EN 15804+A2 EPD

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2
Owner of the Declaration – Pelko Ltd

Declaration number: EPDIE-23-114
Issue date 17th April 2023
Valid to 16th April 2028

EPD Programme - EPD Ireland
Programme Operator - Irish Green Building Council
www.epdireland.org

WORKING DESIGN IN FURNITURE

Fairview Ergo Chair

Fairview Ergo Chrome Base Chair

1. General information

PROGRAMME OPERATOR	OWNER OF DECLARATION
Irish Green Building Council 19 Mountjoy Square, Dublin D01 E8P5 info@igbc.ie	Pelko Ltd Unit B5, Ballymount Drive, Ballymount Industrial Estate Walkinstown, Dublin D12 HTA4 +353 1 836 5839, info@pelko.ie
DECLARATION NUMBER	**MANUFACTURER ADDRESS**
EPDIE-23-114	Pelko Ltd Unit B5, Ballymount Drive, Ballymount Industrial Estate Walkinstown, Dublin D12 HTA4
ECO PLATFORM EPD	**DECLARED UNIT**
Yes	1 Fairview Ergo Chair
APPLICABLE PRODUCT CATEGORY RULES	**DECLARED PRODUCT**
1. EN 15804:2012+A2:2019 2. Product Category Rules : Part A Implementation and use of I.S. EN 15804:2012+A1 and + A2, and CEN TR 16970:2016 in Ireland for the development of Environmental Product Declarations (issued 05.03.2022), Version 2.1. 3. Product Category Rules for Furniture, EPD-Norge, NPCR 026, PCR – Parts A and B for Furniture, version 2.0	1 Fairview Ergo Chrome Base Chair
DATE OF ISSUE	**SCOPE OF EPD**
17th April 2023	Cradle to Grave, and Module D (A, B, C and D)
DATE OF EXPIRY	**LCA CONSULTANT OR PERSON RESPONSIBLE FOR LCA**
16th April 2028	Ecoreview, Kilkenny, Ireland. +353 (087) 258 9783 www.ecoreview.ie
TYPE OF EPD: SINGLE OR MULTI PRODUCT	**LCA SOFTWARE AND DEVELOPER IF APPLICABLE**
Single product specific EPD	Ecochain Helix version 3.5.63
PRODUCT CLASSIFICATION OR NACE CODE	**NAME AND VERSION OF INVENTORY USED**
NACE code DN.36.11	Ecoinvent version 3.6
COMPARABILITY	
Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+A2:2019	
The CEN Norm /EN 15804 serves as the core PCR	
Independent verification of the declaration according to ISO 14025	

Internally ☐ Externally ✕

SIGNATURE OF PROGRAMME OPERATOR	SIGNATURE VERIFIER
Pat Barry - CEO - Irish Green Building Council  IGBC IRISH GREEN BUILDING COUNCIL	Kim Allbury - Ricardo Energy & Environment  RICARDO

2. Scope and Type of EPD

Scope

This EPD is cradle to grave and Module D. The Modules that are declared are shown in the table below.

PRODUCT STAGE			CONSTRUCTION ON 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	X	X	X	X	X	X	X	X	X	X	X	X
MDT	MDT	MDT	OP	OP	OP	OP	OP	OP	OP	OP	OP	MDT	MDT	MDT	MDT	MDT

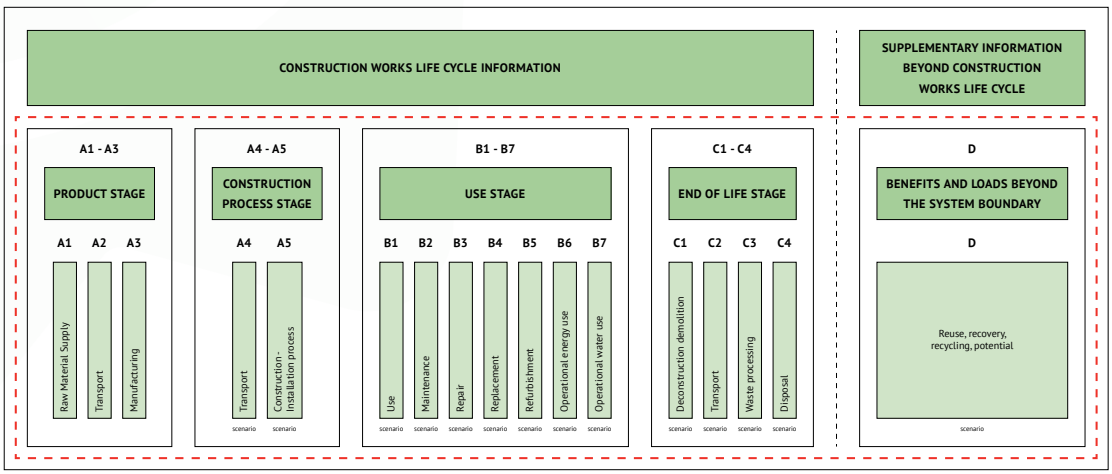
X = Module declared; ND = Module not declared; MDT = Mandatory; OP = Optional.

Declared Functional Unit

One Fairview Ergo Chair, weight 15.2 kg. The intended use of the Fairview Ergo chair is for office desk seating.

System Boundaries

This LCA covers the Product (A1 - A3), Construction Process (A4 - A5), Use (B1 - B7), end of Life (C1 - C4), and benefits and loads beyond the system boundary (D).



3. Detailed product description

The Fairview Ergo is an office chair for seating at a desk or workstation. It has an adjustable back, and adjustable arm heights. The seat height is also adjustable, and the chair sits on castor rollers, enabling it to move across the floor.

Full technical details for this chair can be viewed at:
Fairview Ergo: https://pelko.ie/product/fairview-ergo-chrome-base/

The weight of the chair is: 15.2 kg.

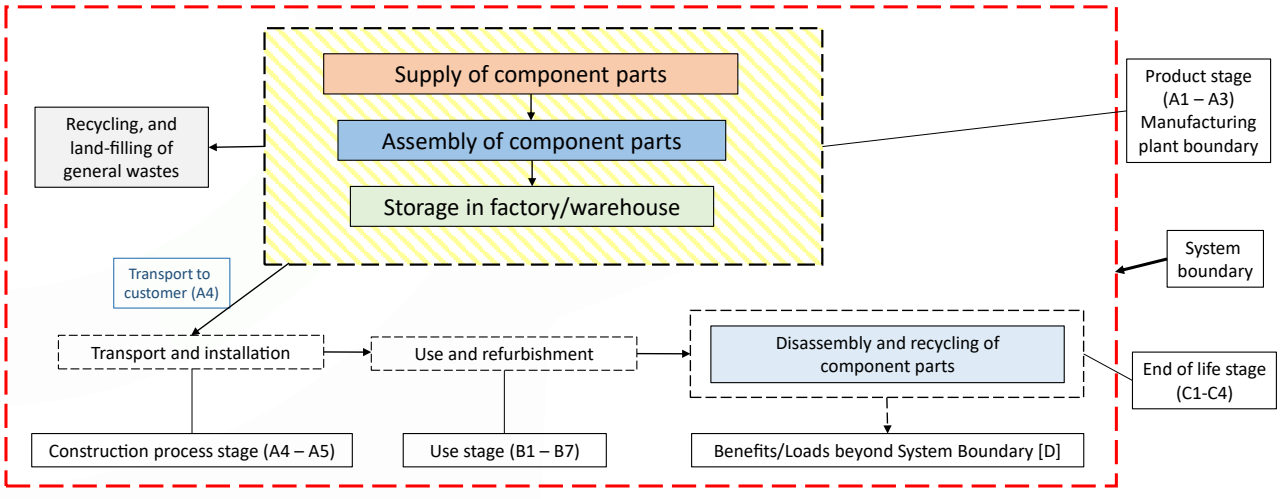
The Reference Service Life for the chair is taken to be 30 years. The chair is guaranteed by the manufacturer for a period of ten years, however the time for which the chair can be used can be extended, by replacing moveable components and upholstery at approximately 10 year intervals.

The geographic area for which this EPD is representative is Europe.

3.1 Manufacturing Process Description

The chairs are assembled in the Pelko factory, at Ballymount Industrial Estate, in Dublin, from component parts supplied from a range of suppliers. The production process is assembly of the component parts, with some cutting of fabric and foam cushions. The chair frames are chrome plated steel, with minor components and arms in polypropylene, and plywood seats, covered with foam and upholstered with fabric comprising 75% recycled cotton and 25% recycled polyester.

The manufacturing process flowchart, and LCA scenarios, is shown below:



4.A. LCA results - Fairview Ergo Chair

Core Environmental impact per one Fairview Ergo Chair, weight 15.2 kg

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	[kg CO_2 eq.]	4.73E+01	1.59E+00	3.33E+00	5.22E+01	3.91E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E+01	0.00E+00	0.00E+00	0.00E+00	2.47E+00	3.26E+00	9.35E-01	-3.40E+01
GWP-fossil	[kg CO_2 eq.]	5.10E+01	1.59E+00	1.30E+00	5.39E+01	3.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E+01	0.00E+00	0.00E+00	0.00E+00	2.47E+00	3.24E+00	5.87E-02	-3.39E+01
GWP-biogenic	[kg CO_2 eq.]	-3.76E+00	1.52E-03	2.03E+00	-1.72E+00	1.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-03	1.62E-02	8.76E-01	-2.95E-02
GWP-luluc	[kg CO_2 eq.]	6.89E-02	8.10E-04	2.56E-04	6.99E-02	2.18E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-02	0.00E+00	0.00E+00	0.00E+00	1.07E-03	2.35E-03	1.76E-05	-5.33E-02
ODP	[kg CFC-11 eq.]	3.11E-06	3.16E-07	1.77E-07	3.60E-06	8.36E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.35E-06	0.00E+00	0.00E+00	0.00E+00	5.47E-07	2.90E-07	3.52E-09	-1.98E-06
AP	[mol H+ eq.]	2.74E-01	3.68E-02	2.77E-03	3.13E-01	1.14E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-01	0.00E+00	0.00E+00	0.00E+00	7.09E-03	1.62E-02	1.75E-04	-1.71E-01
EP-freshwater[1]	[kg P eq.]	2.85E-03	2.52E-05	1.72E-05	2.89E-03	4.38E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-03	0.00E+00	0.00E+00	0.00E+00	2.26E-05	8.31E-05	5.27E-06	-1.86E-03
EP-marine	[kg N eq.]	5.31E-02	7.28E-03	3.40E-03	6.38E-02	2.03E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-02	0.00E+00	0.00E+00	0.00E+00	1.34E-03	4.51E-03	1.24E-03	-3.43E-02
EP-terrestrial	[mol N eq.]	5.49E-01	8.19E-02	9.04E-03	6.40E-01	2.30E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-01	0.00E+00	0.00E+00	0.00E+00	1.51E-02	5.04E-02	4.78E-04	-3.69E-01
POCP	[kg NMVOC eq.]	1.83E-01	2.17E-02	3.51E-03	2.08E-01	8.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-01	0.00E+00	0.00E+00	0.00E+00	5.76E-03	1.44E-02	3.43E-04	-1.55E-01
ADP-minerals&metals[2]	[kg Sb eq.]	1.22E-03	4.65E-06	3.89E-06	1.23E-03	1.92E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.81E-04	0.00E+00	0.00E+00	0.00E+00	8.91E-05	6.22E-03	1.46E-07	-4.89E-04
ADP-fossils[2]	[MJ] ncv	7.17E+02	2.28E+01	1.91E+01	7.59E+02	5.78E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.52E+02	0.00E+00	0.00E+00	0.00E+00	3.69E+01	3.38E+01	3.33E-01	-4.50E+02
WDP[2]	m^3 world eq. deprived	1.76E+01	1.73E-01	6.61E-02	1.78E+01	2.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E+01	0.00E+00	0.00E+00	0.00E+00	1.13E-01	1.79E+00	1.16E-02	-1.06E+01

GWP-total = Global Warming Potential total; GWP-fossil= Global Warming Potential fossil fuels (GWP-fossil; 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&fossils = Abiotic depletion potential for non-fossil resources; ADP-fossils= Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential, deprivation-weighted water consumption.

The measurement of environmental impacts uses the recommended default LCIA methods for the PEF 3.0 method. These methods include amongst others: USEtox® 2.0, ReCiPe (2016), CML-2001, EDIP 2003, IPCC.

[1]To express EP freshwater as kg of PO43- eq, multiply the value for kg P eq. by 3.067

[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.

ND = Module not declared; INA = Indicator not assessed.

4.B. LCA results - Fairview Ergo Chair

Resource use per one Fairview Ergo Chair, weight 15.2 kg

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	1.37E+02	5.01E-01	1.97E+00	1.40E+02	1.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E+01	0.00E+00	0.00E+00	0.00E+00	6.28E-01	2.34E+00	1.44E-02	-3.83E+01
PERM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.37E+02	5.01E-01	1.97E+00	1.40E+02	1.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E+01	0.00E+00	0.00E+00	0.00E+00	6.28E-01	2.34E+00	1.44E-02	-3.83E+01
PENRE	[MJ]	7.43E+02	2.42E+01	2.10E+01	7.89E+02	6.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E+02	0.00E+00	0.00E+00	0.00E+00	3.92E+01	3.61E+01	3.53E-01	-4.79E+02
PENRM	[MJ]	2.35E-01	0.00E+00	0.00E+00	2.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	7.44E+02	2.42E+01	2.10E+01	7.89E+02	6.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.49E+02	0.00E+00	0.00E+00	0.00E+00	3.92E+01	3.61E+01	3.53E-01	-4.79E+02
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m^3]	1.28E+00	4.05E-03	1.98E-03	1.29E+00	8.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-03	4.73E-02	3.06E-04	-3.74E-01

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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.

ND = Module not declared; INA = Indicator not assessed.

4.C. LCA results - Fairview Ergo Chair

Output flows and waste categories per one Fairview Ergo Chair, weight 15.2 kg

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	1.25E-02	1.83E-05	3.05E-05	1.25E-02	1.60E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-03	0.00E+00	0.00E+00	0.00E+00	9.91E-05	1.25E-02	1.10E-06	-1.61E-03
NHWD	[kg]	1.10E+01	1.47E-01	2.18E+00	1.33E+01	1.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+01	0.00E+00	0.00E+00	0.00E+00	1.46E+00	9.38E-01	2.48E+00	-1.22E+01
RWD	[kg]	1.48E-03	1.49E-04	3.06E-05	1.66E-03	3.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-03	0.00E+00	0.00E+00	0.00E+00	2.49E-04	1.39E-04	1.72E-06	-9.20E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E+01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.

CRU, MFR, MER, EEE, EET are not calculated by the EcoChain software.

ND = Module not declared; INA = Indicator not assessed.

4.D. LCA results - Fairview Ergo Chair

Additonal Environmental impact per one Fairview Ergo Chair, weight 15.2 kg

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	3.98E-06	5.41E-08	5.09E-08	4.09E-06	1.84E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-06	0.00E+00	0.00E+00	0.00E+00	1.35E-07	2.52E-07	2.05E-09	-2.87E-06
IRP[1]	kBq U235 eq	1.58E+00	1.02E-01	2.14E-02	1.70E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	1.19E-01	1.33E-03	-9.70E-01
ETP-fw[2]	CTUe	2.32E+03	1.57E+01	3.26E+01	2.37E+03	5.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E+03	0.00E+00	0.00E+00	0.00E+00	3.11E+01	1.02E+02	5.01E+00	-1.30E+03
HTP-c[2]	CTUe	1.84E-07	5.11E-10	7.73E-10	1.86E-07	1.83E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-07	0.00E+00	0.00E+00	0.00E+00	9.55E-10	3.78E-09	3.12E-11	-2.48E-07
HTP-nc[2]	CTUe	2.59E-06	1.24E-08	9.70E-09	2.61E-06	5.27E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-06	0.00E+00	0.00E+00	0.00E+00	3.15E-08	8.78E-08	1.51E-09	-2.95E-06
SQP[2]	dimensionless	5.72E+02	4.84E+00	3.03E+00	5.80E+02	2.86E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E+02	0.00E+00	0.00E+00	0.00E+00	2.20E+01	2.19E+01	5.96E-01	-1.13E+02

PM = Potential incidence of disease due to PM emissions, IRP = Potential Human exposure efficiency relative to U235, ETP-fw = Potential Comparative Toxic Unit for ecosystems; HTP-c:Potential Comparative Toxic Unit for humans, HTP-nc = Potential Comparative Toxic Unit for humans, SQP = Potential soil quality index.

[1]This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuelcycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

[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.

ND = Module not declared; INA = Indicator not assessed.

5. Calculation rules

The measurement of environmental impacts in this EPD are those recommended for EF 3.0 and implemented in the EN 15804 Reference Package.

The process descriptions and input quantities detailed and used in this study are a true representation of the actual processes and quantities used in the manufacturing and use of the products. The references of all sources, both primary and public sources and literature, have been documented in the LCA report. The 'polluter pays' and 'modularity' principles have been followed.

In addition, to facilitate the reproducibility of this LCA, a full set of data records has been generated which can be accessed via the LCA tool. This data portfolio contains a summary of all the data used in this LCA.

Cut-off criteria

The cut-off criteria of section 6.3.6 of EN15804:2012+A2:2019 have been followed, where 99% of the total energy and materials are included, and the total neglected input flows for the modules reported on in the LCA are less than 5% of the energy usage and mass.

Data Quality

The dataset is representative for the production processes used in 2021, in the country of production, Republic of Ireland. The data Quality Level, according to Table E.1 of EN 15804 +A2, Annex E, is as follows:

- Geographical representativeness: Very Good.
- Technical representativeness: Very Good.
- Time representativeness: Very Good.

Allocations

Allocation of the production impacts of electricity, natural gas and wastes arising to the functional unit (i.e. per chair) is based on dividing the overall production impacts by the overall number of chairs produced in the production year.

6. Scenarios and additional technical information

A4. Transport to customer

The transport to market is based on the transport from the production site in Dublin, by a distance of 50km (road) to an average customer location on the island of Ireland.

Parameter	Value / Description
Road transport	Market for transport, freight, lorry 3.5-7.5 metric ton, EURO6, Europe
Distance, road	50 km
Capacity utilisation, road freight	46%
Bulk density transported goods	N/A

A5. Installation on site

There are no installation impacts for the chairs, thus the values in this module are set to zero.

B. Use Stage

In the Use Stage, the only impact is in the B5 Stage, Refurbishment, involving replacement of the gas-lift and tilt mechanisms, and upholstery. Other stages such as maintenance and repair have negligible impacts, and these are considered to be zero.

B5. Refurbishment

It is assumed that the chairs are refurbished after a period of 10 years. This occurs twice over the service life of the chair. The refurbishment comprises removing the fabric cover for disposal in landfill, adding a new layer of foam and a new fabric cover, replacing the metal gas-lift and tilt mechanisms, and sending the replaced metal components for recycling.

C. End of Life Stages

All the chair elements at the end of life are recycled, with the exception of the plywood components and the foam and fabrics. These are sent to landfill.

C1. De-construction demolition

This is assumed to be zero.

C2. Transport

In the transport phase C2, it is assumed that the removed materials travel 50km to the recycling facility or landfill.

C3. Waste processing

All plastics and metals will be recycled. Plywood elements and seating foam/fabrics will go to landfill.

C4. Disposal

Plywood elements and seating foam/fabrics go to landfill disposal.

D. Reuse – Recovery – Recycling potential

Benefits beyond the system arise due to the recycled materials displacing the use of virgin materials in the next life cycle.

The quantity of materials, for which virgin materials are displaced, are given below (in kg of material per chair unit):

Avoided plastic production*	1.3
Avoided steel production**	15.3
Avoided aluminium production*	0.17

**Includes all virgin (non-recycled) plastic/aluminium in chair as originally manufactured.*

***Includes all virgin (non-recycled) steel in chair as originally manufactured, and also including two additional gas lifts and tilt mechanisms replaced in refurbishment.*

Declaration of biogenic carbon content at the production gate

Biogenic carbon in the product system is contained in the plywood seat components.

BIOGENIC CARBON PER DELCARED UNIT	PRODUCT	QUANTITY
Biogenic carbon content in product (kg C per unit chair)	Fairview Ergo Chair	1.5

Additional Technical Information

N/A.

7. Mandatory additional information on release of dangerous substances to indoor air, soil and water

N/A.

8. Other optional additional environmental information

N/A.

9. References

[1] 'ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.

[2] 'ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.

[3] 'ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO14025:2006.

[4] Product Category Rules for Furniture, EPD-Norge, NPCR 026, PCR – Parts A and B for Furniture, version 2.0, issue date 29/09/2022, valid until 18/10/2023.

[5] EN 15804+A2: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products EN 15804:2012+A2:2019.

[6] Ecochain 3.2.12, 2021, web: http://app.Ecochain.com.

[7] Product Category Rules: Part A, Implementation and use of EN 15804:2012+A2:2019 and CEN TR 16970:2016 in Ireland for the development of Environmental Product Declarations; Version 2.1, issue date: 05.03.2022, published by the EPD Ireland Programme operator (Irish Green Building Council).

[8] PEF methodology final draft.pdf (europa.eu).

[9] European Commission JRC Technical Report, Supporting information to the characterisation factors of recommended EF Life Cycle Impact Assessment methods. Version 2, from ILCD to EF 3.0, 2018.

10. Annex

N/A.