

Environmental Product Declaration

In accordance with ISO 14025:2006 for:

BOPP Film TLA 17 μ m
from Taghleef Industries Pty Ltd



Programme:	" The International EPD [®] System" & "Regional Programme - EPD Australasia"
Programme operator:	"EPD International AB" & "Regional Programme: EPD Australasia"
EPD registration number:	S-P-12567
Publication date:	2024-04-16
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“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 www.environdec.com.”

Programme information

Address of the programme operator:

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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR): PCR for Multi-purpose films, 2021:01, Version 1.0.2, UN CPC 36330, 36390, ANZSIC 1911

Instructions of the Australasian EPD programme, EPD Australasia limited - A Regional annex to the general programme instructions (2023) of the International EPD[®] system Version 4.0.

PCR review was conducted by:

The Technical Committee of the International EPD[®] System
Paola Borla – Chair for PCR Review

Life Cycle Assessment (LCA):

LCA accountability:
Satish Pawar – Regional Manager QHSES Systems & Product Regulatory Affairs
Ramkumar Pandiyan – HSE Manager
Taghleef Industries.

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by accredited certification body

Third-party verification: *Bureau Veritas Certification Sverige AB (Accreditation Number – 1236)* is an approved certification body accountable for the third-party verification. Bureau Veritas Certification Sweden is approved by EPD Australasia as a global HUB for EPD verification.

The certification body is accredited by: *SWEDAC*

Procedure for follow-up of data during EPD validity involves third-party verifier:

Yes No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.

Company information

Owner of the EPD:

Contact information: Mr. Satish Pawar – Regional Manager QHSES Systems & Product Regulatory Affairs

Phone: +1 765 592 7585

E-Mail: satish.pawar@ti-films.com

Address: Taghleef Industries Group, Dubai, UAE.

Description of the organisation:

Taghleef Australia:

Taghleef Industries Pty Ltd – A BOPP (Biaxially Oriented Polypropylene) Films manufacturing unit in Wodonga, Victoria, Australia. Taghleef Industries has acquired Shorko (Australia) in the year 2007 as a part of its strategic initiatives. Since 2006, Ti has been aggressively expanding its BOPP operations in line with their strategy to become a major global BOPP supplier. Taghleef Australia has one BOPP manufacturing line and various slitting machines to cut the BOPP line mill rolls down to smaller size. Films manufactured are transparent, white/opaque and metallised (silver). Approximately 30 different BOPP film grades manufactured in Wodonga.

Taghleef Group:

Headquartered in Dubai, (U.A.E.), Taghleef Industries (*Ti*) is one of the largest global manufacturers of biaxially oriented polypropylene films (BoPP), cast polypropylene films (CPP), biaxially oriented polylactic acid and biodegradable films (BoPLA) offering a *standard* and *speciality film* manufacturing capacity of more than 500,000 tons.

Since its inception, the *Ti* Group has grown by both acquiring in strategic manufacturing entities around the world and investing in new capacities for its organic growth strategy. Today, *Ti* has eleven manufacturing facilities on six continents: 2 facilities in Asia/Middle East (Dubai, Oman), 3 in Europe (Italy, Hungary and Spain) and one each in Australia (Wodonga), Africa (Egypt), USA (Indiana), Canada (Québec) and 2 in Latin America (Colombia and Mexico).

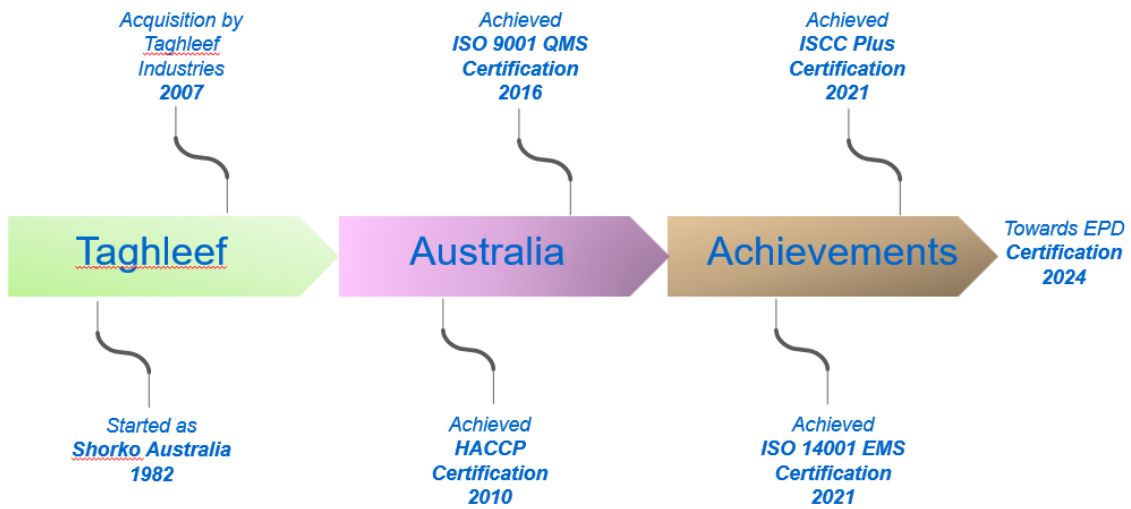
Ti also has distribution centres in Germany, UK, France, Portugal, South Africa and El Salvador, and representative offices in China, Malaysia and India. In support of this global supply network, *Ti* has five prime R&D centres across the globe where our products and process technologies, application developments and polymer expertise are deployed to advance the innovative packaging solutions expected in the market.

Ti is a leading, trusted innovator and manufacturer of biaxially oriented polypropylene films (BoPP), cast polypropylene films (CPP), and biaxially oriented polylactic acid and biodegradable films (BoPLA). We are a company with many capabilities, including secondary processes. Ti also puts significant effort into R&D, with our Dynamic Cycle™ sustainability initiatives part of our industry leadership.



Product-related or management system-related certifications:

ISO 9001: 2015	✓
ISO 14001:2015	✓
HACCP – Hazard Analysis Critical Control Points as per Codex Alimentarius Commission	✓
ISCC Plus	✓



Name and location of production site: Taghleef Industries Pty Ltd, 11 Moloney Drive, Wodonga, Victoria 3690, Australia.



Product information:

Product name:

BOPP Film TLA 17 μ m

Product identification:

BOPP (Biaxially Oriented Polypropylene Film) Transparent film, both sides heat sealable, consistent and improved slip property, treated and printable.

Density:

15.5 g/m² (Conversion Factor for the unit measure of the declared unit)

Product description

BoPP Transparent film. Suitable for typical packaging applications such as Rotogravure and flexographic printing, HFFS & VFFS packaging, Lamination, Single web structure etc.

ANZSIC Code:

1911

UN CPC Code:

36390

Geographical scope:

Global



LCA information:

Declared unit:

1 square meter of film, in addition, the results to 1 kg of film are also declared.

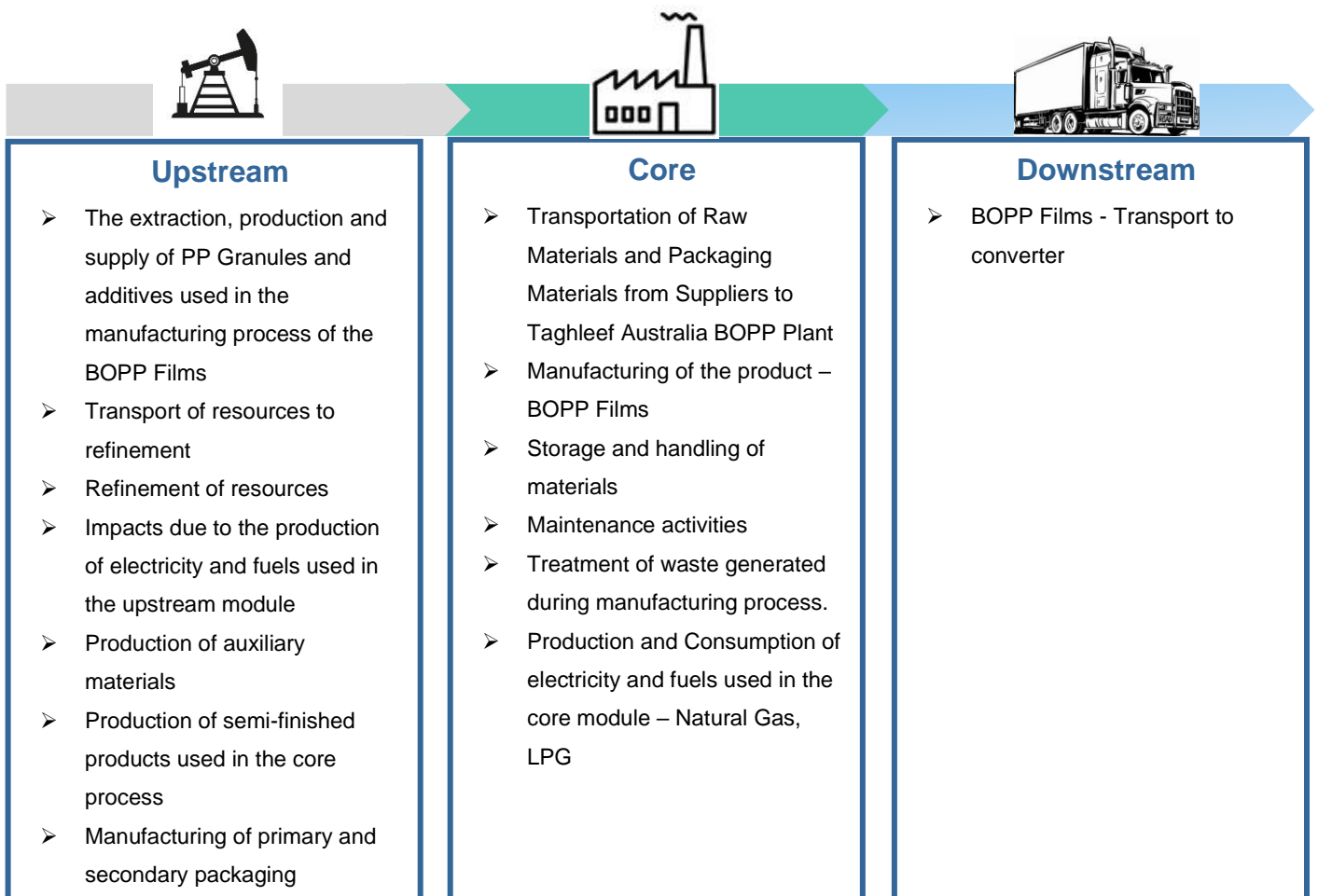
Time representativeness

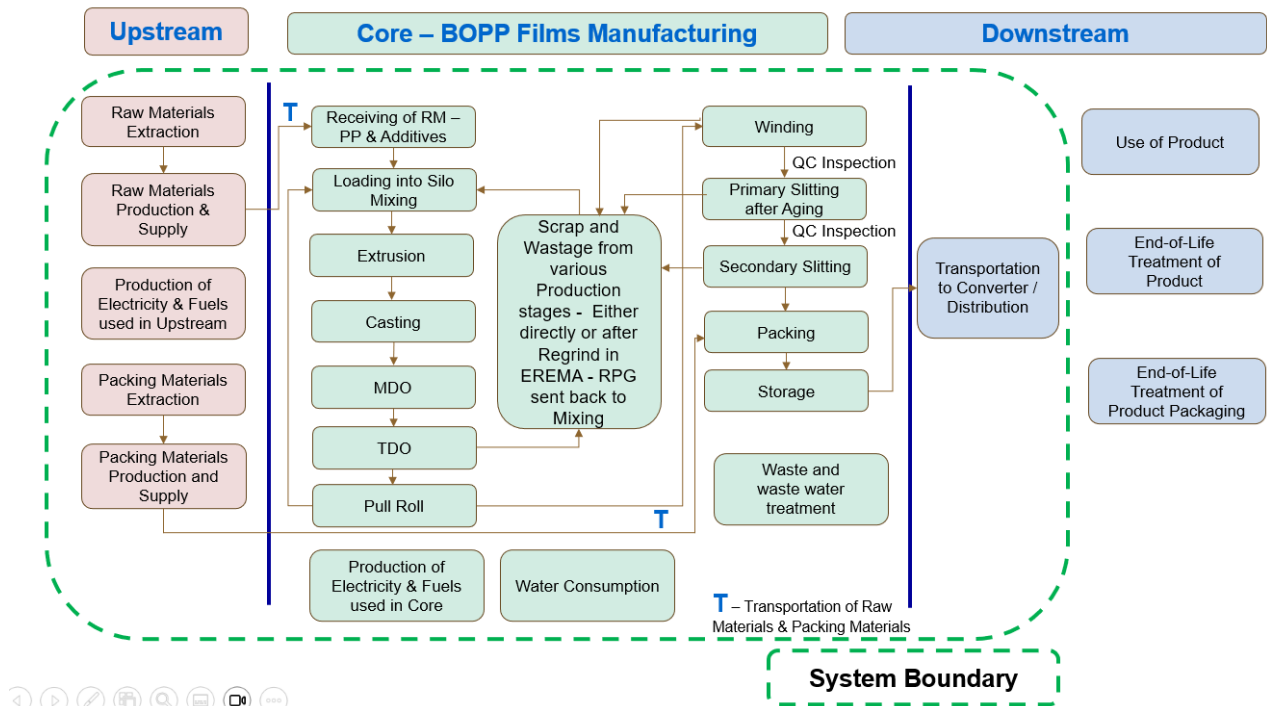
2022 Year

Database(s) and LCA software used

Sphera’s LCA for Experts 10.7.1 Software for conducting LCA study and it uses the Sphera’s Managed LCA Content 2023.2 Databases (GaBi Databases) which includes Professional databases, Energy database, Plastics database and EoL databases.

System diagram:





Description of system boundaries:

Cradle-to-gate with distribution.

Excluded lifecycle stages:

No downstream activities except distribution are included in the system boundaries

More information:

BOPP Transparent Films - Treated Layer – ([Food Packaging Film Material Manufacturers & Suppliers | Taghleef Industries\(ti-films.com\)](http://Food Packaging Film Material Manufacturers & Suppliers | Taghleef Industries(ti-films.com)))

Additional information:

Taghleef Australia uses the raw materials from various regions all around the world. We have considered the furthest supplier transport and distance modes for calculation. Our Finished products shipped all around the world.

All applicable operations data used in the study have been collected from actual Production data at the Taghleef Australia site.

Regarding data collected and the quality requirements of the study:

- Raw materials: component and weight of each raw material consumed and respective packing materials (Collected directly from Taghleef Australia site and supplier info).
- Transport of raw materials
- Refill quantity of refrigerant gases used, auxiliary materials and the relative quantities
- Energy and water consumption of the site through respective bills from the authorities.
- Combustion Emission Through Fuel based emission factor calculation (Air) and Water emissions of the Taghleef production site
- The waste produced (type and quantity) and the transport to the disposal site
- Estimated distances have been used for the distances from the Taghleef sites to the customers' addresses.
- Specific or generic data has been selected in mostly all cases. For this reason the influence of the proxy data is lower than 10%.

Content declaration:

Product

Raw Materials / Substances	[Unit]	%	Environmental / hazardous properties
Polypropylene PP	g/m2	>97%	None*
Additives / Masterbatches PP based	g/m2	<3 %	None*

*According to our Reach declaration.

Reach compliance declaration issued for this product. SDS of this BOPP film product is being issued to customers, which cover the hazard classification of our BOPP films (i.e Non-hazardous and non-dangerous according to WHS & ADG code). So, GHS hazard pictogram/signal word also not applicable.

Packaging

Distribution packaging:

Description of Packing Material	Mass in Kgs for 1 Kg of TLA 17 Films
Corrugated Packaging – (Paper Core & Carboard disk)	0.0062
PP (Plastic Bung & Strapping)	0.0023
LDPE/Stretch film	0.0011
Wood Packaging - (End boards, Pallets, Cross Timber & Wood Edge Strips)	0.0854

Recycled material

Usage of recycled materials (pre-consumer or post-consumer) in the product: Not Applicable

Usage of recycled materials (pre-consumer or post-consumer) in the packaging: Corrugated packaging is produced from post-consumer recycled material which has been covered in the LCA modelling.

Results of the Environmental Performance Indicators

Potential environmental impact [declared unit: 1 m² of film]

Potential Environmental Impact	Total	Upstream	Core	Downstream
GWP100, Fossil GHG emissions [kg CO ₂ eq.]	6.09E-02	2.61E-02	3.30E-02	1.78E-03
GWP100, Biogenic GHG emissions [kg CO ₂ eq.]	1.50E-03	1.38E-03	1.04E-04	2.49E-05
GWP100, Emissions from land use and land use change [kg CO ₂ eq.]	4.33E-06	4.08E-06	2.24E-07	1.98E-08
Total	6.24E-02	2.75E-02	3.31E-02	1.80E-03
Acidification Potential [Mole of H ⁺ eq.]	2.13E-04	3.97E-05	1.47E-04	2.60E-05
Eutrophication Potential, freshwater [kg P eq.]	6.42E-08	4.31E-08	2.08E-08	3.06E-10
Eutrophication Potential, marine [kg N eq.]	6.86E-05	1.13E-05	4.63E-05	1.11E-05
Eutrophication Potential, terrestrial [Mole of N eq.]	7.47E-04	1.20E-04	5.07E-04	1.21E-04
Photochemical ozone creation potential [kg NMVOC eq.]	2.03E-04	4.51E-05	1.27E-04	3.00E-05
Ozone depletion [kg CFC-11 eq.]	4.06E-13	9.28E-14	3.13E-13	3.80E-17
Abiotic Depletion mineral and metals [kg Sb eq.]	2.57E-09	1.33E-09	1.24E-09	5.43E-12
Abiotic Depletion, fossils [MJ]	1.44E+00	1.06E+00	3.55E-01	2.31E-02
Water Deprivation Potential [m ³ world equiv.]	1.37E-02	1.67E-03	1.21E-02	2.87E-06

For ADP-e, ADP-f and WSP - The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

The characterization models and factors to use for the default impact categories are available on www.environdec.com/impact-categories and shall be followed. The source and version of the characterisation models and the factors used shall be reported in the EPD. Alternative regional life cycle impact assessment methods and characterisation factors are allowed to be calculated and displayed in addition to the default list. If so, the EPD shall contain an explanation of the difference between the different sets of indicators, as they may appear to the reader to display duplicate information."

Use of resources

Resource use indicators					
Parameter		Total	Upstream	Core	Downstream
Primary energy resources – Renewable	Used as Energy Carrier [MJ], Net Calorific Value	2.03E-01	7.27E-02	1.30E-01	2.56E-05
	Used as Raw Materials [MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total [MJ], Net Calorific Value	2.03E-01	7.27E-02	1.30E-01	2.56E-05
Primary energy resources – Non-Renewable	Used as Energy Carrier [MJ], Net Calorific Value	1.44E+00	1.06E+00	3.55E-01	2.31E-02
	Used as Raw Materials [MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total [MJ], Net Calorific Value	1.44E+00	1.06E+00	3.55E-01	2.31E-02
Secondary material	Kgs	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	[MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	[MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water resources (FW)	[m3]	1.94E-02	7.49E-03	1.19E-02	1.60E-06

Waste Production and Output Flows

Waste Production

Parameter	Total	Upstream	Core	Downstream
Hazardous waste disposed (HWD) [kg]	6.30E-11	8.12E-11	-1.81E-11	1.47E-14
Non-hazardous waste disposed (NHWD) [kg]	3.71E-04	2.40E-04	1.31E-04	2.61E-07
Radioactive waste disposed (RWD) [kg]	6.38E-06	6.32E-06	5.97E-08	7.12E-10

Output Flows

Parameter	Total	Upstream	Core	Downstream
Components for reuse Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Potential environmental impact [declared unit: 1 Kg of film]

Parameter	Total	Upstream	Core	Downstream
GWP100, Fossil GHG emissions [kg CO2 eq.]	3.93E+00	1.69E+00	2.13E+00	1.15E-01
GWP100, Biogenic GHG emissions [kg CO2 eq.]	9.70E-02	8.87E-02	6.70E-03	1.60E-03
GWP100, Emissions from land use and land use change [kg CO2 eq.]	2.79E-04	2.63E-04	1.44E-05	1.28E-06
Total	4.03E+00	1.78E+00	2.13E+00	1.16E-01
Acidification Potential [Mole of H+ eq.]	1.37E-02	2.56E-03	9.49E-03	1.68E-03
Eutrophication Potential, freshwater [kg P eq.]	4.14E-06	2.78E-06	1.34E-06	1.97E-08
Eutrophication Potential, marine [kg N eq.]	4.43E-03	7.31E-04	2.98E-03	7.13E-04
Eutrophication Potential, terrestrial [Mole of N eq.]	4.82E-02	7.72E-03	3.27E-02	7.81E-03
Photochemical ozone creation potential [kg NMVOC eq.]	1.31E-02	2.91E-03	8.23E-03	1.94E-03
Ozone depletion [kg CFC-11 eq.]	2.62E-11	5.99E-12	2.02E-11	2.45E-15
Abiotic Depletion mineral and metals [kg Sb eq.]	1.66E-07	8.55E-08	7.99E-08	3.50E-10
Abiotic Depletion, fossils [MJ]	9.27E+01	6.83E+01	2.29E+01	1.49E+00
Water Deprivation Potential [m ³ world equiv.]	8.86E-01	1.08E-01	7.78E-01	1.85E-04

For ADP-e, ADP-f and WSP - The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

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Use of resources

Resource use indicators		Total	Upstream	Core	Downstream
Parameter					
Primary energy resources – Renewable	Used as Energy Carrier [MJ], Net Calorific Value	1.31E+01	4.69E+00	8.40E+00	1.65E-03
	Used as Raw Materials [MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total [MJ], Net Calorific Value	1.31E+01	4.69E+00	8.40E+00	1.65E-03
Primary energy resources – Non-Renewable	Used as Energy Carrier [MJ], Net Calorific Value	9.27E+01	6.84E+01	2.29E+01	1.49E+00
	Used as Raw Materials [MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total [MJ], Net Calorific Value	9.27E+01	6.84E+01	2.29E+01	1.49E+00
Secondary material	Kgs	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	[MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	[MJ], Net Calorific Value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water resources (FW)	[m3]	1.94E-02	7.49E-03	1.19E-02	1.60E-06

Waste Production and Output Flows

Waste Production

Parameter	Total	Upstream	Core	Downstream
Hazardous waste disposed (HWD) [kg]	4.07E-09	5.24E-09	-1.17E-09	9.49E-13
Non-hazardous waste disposed (NHWD) [kg]	2.40E-02	1.55E-02	8.45E-03	1.69E-05
Radioactive waste disposed (RWD) [kg]	4.12E-04	4.08E-04	3.85E-06	4.59E-08

Output Flows

Parameter	Total	Upstream	Core	Downstream
Components for reuse Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional environmental information:

No downstream activities except distribution are included in the system boundaries.

References

General Programme Instructions of the International EPD[®] System. Version 4.
Instructions of the Australasian EPD programme, EPD Australasia limited - A Regional annex to the general programme instructions (2023) Version 4.0
PCR 2021:01. Multi-Purpose Films Product Category Classification: UN CPC 36330, 36390 Version 1.0.2
Taghleef Australia BOPP Film TLA 17 LCA Study Report
ISO 14025:2006 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006 - Environmental management — Life cycle assessment — Principles and framework
ISO 14044:2006 - Environmental management — Life cycle assessment — Requirements and guidelines
Sphera LCA for Experts (Gabi) Software V 10.7.1 and Managed LCA Content 2023.2 Databases (GaBi Databases) 2023
Sphera LCA (Gabi) Modelling Principles 2022

