ENVIRONMENTAL PRODUCT DECLARATION

EPD of multiple products, based on a representative product in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for

Steel Panel Radiators - Europe

Manufactured by Stelrad Group Plc

Programme:	The International EPD® System
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0025109:001
Version Date:	2025-08-10
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Geographical Scope:	EU, Netherlands, Türkiye, Global

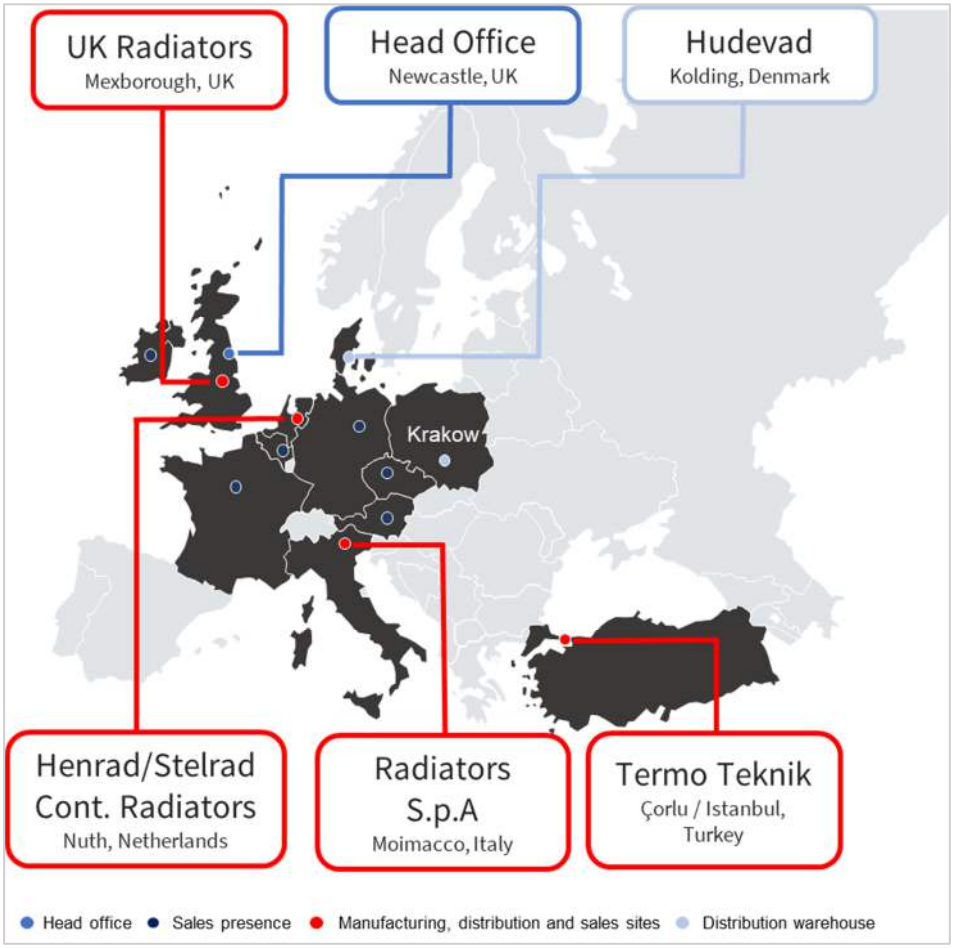
An EPD may be updated or de-published if conditions change. To find the latest version of the EPD and confirm its validity, see www.environdec.com.

Company Information

Stelrad Group plc ("Stelrad") is the leading specialist manufacturer and distributor of steel panel radiators in the UK, Europe and Türkiye. Stelrad sells an extensive range of products in Europe under the Stelrad and Henrad brands.

Headquartered in the United Kingdom, Stelrad is the number one European supplier, with manufacturing and distribution facilities in the United Kingdom, The Netherlands, Türkiye and Italy, additional distribution facilities in Poland and Denmark and sales personnel in several other countries.

This EPD covers products sold into the European market.



Stelrad is one of the pioneers of radiator development in Europe. Our first panel radiators rolled off the production line back in 1960. Today, Stelrad is the largest European brand in the radiator market. We owe our leading position to our employees' day-to-day passion for designing, producing and marketing radiators that meet the high expectations of European consumers today.

About Stelrad's Products

Stelrad radiators are manufactured to a high standard of quality. Stelrad has many years of experience implementing a strict quality management system which helps ensure customer satisfaction. All Stelrad products are EN 442-certified and the manufacturing facilities are certified against ISO standards for health and safety, quality, environmental and energy management systems..

This EPD covers steel panel radiators in various colours, including horizontal and vertical ranges and those incorporating a front fascia. In total, the EPD covers 63 product ranges, which are available in up to 4 different types, as shown below:

Range	Type	Range	Type
Henrad Compact All In	T11, T21, T22, T33	Stelrad Vertex	T10, T11, T20, T21, T22
Henrad Hygiene All In	T10, T20, T30	Stelrad Vertex Plan	T11, T20, T21, T22
Henrad Hygiene Eco	T10, T20, T30	Stelrad Vertex Style	T11, T20, T21, T22
Henrad Premium Eco	T11, T21, T22, T33	Henrad Compact Plan	T11, T21, T22, T33
Henrad Standard All In	T11, T21, T22, T33	Henrad Compact Line	T11, T21, T22, T33
Stelrad Novello	T11, T21, T22, T33	Henrad Everest Plan	T11, T21, T22, T33
Stelrad Novello 8	T11, T21, T22, T33	Henrad Hygiene Plan	T20, T30
Stelrad Novello Eco	T11, T21, T22, T33	Henrad Hygiene Plan 8	T10, T20, T30
Stelrad Novello Maternelle	T32	Henrad Everest Plan Eco	T11, T21, T22, T33
Stelrad Reno Compact	T21, T22, T33	Henrad Everest Line Eco	T11, T21, T22, T33
Softline 4-Plus	T11, T21, T22, T33	Henrad Reno Plan	T21, T22, T33
Softline Eco	T11, T21, T22, T33	Henrad Everest Plan Plinth	T22, T33, T44
Stelrad Accord All In	T11, T21, T22, T33	Henrad Everest Line Plinth	T22, T33, T44
Stelrad Compact All In	T11, T21, T22, T33	Henrad Everest Plan 8	T11, T21, T22, T33
Stelrad Compact All In	T44	Henrad Everest Line 8	T11, T21, T22, T33
Stelrad Hygiene All In	T10, T20, T30	Henrad Alto	T10, T11, T20, T21, T22
Stelrad Hygiene Eco	T10, T20, T30	Henrad Alto Plan	T11, T20, T21, T22
Henrad Standard	T10, T20, T30	Henrad Alto Line	T11, T20, T21, T22
Stelrad Novello Plinth	T44	Stelrad Vertex	T11, T20, T21, T22
Softline VK	T11, T20, T21, T22, T33	Stelrad Vertical Deco	T11, T20, T21, T22
Stelrad Hygiene Planar	T20, T30	Stelrad Vertical Plan	T11, T20, T21, T22
Stelrad Hygiene Planar 8	T10, T20, T30	Design Line	T11, T21, T22, T33
Stelrad Compact Planar	T11, T21, T22, T33	Planar Style	T11, T21, T22, T33
Stelrad Planar	T11, T21, T22, T33	Planar Style	T44
Stelrad Reno Planar	T21, T22, T33	Henrad Compact	T11, T21, T22, T33
Stelrad Compact Style	T11, T21, T22, T33	Henrad Compact	T10, T20, T30
Stelrad Planar Eco	T11, T21, T22, T33	Henrad Compact	T44
Stelrad Planar Style Eco	T11, T21, T22, T33	Stelrad Accord	T10, T20, T30
Planar Plinth	T22, T33, T44	Henrad Renorad	T21, T22, T33
Planar Style Plinth	T22, T33, T44		
Stelrad Planar 8	T11, T21, T22, T33		
Stelrad Planar Style 8	T11, T21, T22, T33		

The types refer to the number of steel panels and convector fins the product has, with, for example, a T21 consisting of two panels and one convector fin. All products consist largely

of steel, and the product UN CPC code is 44823 radiators for central heating, not electrically heated, of iron or steel.

The radiators in this assessment are manufactured by Stelrad in the Netherlands and in Türkiye. There are many similarities between the products, with most components remaining consistent across ranges. There are minor differences in the specification and weights of top grilles, side panels, clips, connectors, brackets and other accessories. The amount of paint and powder coating per kg of radiator varies by production site and by model range, as does the amount of packaging specified.

In terms of the composition of packaging (by weight) there is on average a broadly 60:40 split between paper/cardboard and plastic packaging plastic. But there is variation, certain products have relatively more paper/card packaging while others have relatively less. Paper represents the smallest share (1% to 2% by weight) of packaging materials across the range of radiators.

All cardboard packaging used has 100% recycled content. Paper packaging has 70% recycled content at the Netherlands site and ranges from 0% to 100% at the Türkiye site. The recycled content in plastic components and plastic packaging ranges from 0% to 100% across the sites. Once assembled and packaged the products are distributed with various types of hardware packs for use when the radiators are installed at customer sites.

This EPD presents detailed results for the Stelrad Compact All In 600mm x 1000mm type 22 panel radiator produced in Türkiye (denoted in this EPD as TRT22). The TRT22 radiator is representative of the results for the full range of Stelrad products assessed in this EPD and was chosen due to relative market share of the product.

General Information

The EPD is owned by Stelrad Group Plc (Stelrad Group plc, Registered office address: 69-75 Side, Newcastle upon Tyne, NE1 3JE, contact andrew.dent@stelrad.co.uk) which has the sole ownership, liability, and responsibility for the EPD. The EPD provides 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.

The programme operator is the International EPD® System EPD International AB, Box 210 60, SE-100 31 Stockholm.

Product category rules

CEN standard EN 15804 serves as the Core Product Category Rules (PCR). Product Category Rules (PCR): 2019:14 Version 2.0.1, Construction Products, EN 15804:2012 + A2:2019 Sustainability of Construction Works. PCR review was conducted by: The Technical Committee of the International EPD® System. Review chair: Rob Rouwette.

LCA Accountability: Valpak Sustainability Consulting

Third-party Verification

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

- ✓ EPD verification by individual verifier

Third-party verifier: Dr Callum Hill, JCH Industrial Ecology Ltd.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Stelrad Group Plc is the owner of this EPD and has the sole ownership, liability and responsibility of the EPD.

Life Cycle Assessment Methodology

Declared unit

The manufacture and delivery of 1 kg of panel radiator + packaging to a Stelrad distribution centre, and onwards to customer markets.

Reference service life

30 years

Time representativeness

2024

Database and LCA software

Ecoinvent 3.10 via GreenDelta's EN15804 Add-on and OpenLCA Version 2.4.1. The characterisation factors are EF 3.1.

System boundaries

Cradle to gate with options, modules C1-C4 and module D. Included options are module A4 and A5. Excluded options are modules B1-B7 (no data is available on the use stages).

LCA modelling

Allocation is by mass in the LCA modelling underpinning this EPD.

No cut-offs are applied to either the inventory data or the calculated environmental impacts.

As per the requirements of the International EPD® system, the EPD results are shown in the results tables.

Audience

The intended application for this study is to provide comprehensive information on the environmental impacts of the range of radiators manufactured by Stelrad. The intended audience is B2B.

Content declaration

Product

Material	Weight (kg) (min, max)	Recycled material[1]	Biogenic material[2] (%, kg C)	
Steel	30.55 (11.78, 64.79)	17.5%	0%	0
Other	0.51 (0.15, 1.19)	<0.1%	0%	0
TOTAL	31.06 (12.01 , 65.98)	17.5%	0%	0

1 Post consumer, by weight % of product, max & min are the same
2 weight % of product, weight per product, max & min are the same. 1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

Packaging

Material	Weight (kg) (min, max)	Weight (% versus the product) (min, max)	Biogenic material[1] (weight kg C per product) (min, max)
Cardboard /paper	0.39 (0.15, 1.71)	1.25% (0.50%, 4.43%)	0.13 (0.05, 0.56)
Plastic	0.28 (0.12, 0.94)	0.91% (0.34%, 2.35%	0.00 (0.00, 0.00)
TOTAL	0.67 (0.33, 2.15)	2.16% (0.84% , 5.56%)	0.13 (0.05, 0.56)

[1] 1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

Dangerous substances

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in the product either above the threshold for registration with the European Chemicals Agency or above 0.1%.

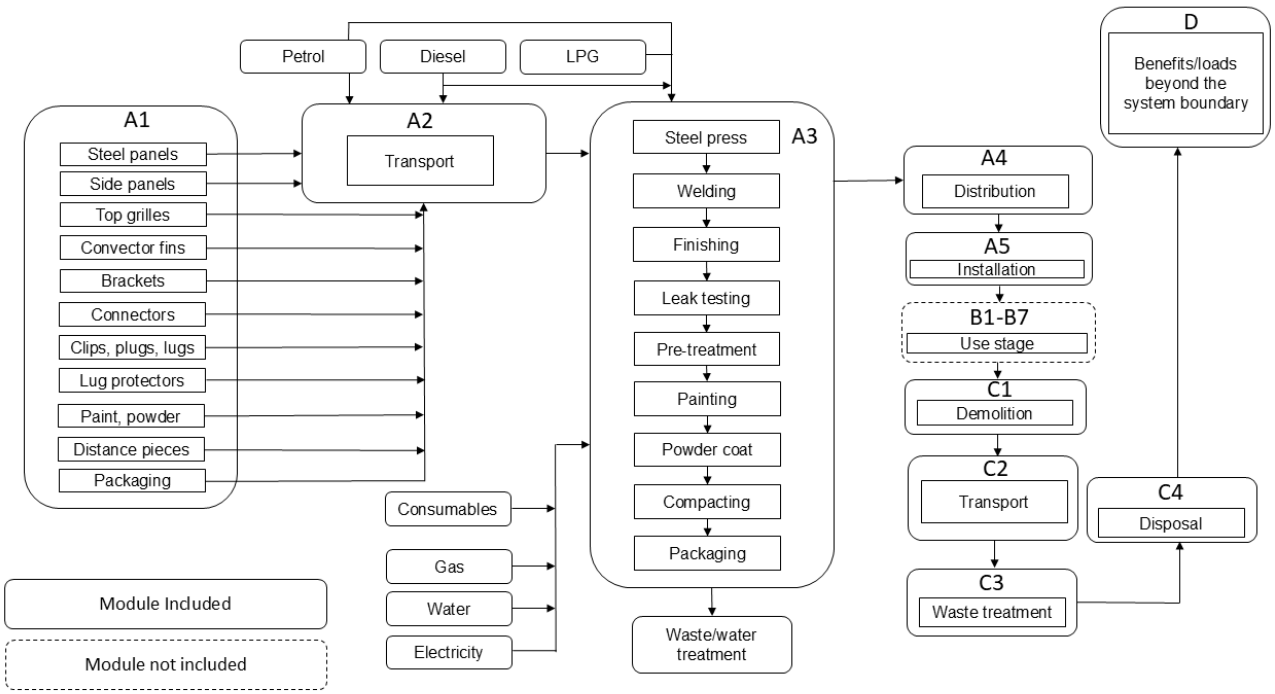
Product Life Cycle Overview

Modules declared in the EPD

	Product stage			Distribution/ installation stage		Use stage							End of Life stage					Beyond the product life cycle
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X		X
Geography	GLO	GLO	NL TR	EU	EU								EU	EU	EU	EU		EU
Specific data used	74.2%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation* – products	-60% to 121%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation** – sites	NL: -56% to 121% TR: -60% to 117%			-	-	-	-	-	-	-	-	-	-	-	-	-		-

*GWP-GHG A1-A3 range for products relative to representative product. **GWP-GHG A1-A3 range for production sites relative to representative product.
A1 = Raw materials supply, A2 = Transport, A3 = Manufacturing, A4 = Transport, A5 = Construction/installation, B1 = Use, B2 = Maintenance, B3 = Repair, B4 = replacement,
B5 = Refurbishment, B6 = Operational energy use, B7 = Operational water use, C1 = De-construction/demolition, C2 = Transport, C3 = Waste treatment, C4 = Waste disposal
D = Benefits/loads beyond the system boundary
X = Module declared, ND = Module not declared

System diagram



Raw materials supply (A1)

The extraction and processing of raw materials used to manufacture the radiators, their packaging and hardware packs at the production sites in the Netherlands and Türkiye. By weight, the main material input (>98% per product) is steel which has an average recycled content of 15% to 20% (17.5% is assumed).

Raw materials transport (A2)

Transport of materials, components and packaging from supplier locations to the sites in the Netherlands and Türkiye. Supplier locations and transport modes are provided by Stelrad and include the below.

Mode	Vehicle type	Fuel type
Road	Lorry, 16 – 32 tonnes, EURO6	Diesel
	Lorry, 7.5 - 16 tonnes, EURO6	
Rail	Freight train	60% electric, 40% diesel
Sea	Freight container ship	Heavy fuel oil

Manufacturing (A3)

Usage amounts of energy, fuels and water etc. are allocated according to 2024 production data supplied by Stelrad. The GWP climate change impacts of electricity used in manufacturing are TR: 0.024 kg CO_2eq per kWh, based on a modelled renewable mix: Hydro (54%), Wind (30%), Solar PV (16%), NL: 0. 592 kg CO_2eq per kWh, based on the 2018 national grid mix.

Distribution (A4)

The transport of the final packaged products to Stelrad's distribution centre. The distance to customer markets is assumed to be 100km.

Mode	Vehicle type	Fuel type
Road	Lorry, 16 – 32 tonnes, EURO6	Diesel
Sea	Freight container ship	Heavy fuel oil

Installation (A5)

The packaging waste removed at the installation site is recycled. A journey of 10 km by diesel lorry, 16-32 tonnes, EURO6 to the waste site is assumed.

De-construction/demolition (C1)

There are no environmental impacts associated with the removal of the installed radiator at EoL.

Waste transport (C2)

The road transport to a local waste site from the installation site is on average assumed to be a journey of 10 km by diesel lorry, 16-32 tonnes, EURO6.

Waste treatment (C3)

90% of the EoL steel and other materials is assumed to go to recyclers at EoL. The biogenic carbon in the packaging exits the system in C3.

Waste disposal (C4)

The 10% of EoL materials that are not recycled are disposed to landfill in the country in which the radiator is sold.

Benefits (D)

Steel is 100% recyclable. The main benefits beyond the system boundary arise from the recycling of steel. The benefits of recycling of packaging materials are small by comparison. It is assumed recycling avoids the production of equivalent virgin materials.

Excluded from the system boundary

The environmental impacts of buildings and infrastructure, plant, machinery and equipment, and repair/maintenance at the production sites are excluded, as are impacts from business travel and staff commuting.

Mandatory Impact Category Indicators According to EN 15804

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Environmental Indicators (per kg of radiator)

Indicator	Units	Raw materials supply, transport and production	Distribution /installation		End of life					Beyond the product life cycle
		Total	Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal		Reuse-Recovery-Recycling-potential
		A1-A3	A4	A5	C1	C2	C3	C4		D
GWP-total	kg CO_2 eq.	2.20E+00	1.39E-01	3.06E-02	0.00E+00	2.35E-03	2.51E-02	6.02E-04		-1.72E-01
GWP-fossil	kg CO_2 eq.	2.21E+00	1.39E-01	1.58E-02	0.00E+00	2.34E-03	2.50E-02	6.02E-04		-1.72E-01
GWP biogenic	kg CO_2 eq.	-1.48E-02	0.00E+00	1.48E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
GWP-luluc	kg CO_2 eq.	2.06E-03	5.78E-05	1.11E-06	0.00E+00	7.40E-07	3.21E-05	3.10E-07		-8.48E-05
ODP	kg CFC-11 eq.	2.82E-08	2.44E-09	2.94E-11	0.00E+00	4.69E-11	3.16E-10	1.74E-11		-1.07E-09
AP	molc H^+ eq.	1.00E-02	1.93E-03	9.39E-06	0.00E+00	4.61E-06	2.51E-04	4.27E-06		-7.14E-04
EP - freshwater	kg P eq.	9.04E-04	7.28E-06	2.94E-07	0.00E+00	1.54E-07	1.34E-05	5.00E-08		-6.92E-05
EP - terrestrial	kg N eq.	2.28E-02	5.30E-03	3.67E-05	0.00E+00	1.17E-05	6.60E-04	1.78E-05		-1.65E-03
EP - marine	molc N eq.	2.14E-03	4.78E-04	4.71E-06	0.00E+00	1.09E-06	6.33E-05	1.63E-06		-1.61E-04
POCP	kg NMVOC eq.	7.87E-03	1.59E-03	1.29E-05	0.00E+00	7.77E-06	1.99E-04	6.36E-06		-5.79E-04
ADPE*	kg Sb eq.	2.20E-05	3.23E-07	9.55E-09	0.00E+00	7.70E-09	1.40E-06	9.60E-10		-1.18E-06
ADPF*	MJ	2.53E+01	1.85E+00	2.49E-02	0.00E+00	3.28E-02	3.09E-01	1.48E-02		-1.89E+00
WDP*	m^3	8.41E-01	7.47E-03	7.91E-04	0.00E+00	1.57E-04	5.21E-03	4.13E-05		-5.33E-02

* 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 experience with the indicator.

Additional Mandatory Indicators Results

GWP-GHG (per kg of radiator)

Indicator	Units	Raw materials supply, transport and production	Distribution /installation		End of life				Beyond the product life cycle
			Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal	Reuse-Recovery-Recycling-potential
		A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2.22E+00	1.39E-01	1.65E-02	0.00E+00	2.35E-03	2.77E-02	6.03E-04	-1.72E-01

[1]This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource Use Indicators (per kg of radiator)

Indicator	Units	Raw materials supply, transport and production	Distribution /installation		End of life				Beyond the product life cycle
			Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal	Reuse-Recovery-Recycling-potential
		A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3.32E+00	2.46E-02	1.16E-03	0.00E+00	6.33E-04	4.97E-02	1.37E-04	-1.59E-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
PERT	MJ	3.32E+00	2.46E-02	1.16E-03	0.00E+00	6.33E-04	4.97E-02	1.37E-04	-1.59E-01
PENRE	MJ	2.45E+01	1.67E+00	2.30E-02	0.00E+00	2.97E-02	2.88E-01	1.33E-02	-1.83E+00
PENRM	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
PENRT	MJ	2.45E+01	1.67E+00	2.30E-02	0.00E+00	2.97E-02	2.88E-01	1.33E-02	-1.83E+00
SM	kg	3.97E-01	1.76E-03	1.44E-02	0.00E+00	4.15E-05	8.68E-01	6.89E-06	-3.26E-02
RSF	MJ	2.64E-02	4.05E-04	2.65E-05	0.00E+00	1.38E-05	6.50E-04	1.42E-06	-9.50E-04
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
FW	m3	1.84E-02	1.99E-04	7.16E-06	0.00E+00	4.45E-06	1.42E-04	1.53E-05	-5.09E-04

Waste Indicators (per kg of radiator)

Indicator	Units	Raw materials supply, transport and production	Distribution /installation		End of life				Beyond the product life cycle
			Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal	Reuse-Recovery-Recycling-potential
		A1 - A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.63E-01	1.87E-03	2.21E-04	0.00E+00	2.89E-05	1.56E-03	1.10E-05	-5.43E-02
NHWD	kg	2.67E+00	1.78E-02	1.61E-02	0.00E+00	3.67E-04	3.08E-02	1.59E-04	-5.65E-01
RWD	kg	2.94E-05	4.41E-07	2.10E-08	0.00E+00	1.26E-08	5.86E-07	2.30E-09	-1.41E-06

Output Flow Indicators (per kg of radiator)

Indicator	Units	Raw materials supply, transport and production	Distribution /installation		End of life				Beyond the product life cycle
			Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal	Reuse-Recovery-Recycling-potential
		A1-A3	A4	A5	C1	C2	C3	C4	D
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
MFR	kg	2.79E-01	1.64E-03	8.18E-05	0.00E+00	3.71E-05	1.40E-03	5.69E-06	-2.07E-02
MER	kg	1.19E-05	1.82E-07	1.19E-08	0.00E+00	6.18E-09	2.92E-07	6.38E-10	-4.27E-07
EEE	MJ	1.55E-02	2.23E-04	1.16E-05	0.00E+00	7.07E-06	3.40E-04	8.85E-07	-5.09E-04
EET	MJ	2.15E-02	2.92E-04	8.06E-06	0.00E+00	4.01E-05	6.73E-05	5.72E-07	0.00E+00

Additional Voluntary Indicators Results

Environmental indicators (per kg of radiator)

Indicator	Unit	Raw materials supply, transport and production	Distribution /installation		End of life				Beyond the product life cycle
			Transport	Installation	De-construction demolition	Transport	Waste treatment	Disposal	Reuse-Recovery-Recycling-potential
		A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.64E-07	7.62E-09	1.50E-10	0.00E+00	1.46E-10	3.61E-09	9.70E-11	-1.51E-08
IRP**	kBq U-235 eq.	1.15E-01	1.78E-03	8.29E-05	0.00E+00	5.02E-05	2.29E-03	9.41E-06	-5.61E-03
ETP – fw*	CTUe	8.77E+01	4.29E-01	3.51E-02	0.00E+00	8.58E-03	2.61E-01	2.02E-03	-5.56E+00
HTP – c*	CTUh	3.02E-07	8.16E-10	2.19E-11	0.00E+00	1.41E-11	2.01E-10	2.72E-12	-1.69E-08
HTP – nc*	CTUh	3.51E-08	9.11E-10	4.81E-11	0.00E+00	1.96E-11	1.27E-09	2.66E-12	-3.78E-09
SQP*	Dimensionless	7.90E+00	7.31E-01	1.50E-02	0.00E+00	1.69E-02	5.48E-01	2.90E-02	-5.68E-01

* 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 experience with the indicator.

** 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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Additional LCA results

The following tables show the results for '100% recycling' and '100% disposal' scenarios at EoL (Modules C1 – C4) of the representative product.

Mandatory Environmental Indicators (per kg of radiator)

Indicator	Units	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
GWP-total	kg CO_2 eq.	0.00E+00	2.35E-03	3.17E-02	0.00E+00	0.00E+00	2.35E-03	0.00E+00	6.13E-03
GWP-fossil	kg CO_2 eq.	0.00E+00	2.34E-03	3.16E-02	0.00E+00	0.00E+00	2.34E-03	0.00E+00	6.12E-03
GWP biogenic	kg CO_2 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO_2 eq.	0.00E+00	7.40E-07	3.91E-05	0.00E+00	0.00E+00	7.40E-07	0.00E+00	3.15E-06
ODP	kg CFC-11 eq.	0.00E+00	4.69E-11	4.19E-10	0.00E+00	0.00E+00	4.69E-11	0.00E+00	1.77E-10
AP	mol H+ eq.	0.00E+00	4.61E-06	2.93E-04	0.00E+00	0.00E+00	4.61E-06	0.00E+00	4.34E-05
EP - freshwater	kg P eq.	0.00E+00	1.54E-07	1.52E-05	0.00E+00	0.00E+00	1.54E-07	0.00E+00	5.08E-07
EP - terrestrial	kg N eq.	0.00E+00	1.17E-05	7.74E-04	0.00E+00	0.00E+00	1.17E-05	0.00E+00	1.80E-04
EP - marine	mol N eq.	0.00E+00	1.09E-06	7.07E-05	0.00E+00	0.00E+00	1.09E-06	0.00E+00	1.65E-05
POCP	kg NMVOC eq.	0.00E+00	7.77E-06	2.37E-04	0.00E+00	0.00E+00	7.77E-06	0.00E+00	6.46E-05
ADPE*	kg Sb eq.	0.00E+00	7.70E-09	1.58E-06	0.00E+00	0.00E+00	7.70E-09	0.00E+00	9.76E-09
ADPF*	MJ	0.00E+00	3.28E-02	4.02E-01	0.00E+00	0.00E+00	3.28E-02	0.00E+00	1.50E-01
WDP*	m3	0.00E+00	1.57E-04	6.72E-03	0.00E+00	0.00E+00	1.57E-04	0.00E+00	4.20E-04

*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 experience with the indicator.

GWP-GHG (per kg of radiator)

Indicator	Units	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
GWP-GHG[1]	kg CO_2 eq.	0.00E+00	2.35E-03	3.17E-02	0.00E+00	0.00E+00	2.35E-03	0.00E+00	6.13E-03

[1]This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource Use Indicators (per kg of radiator)

Indicator	Units	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
PERE	MJ	0.00E+00	6.33E-04	5.86E-02	0.00E+00	0.00E+00	6.33E-04	0.00E+00	1.39E-03
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
PERT	MJ	0.00E+00	6.33E-04	5.86E-02	0.00E+00	0.00E+00	6.33E-04	0.00E+00	1.39E-03
PENRE	MJ	0.00E+00	2.97E-02	3.76E-01	0.00E+00	0.00E+00	2.97E-02	0.00E+00	1.36E-01
PENRM	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
PENRT	MJ	0.00E+00	2.97E-02	3.76E-01	0.00E+00	0.00E+00	2.97E-02	0.00E+00	1.36E-01
SM	kg	0.00E+00	4.15E-05	9.83E-01	0.00E+00	0.00E+00	4.15E-05	0.00E+00	7.01E-05
RSF	MJ	0.00E+00	1.38E-05	7.76E-04	0.00E+00	0.00E+00	1.38E-05	0.00E+00	1.44E-05
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
FW	m3	0.00E+00	4.45E-06	1.88E-04	0.00E+00	0.00E+00	4.45E-06	0.00E+00	1.56E-04

Waste Indicators (per kg of radiator)

Indicator	Units	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
HWD	kg	0.00E+00	2.89E-05	1.88E-03	0.00E+00	0.00E+00	2.89E-05	0.00E+00	1.12E-04
NHWD	kg	0.00E+00	3.67E-04	2.61E-02	0.00E+00	0.00E+00	3.67E-04	0.00E+00	1.62E-03
RWD	kg	0.00E+00	1.26E-08	7.07E-07	0.00E+00	0.00E+00	1.26E-08	0.00E+00	2.33E-08

Output flow indicators (per kg of radiator)

Indicator	Units	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
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
MFR	kg	0.00E+00	3.71E-05	1.72E-03	0.00E+00	0.00E+00	3.71E-05	0.00E+00	5.79E-05
MER	kg	0.00E+00	6.18E-09	3.49E-07	0.00E+00	0.00E+00	6.18E-09	0.00E+00	6.48E-09
EEE	MJ	0.00E+00	7.07E-06	4.08E-04	0.00E+00	0.00E+00	7.07E-06	0.00E+00	9.00E-06
EET	MJ	0.00E+00	4.01E-05	9.48E-05	0.00E+00	0.00E+00	4.01E-05	0.00E+00	5.82E-06

Additional Voluntary Environmental Indicators (per kg of radiator)

Indicator	Unit	100% Recycling				100% Disposal			
		De-construction demolition	Transport	Waste treatment	Disposal	De-construction demolition	Transport	Waste treatment	Disposal
		C1	C2	C3	C4	C1	C2	C3	C4
PM	Disease incidence	0.00E+00	1.46E-10	4.17E-09	0.00E+00	0.00E+00	1.46E-10	0.00E+00	9.86E-10
IRP**	kBq U-235 eq.	0.00E+00	5.02E-05	2.77E-03	0.00E+00	0.00E+00	5.02E-05	0.00E+00	9.57E-05
ETP-fw*	CTUe	0.00E+00	8.58E-03	2.82E-01	0.00E+00	0.00E+00	8.58E-03	0.00E+00	2.05E-02
HTP-c*	CTUh	0.00E+00	1.41E-11	2.79E-10	0.00E+00	0.00E+00	1.41E-11	0.00E+00	2.77E-11
HTP-nc*	CTUh	0.00E+00	1.96E-11	1.41E-09	0.00E+00	0.00E+00	1.96E-11	0.00E+00	2.70E-11
SQP*	Dimensionless	0.00E+00	1.69E-02	6.51E-01	0.00E+00	0.00E+00	1.69E-02	0.00E+00	2.95E-01

* 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 experience with the indicator.

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Variation

The steel panel radiators included in this EPD have identical functionality, namely space heating in domestic and commercial environments. The representative product is the Stelrad Compact All In type 22 radiator produced in Türkiye and sold in Europe. The table below shows the minimum and maximum values for each indicator where the variation across the group of included products for the indicator is greater than +/-10%. The indicators are shown per kg of radiator. For each radiator, the main contributor to the impact is the amount of steel per radiator. Across the group of products, impact indicators for radiators with fewer panels/fins and/or specified with fascia panels are at the upper end of the range for the indicator on a per kg radiator basis. In this EPD, radiators produced in Türkiye are shipped to Stelrad's EU distribution centre in the Netherlands, thereby contributing higher transport impacts compared to Stelrad's radiators manufactured in the Netherlands.

	Unit	Min	Representative product	Max
GWP-total	kg CO2 eq.	2.39E+00	2.40E+00	2.72E+00
GWP-fossil	kg CO2 eq.	2.39E+00	2.40E+00	2.72E+00
GWP-luluc	kg CO2 eq.	1.15E-03	2.16E-03	2.21E-03
ODP	kg CFC-11 eq.	2.15E-08	3.11E-08	4.67E-08
AP	mol H+ eq.	1.02E-02	1.22E-02	1.64E-02
EP - freshwater	kg P eq.	9.25E-04	9.25E-04	1.32E-03
EP - terrestrial	kg N eq.	2.33E-02	2.88E-02	3.41E-02
EP - marine	mol N eq.	2.20E-03	2.68E-03	3.43E-03
POCP	kg NMVOC eq.	8.20E-03	9.69E-03	1.16E-02
ADPE*	kg Sb eq.	2.06E-05	2.37E-05	8.51E-05
ADPF*	MJ	2.27E+01	2.76E+01	2.97E+01
WDP*	m3	8.51E-01	8.55E-01	1.17E+00
GWP-GHG	kg CO2 eq.	2.39E+00	2.40E+00	2.72E+00
PERE	MJ	3.06E+00	3.40E+00	4.68E+00
PERT	MJ	3.06E+00	3.40E+00	4.68E+00
PENRE	MJ	2.44E+01	2.65E+01	2.87E+01
PENRT	MJ	2.44E+01	2.65E+01	2.87E+01
SM	kg	1.19E+00	1.28E+00	2.35E+00
RSF	MJ	2.37E-02	2.75E-02	3.48E-02
FW	m3	1.76E-02	1.88E-02	2.92E-02
HWD	kg	6.53E-01	6.66E-01	7.14E-01
NHWD	kg	2.64E+00	2.73E+00	4.02E+00
RWD	kg	2.92E-05	3.05E-05	3.42E-05
MFR	kg	2.59E-01	2.82E-01	3.16E-01
MER	kg	1.09E-05	1.24E-05	1.43E-05
EEE	MJ	1.47E-02	1.61E-02	1.74E-02
EET	MJ	2.02E-02	2.19E-02	2.65E-02
PM	Disease incidence	1.58E-07	1.76E-07	1.87E-07
IRP**	kBq U-235 eq.	1.15E-01	1.20E-01	1.60E-01
ETP-fw*	CTUe	9.14E-04	8.84E+01	1.32E-03
HTP-c*	CTUh	2.65E-07	3.04E-07	3.82E-07
HTP-nc*	CTUh	3.64E-08	3.73E-08	8.57E-08
SQP*	Dimensionless	9.24E+00	9.24E+00	1.17E+01

* 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 experience with the indicator.

** 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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Data quality

Process A1 – A3	Source type	Source	Reference year	Data category	Time	Geography	Technology	Primary % GWP-GHG (A1 - A3)
Supply of steel	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good/Fair	Very good	62.9%
Supply of other materials	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data and representative generic data	Very good	Good/Fair	Very good/Poor	3.4%
Transport of raw materials	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good/Fair	Very good	4.5%
Production of natural gas used in manufacturing	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good	Very good	2.7%
Generation of electricity used in manufacturing	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Very good	Very good	0.3%
Transport used in manufacturing	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good	Good	0.4%
							Total primary data share of GWP-GHG for A1 - A3	74.2%

Note The share of primary data for A1 – A3 is calculated based on GWP-GHG results. It is a simplified indicator for data quality that does not capture all relevant aspects of data quality. The indicator is not comparable across product categories.

Module	Source type	Source	Reference year	Data category	Time	Geography	Technology	% GWP-GHG (A - C)
A1	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary and representative data	Very good	Good/Fair	Very good/Poor	84.5%
A2	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good/Fair	Very good	4.2%
A3	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary and representative data	Very good	Good/Fair	Very good/ Good	3.5%
A4	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary and representative data	Very good	Good/Fair	Very good	5.8%
A5	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary and representative data	Very good	Good/Fair	Very good	0.7%
C2	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Primary data	Very good	Good	Very good	0.1%
C3	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Representative generic data	Very good	Good	Very good	1.2%
C4	Collected data and database	Stelrad and Ecoinvent 3.10	2024	Representative generic data	Very good	Good	Very good	0.03%

Note The share of GWP-GHG A – C is calculated based on GWP-GHG results. It is a simplified indicator for data quality that does not capture all relevant aspects of data quality. The indicator is not comparable across product categories.

Comprehensive process specific input data of high quality, accuracy and granularity have been provided by Stelrad regarding the manufacturing and supply chain processes for the assessed radiators.

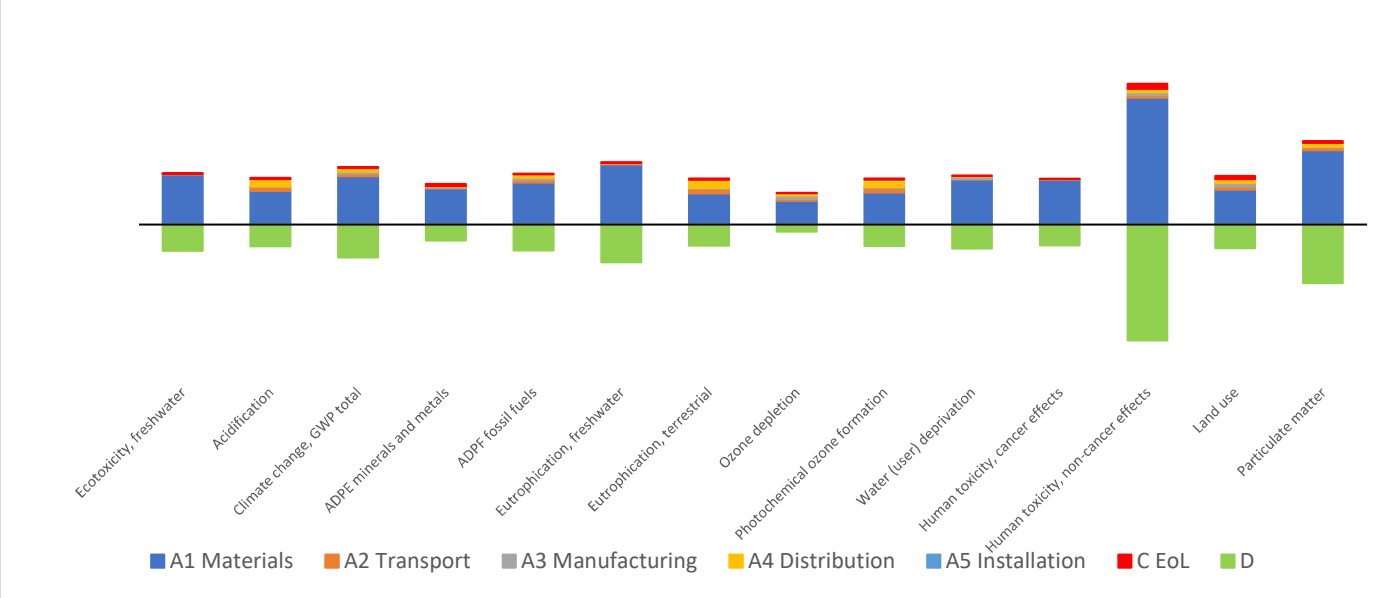
The datasets/database are for 2024, and therefore the timeliness of the primary data and the representative generic data is very good. Generic datasets representative of the location of the production sites, supplier locations and transport modes for delivery of materials and the final packaged products. The quality of the geographical representativeness of the primary data and the representative generic data is good to fair.

The technological representativeness of the primary data and the representative generic data is very good/good in terms of quality, apart from the process providing the environmental impacts for brass, which is calculated based on assumptions and theoretical models, and is considered poor quality. As such, it is recognised that the impacts of the latter (though relatively small) are uncertain.

Interpretation

The carbon footprint of the representative radiator (the TRT22) is 2.40 kg CO_2eq per kg of radiator. Across the range of radiators included in this assessment, the carbon footprints range from 2.39 to 2.72 kg CO_2eq per kg of radiator. For the products included in this EPD the raw material supply stage (module A1) is by far the most important of all of the life cycle stages. The majority (79.8% to 86.9%) of the carbon footprints is attributable to module A1, of which steel is the main contributor.

For the TRT22, the transport carbon emissions contribute around 10% (or 240 g CO_2eq per kg of TRT22) to the overall carbon footprint. Of this, approximately 60% (or around 139 g CO_2eq per kg of TRT22) is accounted for by transport of the finished packaged product, and hardware pack to Stelrad's distribution centre and onward to customer markets. Across the full range of products assessed the transport carbon emissions range from 70 to 257 g CO_2eq per kg of radiator. For comparable heights and widths, the range of radiators produced in Türkiye are towards the upper end of this range due to additional transport of the finished product. The figure below clearly illustrates for the TRT22 that the module A1 stage of the life cycle is responsible for the majority of the environmental impacts as measured by the various environmental indicators.



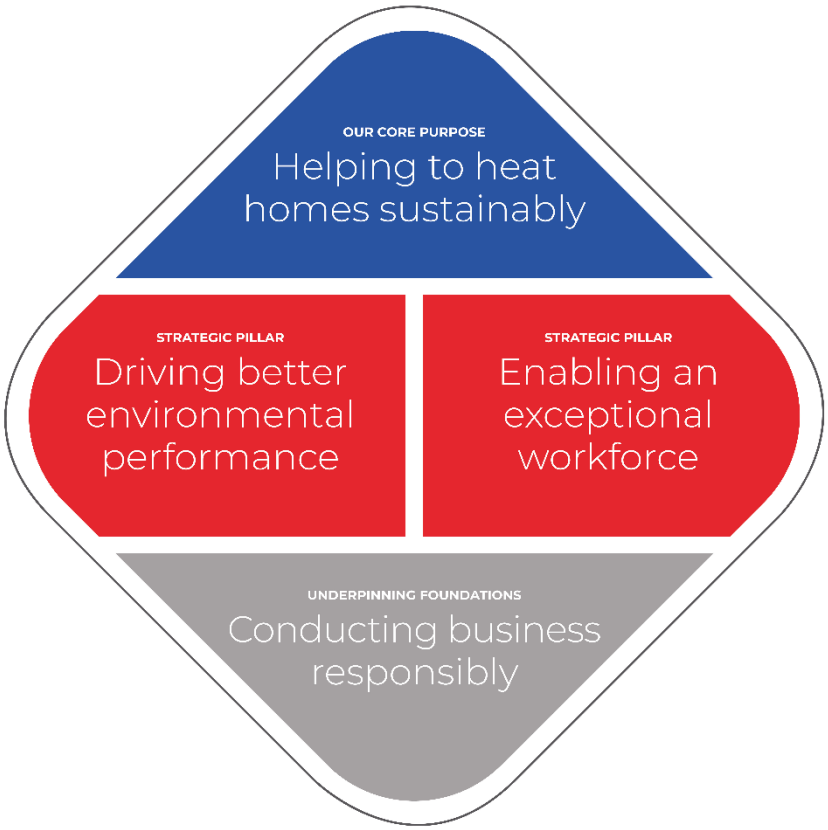
Sustainability at Stelrad

Stelrad's core purpose: 'helping to heat homes sustainably' reflects the signifcant role that Stelrad can play in facilitating the transition to a low and zero carbon heating industry, and shows the importance we place on managing the business for tomorrow as well as today.

Stelrad's 'Fit for the Future' sustainability framework is centred around our core purpose and guides our actions towards a more sustainable future. The framework focuses on the material issues for Stelrad's stakeholders – ensuring our efforts are directed effectively. The Fit for the Future framework sets out Stelrad's approach to delivering its business strategy whilst also delivering on its sustainability commitments to stakeholders and the environment.

Fit for the Future comprises two strategic pillars. The first, 'Driving better environmental performance', will focus us on reducing our impact on the environment whilst also engaging, educating and influencing others throughout the value chain to achieve an effective transition to the low and zero carbon heating systems of the future. The second, 'Enabling an exceptional workforce', helps our people contribute positively to the delivery of our strategy and our sustainability objectives.

Stelrad's sustainability strategy is underpinned by 'Conducting business responsibly' – ensuring strong governance, exceptional safety standards and effective oversight of supply chain management. These are the structural foundations for achieving our objectives.



Version History

Original version of the EPD.

Abbreviations

ADPE	Abiotic depletion potential for non-fossil resources
ADPF	Abiotic depletion potential for fossil resources
AP	Acidification potential
CEN	European Committee for Standardization
CRU	Components for re-use
EEE	Exported energy, electricity
EET	Exported energy, thermal
EN	European Norm (Standard)
EPD	Environmental product declaration
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 terrestrial
ETP - fw	Potential comparative toxic unit for ecosystems, ecotoxicity - freshwater
EU	European union
EURO6	EU regulation for vehicle emissions particularly focusing on pollutants that affect air quality and human health
FW	Use of net fresh water
GLO	Global
GPI	General Programme Instructions
GWP-total	Total global warming potential
GWP-biogenic	Global warming potential biogenic
GWP-fossil	Global warming potential fossil fuels
GWP-GHG	Global Warming potential - greenhouse gas emissions
GWP-luluc	Global warming potential - land use and land use change
HTP - c	Human toxicity potential - comparative toxic unit for humans, cancer effects
HTP - nc	Human toxicity potential - comparative toxic unit for humans, non-cancer effects
HWD	Hazardous waste disposed

IRP	Ionizing radiation potential human exposure efficiency relative to U235
ISO	International Organization for Standardization
LCA	Life cycle assessment
MER	Materials for energy recovery
MFR	Material for recycling
ND	Not Declared
NHWD	Non-hazardous waste disposed
NL	Netherlands
NRSF	Use of non-renewable secondary fuels
ODP	Ozone layer depletion potential
PCR	Product category rules
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 re-sources
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
PM	Potential incidence of disease due to particulate matter
POCP	Formation potential of tropospheric ozone
PV	Photo-voltaic
REACH	EU regulation for Registration, Evaluation, Authorisation and Restriction of Chemicals
RSF	Use of renewable secondary fuels
RWD	Radioactive waste disposed
SM	Use of secondary materials
SQP	Land use potential soil quality index
TR	Türkiye
TRT22	The Stelrad Compact All In type 22 radiator produced in Türkiye and sold in Europe
UK	United Kingdom
UN CPC	United Nations central product classification
WDP	Water (use) deprivation potential

References

GPI International EPD® System (2024) General Programme Instructions for the International EPD® System. Version 5.0. www.environdec.com.

PCR 2019:14 Construction products (EN 15804:A2) (v2.0.1) prepared by IVL Swedish Environmental Research Institute, Secretariat of the International EPD® System, date 2025-06-05.

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

ISO 14025 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

ISO 14040/44 Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006).

The International EPD® System - The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

EN15804 Add-on version 2, https://nexus.openlca.org/, https://nexus.openlca.org/ws/files/23889

GreenDelta GmbH, https://www.greendelta.com/

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