- Use, cleaning, recoating, repair, recycling, re-use and landfill, as well as
- Infrastructure process energy transformed and material wear loss e.g. tyres.

A flow chart in Figure 2 shows key product supply chain operations from cradle to fate.

While all known operations are included not all are shown.

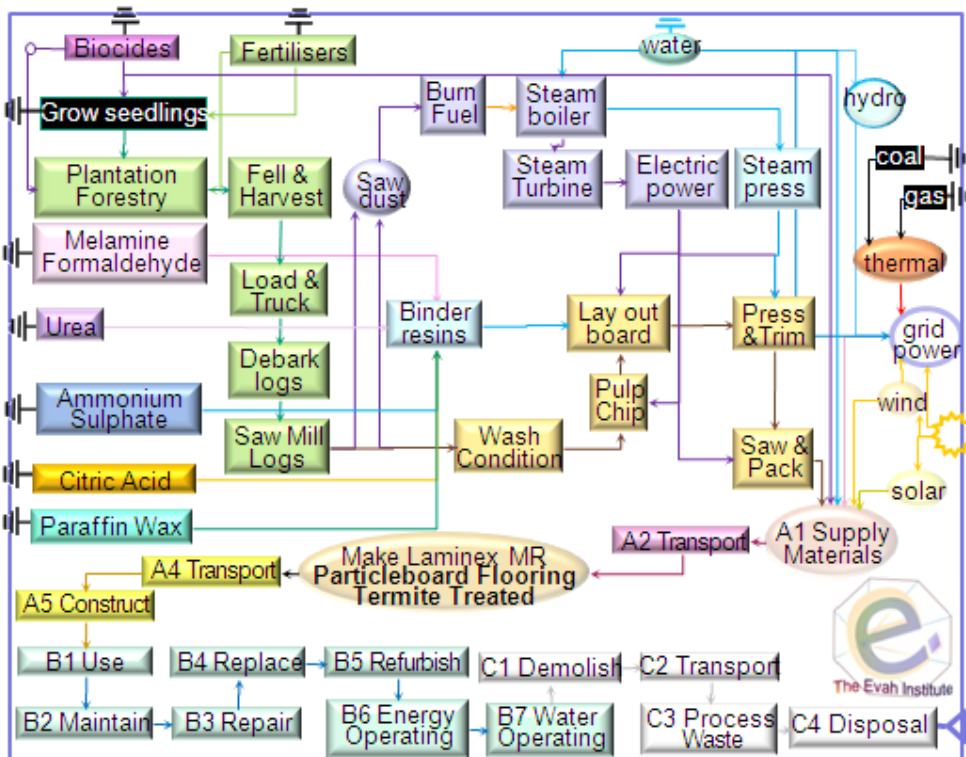


Figure 2 Major Product Operations



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13. Life Cycle Assessment Method

- LCA Author** The Evah Institute as described at [www.evah.com.au](http://www.evah.com.au)
- Study Period** Factory data was collected from 2015 to 2018
- LCA Method** Compliant with ISO 14040 and ISO 14044 Standards
- LCIA method** EcoIndicator 99 Life Cycle Impact (LCIA) Assessment
- Scope** Cradle to Fate including all supply chain phases and stages depicted in Figure 2.
- Phases** The LCA covered all known flows in all known stages cradle to end of life fate.
- Assumptions** Use is to typical Australian Facility Management professional practice.
- Scenarios** Use, cleaning, maintenance plus disposal and re-use were scenario-based using Facility Management Association denoted and published typical operations.
  
- System Boundaries** The LCA covers all operations in the system boundary depicted in Figure 3.
  
- Processes** All known processes are included from resource acquisition, water, fuel & energy use, power generation & distribution, freight, refining, intermediates, manufacture, scrap re-use, packing and dispatch, installation, use, maintenance and landfill. All significant waste and emission flows from all supply chain operations involved to make, pack and install the product are included.



Modeling

Phases

Modules

Unit Operations

Cradle to Grave

Cradle to Gate+options

Cradle to Gate

Figure 3 Phases and Stages Cradle to Grave

	Actual		Scenarios					Potential								
	Produce		Construct		Building Fabric & Operation					End of life				Beyond Boundary		
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D 1, 2 3	
Resource supply	Resource supply		Transport		Use					Demolish				Reuse		
Transport	Transport		Manufacturing		Maintain					Transport					Recovery	
Manufacturing	Manufacturing		Transport		Repair					Process Waste						Recycling
					Replace					Disposal						
					Refurbish											
					B6 Operating Energy use											
					B7 Operating Water use											
	Mandatory each phase		Mandatory for each and every phase													Optional
			Optional for each and every phase													Optional

Evah industry databases cover all known domestic and global scope 1 and 2 operations. They exclude scope 3 burdens from capital facilities, equipment churn, noise and dehydration as well as incidental activities and employee commuting. The databases exist in top zones of commercial global modelling and calculating engines. Quality control methods are applied to ensure:

- Coverage of place in time with all information<sup>7</sup> for each dataset noted, checked and updated;
- Consistency to Evah guidelines<sup>8</sup> for all process technology, transport and energy demand;
- Completeness of modeling based on in-house reports, literature and industry reviews;
- Plausibility in 2 way checks of LCI input and output flows of data checked for validity, plus
- Mathematical correctness of all calculations in mass and energy balance cross checks.

Electricity supply models in active databases are updated annually. As each project is modelled and new data is available the databases are updated and audited by external Type 1 ecolabel certifiers.

<sup>7</sup> Jones D G (2004) LCI Database for Commercial Building Report 2001-006-B-15 Icon.net, Australia

<sup>8</sup> Evah Tools, Databases and Methodology Queensland, Australia at <http://www.evah.com.au/tools.html>



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14. Data Sources Representativeness and Quality

Primary data used for modelling the state of art of each operation includes all known process for:

- Technology sequences;
- Energy and water use;
- Landfill and effluent plus
- Reliance on raw and recycled material;
- High and reduced process emissions;
- Freight and distribution systems.

Primary data is sourced from clients, Annual Reports and their publications on corporate locations, logistics, technology use, market share, management systems, standards and commitment to improved environmental performance. Information on operations is also sourced from client:

- Supply chain mills, their technical manuals, corporate annual reports and sector experts, and
- Manufacturing specifications websites and factory site development license applications.

Background data is sourced from the International Energy Agency, IBISWorld, USGS Minerals, Franklin Associates, Boustead 6, Plastics Europe, CML2, Simapro 8, EcoInvent 3 and NREL USLCI model databases. Information on operations is also sourced from:

- Library, document, NPI and web searches, review papers, building manuals and
- Global Industry Association and Government reports on Best Available Technology (BAT).

For benchmarking, comparison and integrity checks inventory data is developed to represent BAT, business as usual and worst practice options with operations covering industry sector supply and infrastructure in Australia and overseas.

Such technology, performance and license conditions were modelled and evaluated across mining, farming, forestry, freight, infrastructure and manufacturing and building industry sectors since 1995.

As most sources do not provide estimates of accuracy, a pedigree matrix of uncertainty estimates to 95% confidence levels of Geometric Standard Deviation<sup>2</sup> ( $\sigma_g$ ) is used to define quality as in Table 6<sup>9</sup>.

Table 6 Data Quality Uncertainty (U) for 2017-18

Correlation	Metric $\sigma_g$	U ±0.01	U ±0.05	U ±0.10	U ±0.20	U ±0.30
Reliability	Reporting	Site Audit	Expert verify	Region	Sector	Academic
	Sample	>66% trend	>25% trend	>10% batch	>5% batch	<1% batch
Completion	Including	>50%	>25%	>10%	>5%	<5%
	Cut-off	0.01%w/w	0.05%w/w	0.1%w/w	0.5%w/w	1%w/w
Temporal	Data Age	<3 years	≤5 years	<10 years	<15 years	>16 years
	Duration	>3 years	<3 years	<2 years	1 year	<1 year
Geography	Focus	Process	Line	Plant	Corporate	Sector
	Range	Continent	Nation	Plant	Line	Process
Technology	Typology	Actual	Comparable	In Class	Convention	In Sector

No data set with >±30% uncertainty is used without notation in the LCA as well as the EPD.

<sup>9</sup> Evah Institute data quality control system accords with UNEP SETAC Global LCI Database Quality 2010 Guidelines



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## 15. Supply Chain Modelling Assumptions

Australian building sector rules and Evah assumptions applied are defined in Table 7.

Table 7 Scope Boundaries Assumptions and Metadata

Quality/Domain	National including Import and Export
Process Model	Typical industry practice with currently most common or best (BAT) technology
Resource flows	Regional data for resource mapping, fuels, energy, electricity and logistics
Temporal	Project data was collated from 2015 to 2017
Geography	Designated client, site, regional, national, Pacific Rim then European jurisdiction
Representation	Designated client, their suppliers and energy supply chains back to the cradle
Consistency	Model all operations by known given operations with closest proximity
Technology	Pacific Rim Industry Supply Chain Technology typical of 2015 to 2018
Functional Unit	Typical product usage with cleaning & disposal/m <sup>2</sup> over the set year service life
<b>System Control</b>	
Primary Sources	Clients and suppliers mills, publications, websites, specifications & manuals
Other Sources	IEA 2018, GGT 2018, Boustead 2013, Simapro 2016, IBIS 2018, EcoInvent 2018
Data mix	Power grid and renewable shares updated to latest IEA 2018 reports
Operational	Company data for process performance, product share, waste and emissions
Logistics	Local data is used for power, fuel mix, water supply, logistics share & capacity
New Data Entry	VliegLCA, Evah Institute 2018; Global Green Tag Researchers 2018
Data Generator	Manufacturers, Evah Institute 2018; GGT 2018; Meta: IBIS 2018, Other pre 2018
Data Publisher	The Evah Institute Pty Ltd to Global GreenTag and designated client only
Persons input	All contributors cited in Evah & Global GreenTag records or websites
<b>Data Flow &amp; Mix</b>	
System Boundary	Earth's cradle of all resource & emission flows to end of use, fitout or build life
System flows	All known from and to air, land, water and community sources & sinks
Capital inclusions	Natural stocks $\Delta$ , industry stockpiles $\Delta$ , capital wear $\Delta$ , system losses and use
Arid Practice	Dry technology adopted, Water use is factored by 0.1 as for e.g. Mining
Transportation	Distance >20% than EU; >20% fuel efficient larger vehicles, load & distance
Industrial	Company or industry sector data for manufacturing and minerals involved
Mining	All raw material extraction is based on Australian or Pacific Rim technology
Imported fuel	Mix is from nearest sources is e.g. UAE, SE Asia, Canada or New Zealand
Finishes	Processing inputs with finishing burdens are factored in. If not that is denoted
<b>Validation</b>	
Accuracy	10 <sup>th</sup> generation study is $\pm$ 5 to 15% uncertain due to some background data
Completeness	All significant operations are tracked and documented from the cradle to grave
Precision	Tracking of >90% flows applies a 90:10 rule sequentially to 99.9% and beyond
Allocation	%100 to co products on reaction stoichiometry by energetic or mass fraction
Burdens	All resource use from & emissions to community air land, water are included
Plausibility	Results are checked and benchmarked against BAT, BAU & worst practice
Sensitivity	Calculated U is reported & compared to libraries of Bath U RICE & EcoInvent 3.2
Validity Checks	Are made versus Plastics Europe, Ecobilan, GaBi & or Industry LCA Literature



## Trade Essentials® Termite Treated Particleboard Flooring

**16. References for this LCA & EPD**

- Australian & New Zealand (ANZECC) Guidelines For Fresh & Marine Water Quality (2000) <http://www.environment.gov.au/water/quality/national-water-quality-management-strategy>
- Basel Convention (2011) Control of Transboundary Movement of Hazardous Waste & Disposal <http://www.basel.int/portals/4/basel%20convention/docs/text/baselconventiontext-e.pdf>
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### 17. Reviewers Report Conclusions

The independent LCA reviewer's report confirmed that the LCA project report and addition information addressed the EPD. The verifier was not involved in developing the LCA or EPD and has no conflict of interests from their organisational position. While the report is confidential its conclusions confirmed that documentation according to set ISO Standard requirements was provided including evidence from the:

#### The Evah Institute, the LCA developer:

- a) Recipes of input and output data of unit processes used for LCA calculations ✓
- b) Datasheets of measures, calculations, estimates and emails with sources as in Table 6 ✓
- e) References to literature and databases from which data was extracted as noted in Table 6 ✓
- g) Notes on supply chain processes and scenarios satisfying requirements of this Standard ✓
- i) Embodied Energy shares as used for sensitivity analyses re ISO 14044:2006, 4.5.3.3 ✓
- j) Proof percentages or figures in calculations in the end of life scenario ✓
- k) Notes on proof of % and allocation calculations ✓
- o) All operations covered Vs criteria and substantiation used to determine system boundaries ✓

#### Product Manufacturer in:

- c) Specifications used to create the manufacturer's product ✓
- d) Citations, references, specifications or regulations & data showing completeness ✓
- f) Specification demonstrating that the building product can fulfil the intended use ✓

#### The Certifier Global GreenTag on:

- l) Notes and calculation of averages of different locations yielding generic data ✓
- m) Substantiating additional environmental information ISO 14025:2006, 7.2.4 ✓
- n) Procedures for data collection, questionnaires, instructions, confidentiality deeds ✓

#### Requiring No Evidence:

As the EPD is cradle to grave as well as PCR compliant the independent reviewer did not need to:

- h) Substantiate a few stages as all stages were substantiated ✓
- p) Substantiate alternatives when no other choices and assumptions were applied ✓
- q) Demonstrate consistency for few stages as the same rules in Tables 5 and 6 applied to all. ✓



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This Environmental Product Declaration (EPD) discloses potential environmental outcomes compliant with ISO 14025 for business to business communication.

**Further and explanatory information is found at**

<http://www.globalgreentag.com/>

or contact:

[certification1@globalgreentag.com](mailto:certification1@globalgreentag.com)



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