ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	DuPont de Nemours (Luxembourg) s.à r.l.
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DUP-20250485-CBA1-EN
Issue date	19.09.2025
Valid to	18.09.2030

DuPont™ Typar®

DuPont de Nemours (s.à r.l.)

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General Information

DuPont de Nemours (s.à r.l.)

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DUP-20250485-CBA1-EN

This declaration is based on the product category rules:

Technical Textiles, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

19.09.2025

Valid to

18.09.2030

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

DuPont™ Typar®

Owner of the declaration

DuPont de Nemours (Luxembourg) s.à r.l.
Rue Général Patton 1
2984 Contern
Luxembourg

Declared product / declared unit

1 m^2 DuPont™ Typar®

Scope:

This document applies to the whole of DuPont™ Typar® products manufactured in DuPont de Nemours (Luxembourg) s.à.r.l.
The declared unit weight is 100 g/m2. LCA data were compiled using production data for the year 2021. The declaration holder is responsible for the underlying data and its verification.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Vito D'Incognito,
(Independent verifier)

Product

Product description/Product definition

DuPont™ Typar® is composed of thermally bonded continuous polypropylene filaments. DuPont™ Typar® serves different markets with different functions and can be sold under different brand names in function of the application (Typar®, Xavan®, Plantex® and Zemdrain®). For ease of reading, only Typar® will be used hereafter.
Only for Typar® products carrying a CE Marking:
EU regulation no. 305/2011 (CPR) applies for putting the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland). Performance requirements are specified according to the relevant European standards (see Technical Data).

Application

DuPont™ Typar® is used as geosynthetics in civil engineering (as a geotextile, filter for composite drains, and concrete lining products): its functions are separation, filtration, protection, and controlled permeability formwork liner.
In construction, DuPont™ Typar® is used as a substrate in composite sheet structures such as coatings, laminates.

Typar® products also serve other markets and applications such as:
-Landscape: weed control, root control and soil stabilization.
-Filtration (liquid filtration, air filtration, masks): substrate, carrier, and
protection layer for filter medium.
-Primary carpet backing and reinforcement for footwear.

Technical Data

For the products carrying a CE Marking, the product's performance values comply with the declaration of performance in relation to its main features in accordance with the following European standards:

EN 13249:2016/ Roads and other trafficked areas (excluding railways and asphalt inclusion)
EN 13250:2016/ Railways
EN 13251:2016/ Earthworks, foundations and retaining structures
EN 13252:2016/ Drainage systems
EN 13253:2016/ Erosion control works (coastal protection, bank revetments)
EN 13254:2016/ Reservoirs and dams
EN 13255:2016/ Canals
EN 13256:2016/ Tunnels and underground structures
EN 13257:2016/ Solid waste disposal sites
EN 13265:2016/ Liquid waste containment projects

Constructional data

Name	Value	Unit
Mass per unit area EN ISO 9864	30 - 400	g/m2
Thickness (2kPa) EN ISO 9863-1	0.30 -0.90	mm
Tensile strength MD/XD EN 29073-3	90-1300	N/50mm
Elongation MD/XD (%) EN 29073-3	30-60	%

Base materials/Ancillary materials

Typar® is a high-strength spunbond nonwoven fabric made of thermally-bonded (endless) polypropylene filaments. Polypropylene is thus the main material of the product (99 % on average), while a small amount of additives (1%) are added to give specific properties.
This product/at least one partial article, contains substances listed in ECHA Candidate List of Substances of Very High Concern (SVHC) for Authorisation (REACH, Article 59) (date: 10.06.2022), exceeding 0.1 percentage by mass: no.
This product/article/at least one partial article, contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: no.

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): no.

Reference service life

The service life of Typar® depends on the application and whether it is covered or not.

In geotextile applications, Typar® products are predicted to be durable for 100 years in natural soils with 4 ≤ pH ≤ 9 and soil temperatures ≤ 25°C.

LCA: Calculation rules

Declared Unit

The declared unit is 1 m² of geotextile. Its mass per unit of area in accordance with *EN ISO 9864* is 30 to 400 g/m². A surface weight of 100 g/m² has been used when calculating the lifecycle analysis for this EPD.

To calculate the specific impacts of a Typar® product, the EPD results need to be multiplied by the ratio between its specific grammage and 100 g/m^2. The variations for DuPont™ Typar® is thus proportional to the variations of the grammage (factor of 13 between the minimum and maximum value).

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Mass per unit area EN ISO 9864	100	g/m2
Thickness (2kPa) EN ISO 9863-1	0.40	mm

Primary production data were collected to model the production process (A1-A3), and are representative of the year 2021.The product is manufactured in Luxembourg. All energy and materials flows were considered. Only a few material flows were excluded from the modelling, but the sum of their weight did not exceed 1 % of the total input mass. Manufacturing of the production machines and systems and associated infrastructure, were not taken into account for the life cycle assessment.

Transport to the construction site (A4) was based on European market shares of 2021 at country level, provided by DuPont Luxembourg s.à.r.l., to cover at least 90 % of the sales. Eurostat data representative of 2019 were used to model the shares between the packaging disposal routes during the installation into the building (A5).

Regarding background data, the Luxembourg electricity grid mix were applied to the production plant. Other background

data were specific to Germany or the European average and were not older than 10 years. Some proxies were used for the modelling of additives.
The representativeness can be classified as very good for all the foreground data, and for most of the background data.

The *GaBi* database (Sphera Solutions GmbH, 2022.1) was used to model background data.

System boundary
Type of EPD: Cradle-to-gate (with options)

The system boundaries of the EPD follow the modular construction system as described by *EN 15804*.

The LCA considers the following modules:

· A1-A3: Manufacturing of pre-products, packaging, ancillary materials, transport to the factory and production, with the associated energy supply and waste handling

· A4: Transport to the construction site

· A5: Installation into the building, including disposal of packaging

· C4: Waste disposal, namely landfill

Geographic Representativeness
Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Luxembourg

Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon
The product does not contain biogenic carbon.

Information on describing the biogenic Carbon Content at factury gate

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.0007	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

The following technical scenario information is required for the declared modules and optional for non-declared modules. Modules for which no information is declared can be deleted; additional information can also be listed if necessary.

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

A5 is not declared including the disposal of the packaging material on the construction site, the amounts of packaging materials included in the LCA calculations must be declared as technical scenario information for Module A5.

Transport to the building site (A4)

Name	Value	Unit
Transport distance (truck)	854	km
Transport distance (container ship)	6	km

Installation into the building (A5)

Name	Value	Unit
Cardboard/paper waste to landfill	2.48E-04	kg
Cardboard/paper waste to incineration	2.65E-04	kg
Plastic waste to landfill	5.52E-05	kg
Plastic waste to incineration	8.80E-5	kg

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies to the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list of service life by *BNB* is declared.

End of life (C1-C4)

Name	Value	Unit
Collected as mixed construction waste	0.1	kg
Landfilling	0.1	kg

LCA: Results

The results displayed below apply to 1 m^2 of DuPont™ Typar® product, with a declared unit weight of 100 g/m^2.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	MND	MND	MND	X	MND

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m2 DuPont™ Typar®

Parameter	Unit	A1-A3	A4	A5	C4
Global Warming Potential total (GWP-total)	kg CO_2 eq	3.78E-01	7.48E-03	1E-03	7.02E-03
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	3.77E-01	7.31E-03	2.63E-04	7.09E-03
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	9.64E-04	1.22E-04	7.4E-04	-7.54E-05
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	5.4E-05	4.15E-05	1.56E-08	3.45E-06
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.35E-12	4.47E-16	1.13E-16	9.52E-15
Acidification potential of land and water (AP)	mol H^+ eq	9.29E-04	4.45E-05	2.38E-07	2.1E-05
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	9.85E-06	2.22E-08	2.93E-09	1.32E-06
Eutrophication potential aquatic marine (EP-marine)	kg N eq	2.09E-04	2.18E-05	1.04E-07	4.65E-06
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	2.24E-03	2.42E-04	9.62E-07	5.1E-05
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	5.97E-04	4.13E-05	3.31E-07	1.49E-05
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	3.62E-08	6.23E-10	3.61E-12	4.92E-10
Abiotic depletion potential for fossil resources (ADPF)	MJ	9.58E+00	9.96E-02	5.25E-04	1.01E-01
Water use (WDP)	m^3 world eq deprived	1.51E-01	6.68E-05	6.87E-05	-6.99E-05

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m2 DuPont™ Typar®

Parameter	Unit	A1-A3	A4	A5	C4
Renewable primary energy as energy carrier (PERE)	MJ	7.31E-01	5.66E-03	7.41E-05	8.27E-03
Renewable primary energy resources as material utilization (PERM)	MJ	3.59E-04	3.02E-14	3.9E-15	8.55E-13
Total use of renewable primary energy resources (PERT)	MJ	7.31E-01	5.66E-03	7.41E-05	8.27E-03
Non renewable primary energy as energy carrier (PENRE)	MJ	1E+01	9.98E-02	5.25E-04	1.01E-01
Non renewable primary energy as material utilization (PENRM)	MJ	4.38E+00	3.5E-06	1.34E-08	1.37E-06
Total use of non renewable primary energy resources (PENRT)	MJ	1.44E+01	9.99E-02	5.25E-04	1.01E-01
Use of secondary material (SM)	kg	3.14E-03	0	0	0
Use of renewable secondary fuels (RSF)	MJ	1.07E-07	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	9.87E-09	0	0	0
Use of net fresh water (FW)	m^3	3.92E-03	6.4E-06	1.63E-06	1.3E-06

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m2 DuPont™ Typar®

Parameter	Unit	A1-A3	A4	A5	C4
Hazardous waste disposed (HWD)	kg	7.28E-10	4.78E-13	6.88E-14	1.55E-11
Non hazardous waste disposed (NHWD)	kg	1.28E-03	1.43E-05	2.88E-04	9.96E-02
Radioactive waste disposed (RWD)	kg	1.28E-04	1.23E-07	1.36E-08	1.24E-06
Components for re-use (CRU)	kg	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	9.68E-04	0
Exported thermal energy (EET)	MJ	0	0	1.74E-03	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m2 DuPont™ Typar®

Parameter	Unit	A1-A3	A4	A5	C4
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND

Soil quality index (SQP)	SQP	ND	ND	ND	ND

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

This EPD was created using a software tool.

References

EN 13249
EN 13249:2016, Geotextiles and geotextile-related products - Characteristics required for use in the construction of roads and other trafficked areas (excluding railways and asphalt inclusion).

EN 13250
EN 13250:2016, Geotextiles and geotextile-related products - Characteristics required for use in the construction of railways.

EN 13251
EN 13251:2016, Geotextiles and geotextile-related products - Characteristics required for use in earthworks, foundations and retaining structures.

EN 13252
EN 13252:2016, Geotextiles and geotextile-related products - Characteristics required for use in drainage systems.

EN 13253
EN 13253:2016, Geotextiles and geotextile-related products - Characteristics required for use in erosion control works (coastal protection, bank revetments).

EN 13254
EN 13254:2016, Geotextiles and geotextile-related products - Characteristics required for the use in the construction of reservoirs and dams.

EN 13255
EN 13255:2016, Geotextiles and geotextile-related products - Characteristics required for use in the construction of canals.

EN 13256
EN 13256:2016 Geotextiles and geotextile-related products - Characteristics required for use in the construction of tunnels and underground structures.

EN 13257
EN 13257:2016, Geotextiles and geotextile-related products - Characteristics required for use in solid waste disposals.

EN 13265
EN 13265:2016, Geotextiles and geotextile-related products - Characteristics required for use in liquid waste containment projects.

EN 15804
EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 29073-3
EN 29073-3:1992, Textile; test method for nonwovens; Part 3: Determination of tensile strength and elongation

ISO 14025
EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

EN ISO 9863-1
EN ISO 9863-1:2016/A1:2019, Geosynthetics - Determination of thickness at specified pressures - Part 1: Single layers

ISO 9864
EN ISO 9864:2005-05, Geosynthetics - Test method for the determination of mass per unit area of geotextiles and geotextile-related products.

EU 528/2012
Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

ECHA Candidate List 2022
European Chemicals Agency (ECHA): Candidate List of Substances of Very High Concern for Authorisation, published 10 June 2022, in accordance with Article 59 of Regulation (EC) No 1907/2006 (REACH).

Further References

GaBi software and database:2022
GaBi software/database, version 10.6.2.9. Sphera Solutions GmbH, 2022.

IBU 2021
Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021. www.ibu-epd.com

PCR 2021, Part A
PCR Guidance-Texts for Building-Related Products and Services: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019

PCR 2013, Part B
Part B - PCR Guidance-Texts for Building-Related Products and Services: Requirements on the EPD for Technical Textiles (version 1.0, 2013)

The literature referred to in the Environmental Product Declaration must be listed in full.Standards already fully quoted in the EPD do not need to be listed here again.

The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.

Publisher

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

Luxembourg Institute of Science and Technology (LIST)
Avenue des Hauts-Fourneaux 5
4362 Esch/Alzette
Luxembourg

00352-275888-1
info@list.lu
www.list.lu

Owner of the Declaration

DuPont de Nemours (Luxembourg) s.à r.l.
Rue Général Patton 1
2984 Contern
Luxembourg

+352 3666 5210
tyvek.info@dupont.com
www.dupont.com