



**Environmental  
Product  
Declaration**

According to EN15804+A2 (+indicators A1)



This declaration is for:  
**ONE-DNA ORION**

Provided by:  
**LimeGreen**



program operator  
**Stichting MRPI®**  
publisher  
**Stichting MRPI®**  
[www.mrpi.nl](http://www.mrpi.nl)

MRPI® registration  
**1.1.00538.2024**  
date of first issue  
**18-4-2024**  
date of this issue  
**18-4-2024**  
expiry date  
**18-4-2029**



**COMPANY INFORMATION**



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**PRODUCT**

ONE-DNA ORION

**DECLARED UNIT/FUNCTIONAL UNIT**

m2

**DESCRIPTION OF PRODUCT**

ONE-DNA™ Orion is mono-material artificial grass manufactured by LimeGreen Holding BV., applied as a top layer carpet for Landscaping.

**MRPI® REGISTRATION**

1.1.00538.2024

**DATE OF ISSUE**

18-4-2024

**EXPIRY DATE**

18-4-2029

**VISUAL PRODUCT**



**SCOPE OF DECLARATION**

This MRPI®-EPD certificate is verified by Ulbert Hofstra, SGS Intron B.V. The LCA study has been done by Stijn Mulder, EcoReview NL B.V. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

**MORE INFORMATION**

**PROGRAM OPERATOR**

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Ing. L. L. Oosterveen MSc. MBA  
Managing Director MRPI

**DEMONSTRATION OF VERIFICATION**

CEN standard EN15804 serves as the core PCR(a)	
Independent verification of the declaration an data according to EN15804+A2 (+indicators A1)	
internal:	external: x
Third party verifier: Ulbert Hofstra SGS Intron B.V.	
[a] PCR = Product Category Rules	

### DETAILED PRODUCT DESCRIPTION

ONE-DNA™ Orion is mono-material artificial grass manufactured by LimeGreen Holding BV., developed with a focus on preserving end-of-life value, minimizing resource use, reducing CO2 emissions, and maximizing recyclability. Applied as a top layer carpet for Landscaping. ONE-DNA™ Orion has a pile height of 40 mm and a specific weight of 2408 gr/m2.

Component (> 1%)	(%)
PE	99,7%

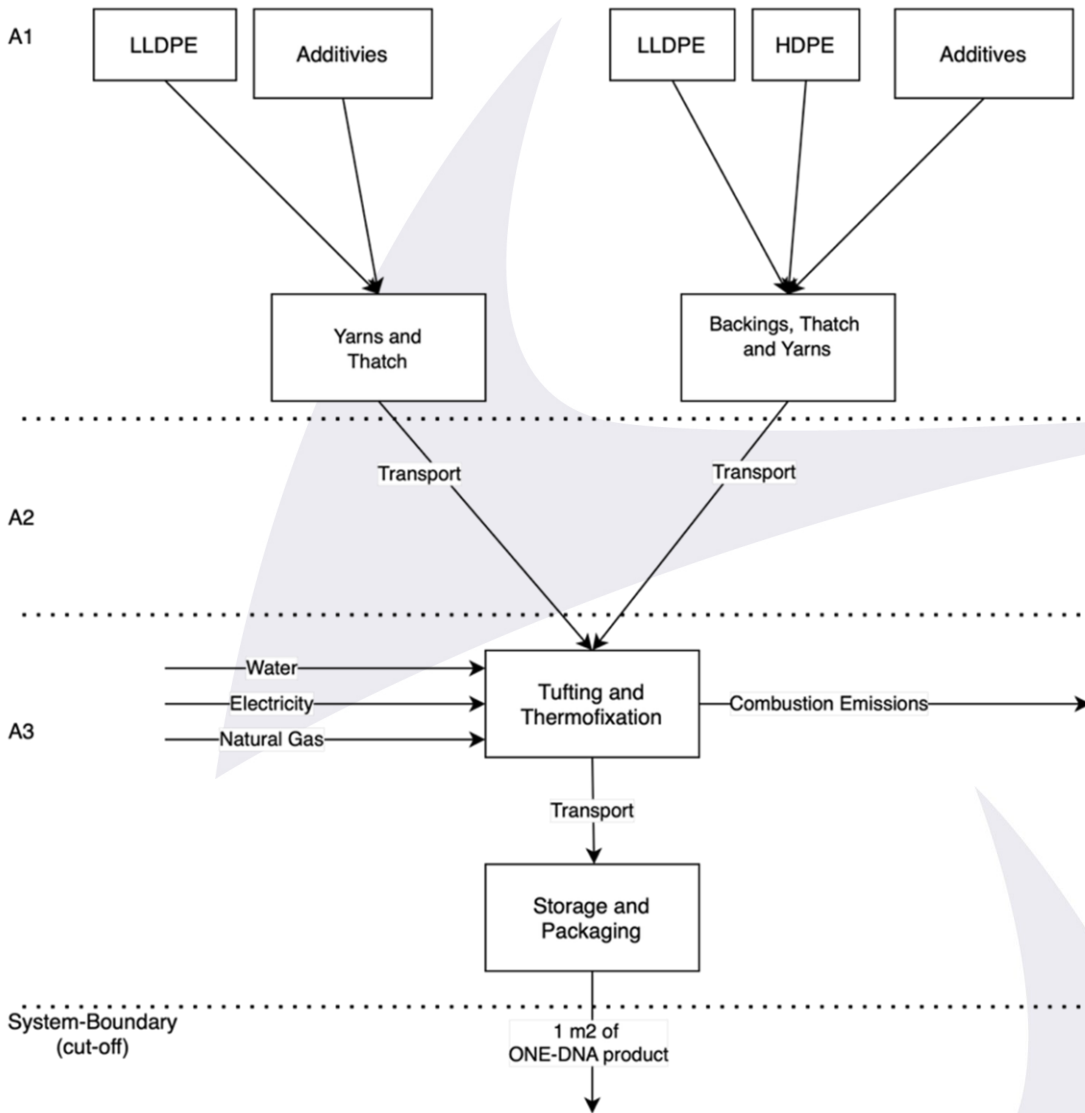
### SCOPE AND TYPE

The LCA is a cradle-to-gate LCA (A1-A3) in accordance with the EN15804+A2 and the Dutch Determination method (Bepalingsmethode 'Milieuprestatie Bouwwerken' versie 1.1 march 2022). The product is produced in the Netherlands and application of the results is only representable for products sold from the Hasselt facility. All packaging is included in this LCA and processing of production wastes is modelled for the region where they occur. Simapro 9.5.0.0 software was using the NMD 3.8 and EcoInvent 3.6 databases.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USER STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Rawmaterial supply	Transport	Manufacturing	Transport gate to 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

X= Modules Assessed  
ND= Not Declared

System-Boundary  
 (cut-off)



**REPRESENTATIVENESS**

None.

**ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A1)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	6,80 E-05	1,25 E-06	7,99 E-06	7,73 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	MJ	2,15 E+02	1,98 E+00	5,25 E+00	2,23 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP	kg CO2 eq.	7,65 E+00	1,54 E-01	7,51 E-01	8,55 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	Kg CFC11 eq.	2,42 E-07	2,48 E-08	2,55 E-08	2,93 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	Kg ethene eq.	4,68 E-03	2,02 E-04	2,08 E-04	5,09 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	kg SO2 eq.	2,08 E-02	3,93 E-03	1,98 E-03	2,67 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP	kg (PO4) 3- eq.	2,19 E-03	4,33 E-04	2,73 E-03	5,36 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Toxicity indicators for Dutch market**

HTP	kg DCB-Eq	1,55 E+00	8,62 E-02	2,81 E-01	1,92 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FAETP	kg DCB-Eq	3,26 E-02	1,43 E-03	2,79 E-02	6,20 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAETP	kg DCB-Eq	1,07 E+02	6,69 E+00	3,23 E+01	1,46 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETP	kg DCB-Eq	6,28 E-03	2,53 E-04	4,94 E-03	1,15 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECI	euro	6,63 E-01	3,64 E-02	1,01 E-01	8,00 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	kg Sb eq.	1,04 E-01	9,51 E-04	2,52 E-03	1,07 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]



**ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	7,87 E+00	1,56 E-01	8,28 E-01	8,85 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	kg CO2 eq.	7,88 E+00	1,55 E-01	7,58 E-01	8,79 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic	kg CO2 eq.	-9,49 E-03	-4,30 E-05	6,87 E-02	5,91 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc)	kg CO2 eq.	2,20 E-03	1,06 E-04	1,30 E-03	3,61 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC11 eq.	2,68 E-07	3,13 E-08	2,71 E-08	3,26 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	mol H+ eq.	2,53 E-02	4,91 E-03	2,53 E-03	3,27 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-freshwater	kg PO4 eq.	1,28 E-04	6,69 E-07	2,06 E-04	3,34 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine	kg N eq.	4,69 E-03	1,21 E-03	4,36 E-03	1,03 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial	mol N eq.	5,30 E-02	1,35 E-02	5,76 E-03	7,22 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg NMVOC eq.	2,09 E-02	3,49 E-03	1,25 E-03	2,56 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-minerals & metals	kg Sb eq.	6,80 E-05	1,25 E-06	7,95 E-06	7,72 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil	MJ, net calorific value	2,05 E+02	2,00 E+00	5,09 E+00	2,12 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP	m3 world eq. Deprived	4,72 E+00	3,09 E-03	9,70 E-01	5,69 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- GWP-total = Global Warming Potential total
- 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 Exceedence
- 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 Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]
- ADP-fossil = Abiotic Depletion for fossil resources potential [2]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator



**ENVIRONMENT IMPACT per functional unit or declared unit (additional indicators A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	2,00 E-07	5,10 E-09	2,73 E-08	2,33 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRP	kBq U235 eq.	8,23 E-02	8,57 E-03	1,76 E-02	1,09 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	7,25 E+01	1,31 E+00	8,61 E+01	1,60 E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	2,23 E-09	8,74 E-11	1,01 E-09	3,33 E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	4,86 E-08	1,07 E-09	2,75 E-08	7,71 E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	---	1,19 E+01	3,29 E-01	1,30 E+00	1,35 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions

IRP = Potential Human exposure efficiency relative to U235 [1]

ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]

HTP-c = Potential Comparative Toxic Unit for humans [2]

HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]

SQP = Potential soil quality index [2]

**Disclaimer [1]**

- 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 nor due to radioactive waste.

**Disclaimer [2]**

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.



**OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	6,70 E-05	1,96 E-06	3,72 E-05	1,06 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	3,99 E-01	9,61 E-03	1,35 E-01	5,43 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	7,69 E-05	1,39 E-05	1,54 E-05	1,06 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MFR	kg	6,99 E-04	0,00 E+00	6,83 E-05	7,68 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MER	kg	5,61 E-05	0,00 E+00	5,26 E-06	6,14 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	1,88 E-03	0,00 E+00	1,96 E-04	2,08 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETE	MJ	3,23 E-03	0,00 E+00	3,37 E-04	3,57 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

HWD = Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

MFR = Materials for recycling

EEE = Exported Electrical Energy

NHWD = Non Hazardous Waste Disposed

CRU = Components for reuse

MER = Materials for energy recovery

ETE = Exported Thermal Energy



**RESOURCE USE per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,71E-02	0,00E+00	1,90E-03	1,90E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	2,76E+00	1,39E-02	6,78E-01	3,45E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	1,05E-01	0,00E+00	1,63E-01	2,68E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	2,21E+02	2,12E+00	5,44E+00	2,29E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	2,00E-04	0,00E+00	1,96E-05	2,19E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	1,11E-01	1,10E-04	2,50E-02	1,36E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- PERE = Use of renewable energy excluding renewable primary energy resources
- PERM = Use of renewable energy resources used as raw materials
- PERT = Total use of renewable primary energy resources
- PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 resources
- SM = Use of secondary materials
- RSF = Use of renewable secondary fuels
- NRSF = Use of non renewable secondary fuels
- FW = Use of net fresh water

**BIOGEN CARBON CONTENT per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	Kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging



#### **CALCULATION RULES**

Energy and resource usage of the production facilities have been mass allocated based on a full calendar year of production. Capital goods, such as factory infrastructure, have been cut-off.

#### **SENARIOS AND ADDITIONAL TECHNICAL INFORMATION**

The yarns, thatch and backings for the ONE-DNA artificial turf are produced in Dubai and in the Netherlands. The composition and production of these half-fabricates are inventoried for this study. At the production location in Hasselt these half-fabricates are tufted and thermally fixed to the backing. From the production locations the product is packed and shipped to the customer.

#### **DECLARATION OF SVHC**

Analysis show no SVHC present in the product.

#### **REFERENCES**

None.

#### **REMARKS**

None.