

## Statement of Verification

BREG EN EPD No.: 000697

Issue 01

This is to verify that the  
**Environmental Product Declaration**  
provided by:  
**Komfort Partitioning Limited**



is in accordance with the requirements of:  
**EN 15804:2012+A2:2019**  
and  
**BRE Global Scheme Document SD207**

This declaration is for:  
**1 m<sup>2</sup> of Komfort Defence EI Screens and Doors**

### Company Address

Komfort Partitioning Limited,  
Unit 501, Bentley Road South,  
Wednesbury,  
West Midlands,  
WS10 8LQ



Emma Baker  
Operator

24 April 2025  
Date of this Issue

24 April 2025  
Date of First Issue

23 April 2030  
Expiry Date



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BRE Global Ltd., Garston, Watford WD25 9XX.  
T: +44 (0)333 321 8811 F: +44 (0)1923 664603 E: [Enquiries@breglobal.com](mailto:Enquiries@breglobal.com)





## Environmental Product Declaration

EPD Number: 000697

### General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2023 Product Category Rules (PN 514 Rev 3.1) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019.
Commissioner of LCA study	LCA consultant/Tool
Komfort Partitioning Limited, Unit 501, Bentley Road South, Wednesbury, West Midlands, WS10 8LQ	Bala Subramanian/BRE LINA A2
Declared/Functional Unit	Applicability/Coverage
1 m <sup>2</sup> of Komfort Defence EI Screens and Doors	Other (please specify). Product specific
EPD Type	Background database
Cradle to Gate with options	Ecoinvent 3.8

### Demonstration of Verification

CEN standard EN 15804 serves as the core PCR <sup>a</sup>

Independent verification of the declaration and data according to EN ISO 14025:2010

Internal

External

(Where appropriate <sup>b</sup>)Third party verifier:  
Jiacheng (Francis) Yu

a: Product category rules

b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

### Comparability

Environmental product declarations from different programmes may not be 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 for further guidance

## Information modules covered

Product			Construction		Use stage							End-of-life				Benefits and loads beyond the system boundary
A1	A2	A3	A4	A5	Related to the building fabric					Related to the building						D
					B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, Recovery and/or Recycling potential
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								

Note: Ticks indicate the Information Modules declared.

## Manufacturing site(s)

Komfort Partitioning Limited,  
Unit 501,  
Access 10,  
Bentley Road South,  
Wednesbury,  
West Midlands,  
WS10 8LQ

## Construction Product:

### Product Description

Komfort Defence EI Screens and Doors is the one of the most advanced glazing systems. It is available as fully glazed doors and fixed glazed screens; the Defence E system provides fire resistance for periods up to 120 minutes (integrity only) and 90-minute doors (integrity and insulation). The Defence EI Fire Screens are constructed using steel tubes with internal thermal insulation breaks. The structure enables our fire systems to offer fire ratings from 30 minutes to 120 minutes, meeting a range of project specifications. Doors and screens are designed for use in commercial office and administration buildings, as well as public buildings, and residential applications.

The system is made in bespoke sizes with various glass thicknesses based on the requirements of the project. Therefore, the scope of the EPD is to conduct the analysis for an average module size of 1m (W) x 2.1m (H) with standard 13mm and 25mm glazing. Additionally, the LCA analysis has been conducted for Defence E, EI30, EI60, and EI120, with all results enclosed in this EPD. In the manufacturing unit, glazing and steel profiles are cut to the required dimensions and sent to the construction site for installation. During installation, insulation and hardware are added to the screens and doors to complete the system. The LCA analysis covers the entire system, including the impacts from the Komfort manufacturing site and the installation process.

Products included in the EPD:

Products	Dimension	Glazing thickness	Weight (kg/m <sup>2</sup> )
Komfort Defence E Doors	1m (W) x 2.1m (H)	13mm	41.49
Komfort Defence E Screens	1m (W) x 2.1m (H)	13mm	33.37
Komfort Defence EI 30 Doors	1m (W) x 2.1m (H)	18mm	67.42
Komfort Defence EI 30 screens	1m (W) x 2.1m (H)	18mm	47.61
Komfort Defence EI 60 screens	1m (W) x 2.1m (H)	25mm	62

Products	Dimension	Glazing thickness	Weight (kg/m <sup>2</sup> )
Komfort Defence EI 60 Doors	1m (W) x 2.1m (H)	25mm	77.96
Komfort Defence EI 120 screens	1m (W) x 2.1m (H)	52mm	115.41

**Please note: The document is based on an average module size of 1m (W) x 2.1m (H). The system can be glazed with various glass thicknesses, based on the desired performance. To calculate the bespoke system impacts please contact Komfort Partitioning technical team.**

### Technical Information

Property	Defence E	Defence EI30	Defence EI60	Defence EI120
Screens	4000mm	Up to 4500mm	Up to 4500mm	Up to 3380mm
Acoustic performance	Up to 37 dB (Rw)	Up to 52dB (Rw)	Up to 52dB (Rw)	Up to 51dB (Rw)
Glass-to-glass butt joint	No	Yes	Yes	Yes
Frame depth	50mm	65mm	65mm	110mm
Single Latched doors*	1460x2875mm	1400x3000mm	1460x2870mm	–
Double Latched doors*	2830x3370mm	2830x3000mm	2820x2890mm	–
Single Unlatched doors*	1370x2540mm	1160x2430mm	1160x2430mm	–
Double Unlatched doors*	2390x2540mm	2310x2430mm	2310x2430mm	–
Available finish	PPC Steel	PPC Steel	PPC Steel	PPC steel

Note: Please contact Komfort technical team for more information or visit <https://www.komfort.com/fire-rated-systems/ei-fire-screens/>



## Main Product Contents

Material	Defence EI 30 Screen	Defence EI 30 Door	Defence EI 60 Screen	Defence EI 60 Door	Defence E Screen	Defence E Door	Defence EI 120 Screen
Glass	65-70%	35-40%	65-70%	35-40%	60-65%	35-40%	65-70%
Steel Profile	30-35%	60-65%	30-35%	60-65%	35-40%	60-65%	30-35%
PPC	<1%	<1%	<1%	<1%	<1%	<1%	<1%

*Note: The calculated percentages in the composition table are based on a screen or door measuring 1000 mm (W) x 2100 mm (H), as used in the Komfort manufacturing facility. Steel and glass are cut to the required size, while hardware and gaskets are installed on-site. Therefore, the composition reflects the percentage of steel and glass used within the Komfort facility. For the total composition of the screen and door, please contact Komfort Partitioning's technical team for further information.*

## Manufacturing Process

The process for manufacturing and assembling Komfort Fire Screens/Doors Defence E involves multiple stages that integrate a complex supply chain and detailed production workflow.

### Supply Chain:

- Steel Parts and Profiles:** Raw steel parts and profiles are sourced from suppliers. These form the basic structural components of the fire screens.
- Powder Coating:** Powder coating materials are procured to provide a durable finish to the steel components.
- Accessories:** Various accessories needed for the assembly of the fire screens, such as seals, gaskets, and handles, are acquired.
- Door Hardware:** Hardware components, including hinges, locks, and latches, are obtained to ensure the functionality of the doors.
- Glass:** Fire-resistant glass is sourced for the screens to ensure safety and visibility.

### Manufacturing and Assembly Process:

- Profile Finishing:** The steel parts and profiles undergo finishing processes to ensure they meet quality and dimensional specifications.
- Powder Coating:** The finished profiles are then powder-coated to provide a protective and aesthetic surface finish.
- Frame/Screen Assembly:** The powder-coated profiles, along with the accessories, door hardware, and glass, are assembled to form the final door frames and screens.
- Production Wastages:** Any waste materials generated during the production process are recycled which is managed appropriately to minimise environmental impact.

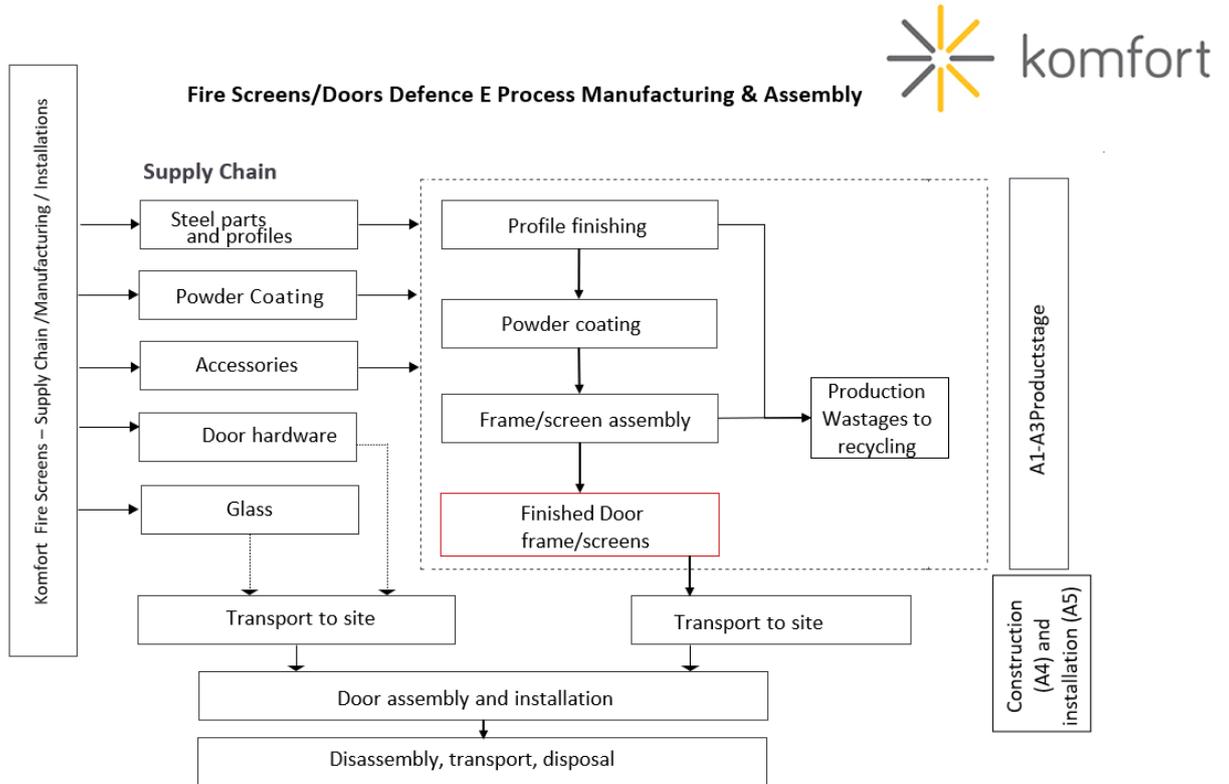
### Transportation and Installation:

- Transport to Site:** The completed door frames/screens are transported from the manufacturing facility to the installation site.
- Door Assembly and Installation:** On-site, the doors are assembled and installed into their designated locations, ensuring they are secure and functional.

### End-of-Life Management:

- Disassembly, Transport, Disposal:** At the end of their lifecycle, the fire screens are disassembled. The components are then transported for disposal or recycling, ensuring compliance with environmental regulations.

Process flow diagram.



**Construction Installation**

Doors & screens are installed in to prepared opening on site. As the product is made bespoke to fit the aperture, no wastage occurs on site. Once the frames are fitted, the glazing is installed using gaskets and intumescent tape within the glazing pocket. The frame is then sealed to the structure with fire resistant silicone.

*Note: Please contact Komfort Partitioning's technical team for more information*

**End of Life**

At the end of their lifecycle, the fire screens are disassembled by using the heavy machines. The components are then transported for disposal or recycling, ensuring compliance with environmental regulations. The energy required to dismantle the doors and screens are not included in the analysis.

## Life Cycle Assessment Calculation Rules

### Declared unit description.

1 m<sup>2</sup> of Komfort Defence EI Screens and Doors.

### System boundary

This is a Cradle-to-Gate with Options EPD, reporting the production stages A1 to A3, construction stages A4-A5, and end-of-life stages C1-C4 and D in accordance with EN 15804:2012+A2:2019 and BRE 2023 Product Category Rules (PN 514 Rev 3.1).

### Data sources, quality and allocation

The datasets are derived from Ecoinvent v3.8, and the LCA tool used was BRE LINA A2. The LCA analysis was conducted for 1 m<sup>2</sup> of Komfort Defence EI Screens and Doors, including the total amount of steel, glass, and ancillary materials used to manufacture these products over a period of six months (from 01/10/2023 to 31/03/2024). Only six months of production data was used for the LCA modelling due to limited data availability and the manufacturer has confirmed that the manufacturing process and the electricity used for the manufacturing remains the same. In addition to the Komfort Defence EI Screens and Doors system, other products are manufactured. Therefore, the allocation of electricity, fuel, waste, water consumption, and discharge are required. This allocation has been done according to the provisions of BRE PCR PN514 and EN 15804, using the mass production quantity. Site wide values for energy, water and wastewater have been taken from bills. Figures for the raw materials, ancillary materials and packaging were from actual usages. Upon data review, it was noted that the production output slightly exceeds the raw material input. The manufacturer has confirmed that this discrepancy is due to leftover stock intended for reuse. Additionally, the manufacturer has confirmed that production wastages are accounted for by assuming a 10% wastage from profile cutoffs during the production process, with the waste materials being recycled.

Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e. raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN 15804:2012+A2:2019.

ISO14044 guidance. Quality Level	Geographical representativeness	Technical representativeness	Time representativeness
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	There is approximately 1-2 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific European datasets have been selected from the ecoinvent LCI for this LCA. Manufacturer uses the national grid electricity and natural gas for production, so therefore the national grid electricity dataset has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of UK electricity, consumption mix is 0.239 kgCO<sub>2e</sub>/kWh and for using 1 kWh of UK natural gas, at industrial furnace is 0.232 kgCO<sub>2eq</sub>. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

### Cut-off criteria

All raw materials and energy input to the manufacturing process have been included, except for direct emissions to air, water, and soil, which are not measured. The inventory process in this LCA includes all data related to raw material, packaging material and consumable items.

## LCA Results – 1 m<sup>2</sup> of Komfort Defence E Doors with the typical weight of 41.49 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	8.10E+01	8.05E+01	4.15E-01	7.19E-02	5.48E-06	1.02E+00	3.36E-02
	Transport	A2	1.85E+00	1.85E+00	1.92E-03	8.69E-04	4.15E-07	7.68E-03	1.49E-04
	Manufacturing	A3	3.11E+01	3.45E+01	- 3.46E+00	1.91E-02	2.68E-06	8.00E-02	7.24E-03
	Total	A1-3	1.14E+02	1.17E+02	- 3.05E+00	9.18E-02	8.57E-06	1.11E+00	4.10E-02
Construction process stage	Transport	A4	9.03E+00	9.02E+00	4.47E-03	5.57E-03	1.83E-06	3.61E-02	9.08E-04
	Construction	A5	6.71E+00	1.84E+00	4.83E+00	3.36E-02	6.78E-07	8.94E-03	6.40E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.45E-01	3.45E-01	2.94E-04	1.35E-04	7.98E-08	1.40E-03	2.22E-05
	Waste processing	C3	1.44E+00	1.44E+00	5.72E-04	3.21E-04	3.07E-07	1.49E-02	4.68E-05
	Disposal	C4	7.26E-02	7.20E-02	5.09E-04	7.25E-05	2.26E-08	6.15E-04	1.96E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 4.58E+01	- 4.57E+01	-1.17E-01	-2.73E-02	-2.72E-06	-2.48E-01	-1.77E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	1.14E-01	3.45E+00	3.68E-01	2.58E-03	9.03E+02	3.66E+01	1.22E-05
	Transport	A2	2.27E-03	2.48E-02	7.67E-03	1.00E-05	2.76E+01	1.44E-01	1.49E-07
	Manufacturing	A3	8.09E-02	2.20E-01	6.46E-02	1.61E-04	6.57E+02	2.65E+01	9.78E-07
	Total (Consumption grid)	A1-3	1.97E-01	3.69E+00	4.40E-01	2.75E-03	1.59E+03	6.33E+01	1.33E-05
Construction process stage	Transport	A4	9.66E-03	1.05E-01	3.26E-02	5.35E-05	1.29E+02	7.24E-01	5.76E-07
	Construction	A5	3.88E-03	2.01E-02	6.57E-03	1.88E-05	3.07E+01	2.41E+00	1.09E-07
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.21E-04	4.61E-03	1.41E-03	1.20E-06	5.21E+00	2.35E-02	2.98E-08
	Waste processing	C3	6.56E-03	7.19E-02	1.98E-02	8.32E-07	1.98E+01	4.76E-02	3.96E-07
	Disposal	C4	2.12E-04	2.31E-03	6.69E-04	2.29E-07	1.72E+00	7.77E-02	1.23E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.34E-02	-5.63E-01	-2.20E-01	-3.52E-04	-5.75E+02	-9.75E+00	-3.01E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	4.74E+00	2.91E+03	4.72E-07	2.64E-06	3.04E+02
	Transport	A2	1.49E-01	2.29E+01	1.02E-09	2.41E-08	1.66E+01
	Manufacturing	A3	6.16E+00	1.50E+03	9.11E-08	5.43E-07	4.78E+02
	Total (Consumption grid)	A1-3	1.11E+01	4.43E+03	5.64E-07	3.21E-06	7.99E+02
Construction process stage	Transport	A4	5.88E-01	1.30E+02	4.78E-09	1.15E-07	6.24E+01
	Construction	A5	1.84E-01	3.42E+01	1.66E-09	2.76E-08	1.07E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.68E-02	4.07E+00	1.32E-10	4.27E-09	3.58E+00
	Waste processing	C3	8.94E-02	1.17E+01	4.55E-10	8.63E-09	2.84E+00
	Disposal	C4	8.07E-03	1.21E+00	5.00E-11	8.12E-10	4.07E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.21E+00	-1.01E+03	-1.60E-07	-1.83E-06	-1.03E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	7.29E+01	0.00E+00	7.29E+01	8.92E+02	1.32E+00	8.94E+02
	Transport	A2	1.63E-01	0.00E+00	1.63E-01	8.74E+00	0.00E+00	8.74E+00
	Manufacturing	A3	8.62E+01	4.06E+01	1.27E+02	6.57E+02	5.10E+01	7.08E+02
	Total (Consumption grid)	A1-3	1.59E+02	4.06E+01	2.00E+02	1.56E+03	5.23E+01	1.61E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.98E+01	3.29E+01	3.08E+00	-1.04E+01	3.96E+01	2.92E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	7.34E-02	0.00E+00	7.34E-02	5.12E+00	0.00E+00	5.12E+00
	Waste processing	C3	1.65E-01	0.00E+00	1.65E-01	1.99E+01	0.00E+00	1.99E+01
	Disposal	C4	2.78E-02	0.00E+00	2.78E-02	1.69E+00	0.00E+00	1.69E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.16E+01	0.00E+00	-3.16E+01	-5.74E+02	0.00E+00	-5.74E+02

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	9.87E+00	0.00E+00	0.00E+00	9.00E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	3.56E-03
	Manufacturing	A3	5.70E-01	1.25E-04	0.00E+00	6.51E-01
	Total (Consumption grid)	A1-3	1.04E+01	1.25E-04	0.00E+00	1.55E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	1.79E-02
	Construction	A5	1.60E-04	0.00E+00	0.00E+00	5.67E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	5.81E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.17E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.82E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-2.39E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	2.33E+01	1.26E+02	2.31E-03
	Transport	A2	1.27E-02	2.42E-01	1.84E+01
	Manufacturing	A3	3.52E+00	2.02E+01	2.56E-03
	Total (Consumption grid)	A1-3	2.69E+01	1.47E+02	1.84E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.12E-01	3.11E+00	2.79E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.75E-03	1.02E-01	3.53E-05
	Waste processing	C3	3.14E-02	6.00E-01	1.39E-04
	Disposal	C4	3.17E-03	6.26E+00	1.04E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.28E+00	-8.43E+01	-2.77E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	1.98E-03	1.75E-06	1.18E-01	0.00E+00	-1.28E+00
	Total (Consumption grid)	A1-3	0.00E+00	1.98E-03	1.75E-06	1.18E-01	0.00E+00	-1.28E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.42E-06	0.00E+00	0.00E+00	6.32E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-1.62E-03	-9.87E-06	-1.64E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence E Screen with the typical weight of 33.366 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	5.69E+01	5.65E+01	3.54E-01	4.74E-02	4.41E-06	6.91E-01	1.99E-02
	Transport	A2	1.13E+00	1.12E+00	1.09E-03	5.11E-04	2.54E-07	4.60E-03	8.53E-05
	Manufacturing	A3	2.67E+01	2.97E+01	- 3.08E+00	1.72E-02	2.26E-06	7.52E-02	6.50E-03
	Total	A1-3	8.47E+01	8.73E+01	- 2.72E+00	6.51E-02	6.92E-06	7.71E-01	2.65E-02
Construction process stage	Transport	A4	7.26E+00	7.26E+00	3.59E-03	4.48E-03	1.48E-06	2.91E-02	7.30E-04
	Construction	A5	6.04E+00	1.76E+00	4.25E+00	2.92E-02	7.22E-07	8.38E-03	6.22E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.78E-01	2.77E-01	2.36E-04	1.09E-04	6.42E-08	1.13E-03	1.79E-05
	Waste processing	C3	8.06E-01	8.05E-01	4.46E-04	5.35E-04	1.71E-07	8.04E-03	3.04E-05
	Disposal	C4	8.70E-02	8.62E-02	6.40E-04	8.71E-05	2.66E-08	7.31E-04	2.43E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 4.02E+01	- 4.00E+01	-2.10E-01	-2.98E-02	-2.75E-06	-2.51E-01	-1.53E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	8.37E-02	2.15E+00	2.64E-01	1.52E-03	6.34E+02	2.32E+01	8.05E-06
	Transport	A2	1.36E-03	1.49E-02	4.58E-03	5.41E-06	1.68E+01	8.46E-02	9.02E-08
	Manufacturing	A3	6.68E-02	1.95E-01	5.72E-02	1.94E-04	5.47E+02	2.19E+01	9.55E-07
	Total (Consumption grid)	A1-3	1.52E-01	2.36E+00	3.25E-01	1.72E-03	1.20E+03	4.51E+01	9.10E-06
Construction process stage	Transport	A4	7.77E-03	8.46E-02	2.62E-02	4.30E-05	1.04E+02	5.82E-01	4.63E-07
	Construction	A5	3.06E-03	1.70E-02	5.54E-03	1.60E-05	3.00E+01	2.65E+00	8.98E-08
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.39E-04	3.70E-03	1.13E-03	9.64E-07	4.19E+00	1.89E-02	2.39E-08
	Waste processing	C3	3.53E-03	3.86E-02	1.06E-02	6.48E-07	1.11E+01	3.04E-02	2.12E-07
	Disposal	C4	2.52E-04	2.74E-03	7.94E-04	2.78E-07	2.04E+00	9.20E-02	1.47E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.24E-02	-5.52E-01	-1.89E-01	-4.38E-04	-5.50E+02	-1.12E+01	-2.61E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	3.28E+00	1.84E+03	2.61E-07	1.53E-06	2.22E+02
	Transport	A2	8.95E-02	1.37E+01	5.55E-10	1.43E-08	1.04E+01
	Manufacturing	A3	5.13E+00	1.27E+03	1.28E-07	4.93E-07	4.24E+02
	Total (Consumption grid)	A1-3	8.50E+00	3.13E+03	3.90E-07	2.04E-06	6.56E+02
Construction process stage	Transport	A4	4.73E-01	1.04E+02	3.84E-09	9.25E-08	5.02E+01
	Construction	A5	1.78E-01	3.35E+01	1.37E-09	2.51E-08	9.50E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.15E-02	3.27E+00	1.06E-10	3.43E-09	2.88E+00
	Waste processing	C3	5.05E-02	6.89E+00	2.69E-10	5.30E-09	2.24E+00
	Disposal	C4	9.59E-03	1.45E+00	6.11E-11	9.69E-10	4.86E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.08E+00	-7.43E+02	-1.05E-07	-1.97E-06	-9.57E+01

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	4.67E+01	0.00E+00	4.67E+01	6.27E+02	6.78E-01	6.28E+02
	Transport	A2	1.06E-01	0.00E+00	1.06E-01	6.45E+00	0.00E+00	6.45E+00
	Manufacturing	A3	7.72E+01	3.57E+01	1.13E+02	5.50E+02	3.86E+01	5.88E+02
	Total (Consumption grid)	A1-3	1.24E+02	3.57E+01	1.60E+02	1.18E+03	3.93E+01	1.22E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.58E+01	2.89E+01	3.07E+00	-2.89E+00	3.02E+01	2.73E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.91E-02	0.00E+00	5.91E-02	4.12E+00	0.00E+00	4.12E+00
	Waste processing	C3	2.02E-01	0.00E+00	2.02E-01	1.22E+01	0.00E+00	1.22E+01
	Disposal	C4	3.40E-02	0.00E+00	3.40E-02	2.01E+00	0.00E+00	2.01E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.67E+01	0.00E+00	-3.67E+01	-5.50E+02	0.00E+00	-5.50E+02

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	5.42E+00	0.00E+00	0.00E+00	5.67E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.10E-03
	Manufacturing	A3	7.44E-01	1.01E-04	0.00E+00	5.41E-01
	Total (Consumption grid)	A1-3	6.16E+00	1.01E-04	0.00E+00	1.11E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	1.44E-02
	Construction	A5	1.41E-04	0.00E+00	0.00E+00	6.24E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	4.67E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	7.49E-04
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	2.16E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-2.75E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	1.30E+01	7.62E+01	1.77E-03
	Transport	A2	8.23E-03	1.52E-01	6.33E+00
	Manufacturing	A3	5.10E+00	1.95E+01	2.12E-03
	Total (Consumption grid)	A1-3	1.81E+01	9.58E+01	6.33E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.13E-01	2.81E+00	4.99E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.62E-03	8.21E-02	2.84E-05
	Waste processing	C3	2.83E-02	1.18E+00	8.19E-05
	Disposal	C4	3.87E-03	7.94E+00	1.23E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.48E+00	-7.27E+01	-1.55E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	1.59E-03	1.41E-06	1.98E-02	0.00E+00	-1.12E+00
	Total (Consumption grid)	A1-3	0.00E+00	1.59E-03	1.41E-06	1.98E-02	0.00E+00	-1.12E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.24E-06	0.00E+00	0.00E+00	5.47E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-2.09E-03	-1.27E-05	-4.29E-01	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence EI 30 Doors with the typical weight of 67.42 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	1.68E+02	1.67E+02	8.37E-01	1.52E-01	1.12E-05	2.12E+00	7.13E-02
	Transport	A2	3.67E+00	3.66E+00	3.92E-03	1.76E-03	8.19E-07	1.53E-02	3.03E-04
	Manufacturing	A3	4.97E+01	5.27E+01	3.00E+00	2.48E-02	4.19E-06	1.11E-01	1.05E-02
	Total	A1-3	2.22E+02	2.24E+02	2.16E+00	1.78E-01	1.62E-05	2.25E+00	8.21E-02
Construction process stage	Transport	A4	1.47E+01	1.47E+01	7.26E-03	9.04E-03	2.98E-06	5.87E-02	1.48E-03
	Construction	A5	6.63E+00	1.77E+00	4.82E+00	3.31E-02	6.74E-07	8.09E-03	6.25E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.61E-01	5.60E-01	4.78E-04	2.20E-04	1.30E-07	2.27E-03	3.61E-05
	Waste processing	C3	2.61E+00	2.61E+00	1.40E-03	1.61E-03	5.54E-07	2.62E-02	9.72E-05
	Disposal	C4	1.11E-01	1.10E-01	7.70E-04	1.11E-04	3.46E-08	9.40E-04	2.97E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	7.41E+01	7.39E+01	-1.66E-01	-4.29E-02	-4.32E-06	-3.94E-01	-2.86E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	2.37E-01	7.27E+00	7.61E-01	5.49E-03	1.87E+03	7.70E+01	2.55E-05
	Transport	A2	4.51E-03	4.93E-02	1.53E-02	2.09E-05	5.47E+01	2.89E-01	2.94E-07
	Manufacturing	A3	1.28E-01	3.17E-01	8.72E-02	2.05E-04	1.02E+03	4.11E+01	1.33E-06
	Total (Consumption grid)	A1-3	3.69E-01	7.64E+00	8.64E-01	5.71E-03	2.94E+03	1.18E+02	2.71E-05
Construction process stage	Transport	A4	1.57E-02	1.71E-01	5.29E-02	8.69E-05	2.09E+02	1.18E+00	9.36E-07
	Construction	A5	4.60E-03	1.66E-02	5.43E-03	1.56E-05	2.90E+01	2.52E+00	8.76E-08
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.85E-04	7.48E-03	2.29E-03	1.95E-06	8.47E+00	3.81E-02	4.84E-08
	Waste processing	C3	1.15E-02	1.26E-01	3.46E-02	2.04E-06	3.60E+01	9.71E-02	6.90E-07
	Disposal	C4	3.24E-04	3.53E-03	1.02E-03	3.48E-07	2.64E+00	1.19E-01	1.88E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.50E-02	-8.97E-01	-3.58E-01	-5.40E-04	-9.20E+02	-1.52E+01	-4.87E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	9.86E+00	6.14E+03	1.01E-06	5.61E-06	6.30E+02
	Transport	A2	2.96E-01	4.56E+01	2.14E-09	4.83E-08	3.23E+01
	Manufacturing	A3	9.78E+00	2.35E+03	1.05E-07	8.14E-07	5.29E+02
	Total (Consumption grid)	A1-3	1.99E+01	8.53E+03	1.11E-06	6.48E-06	1.19E+03
Construction process stage	Transport	A4	9.55E-01	2.10E+02	7.77E-09	1.87E-07	1.01E+02
	Construction	A5	1.71E-01	3.28E+01	1.30E-09	2.43E-08	9.86E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.35E-02	6.61E+00	2.14E-10	6.93E-09	5.82E+00
	Waste processing	C3	1.64E-01	2.22E+01	8.68E-10	1.70E-08	7.04E+00
	Disposal	C4	1.23E-02	1.85E+00	7.61E-11	1.24E-09	6.22E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-6.50E+00	-1.67E+03	-2.67E-07	-2.88E-06	-1.66E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.53E+02	0.00E+00	1.53E+02	1.85E+03	1.43E+00	1.85E+03
	Transport	A2	2.97E-01	0.00E+00	2.97E-01	1.44E+01	0.00E+00	1.44E+01
	Manufacturing	A3	1.16E+02	4.06E+01	1.57E+02	1.03E+03	7.39E+01	1.10E+03
	Total (Consumption grid)	A1-3	2.70E+02	4.06E+01	3.10E+02	2.89E+03	7.53E+01	2.97E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.97E+01	3.28E+01	3.06E+00	-2.83E+01	5.47E+01	2.64E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.19E-01	0.00E+00	1.19E-01	8.32E+00	0.00E+00	8.32E+00
	Waste processing	C3	6.15E-01	0.00E+00	6.15E-01	3.92E+01	0.00E+00	3.92E+01
	Disposal	C4	4.23E-02	0.00E+00	4.23E-02	2.59E+00	0.00E+00	2.59E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.90E+01	0.00E+00	-4.90E+01	-9.17E+02	0.00E+00	-9.17E+02

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	2.11E+01	0.00E+00	0.00E+00	1.89E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	7.18E-03
	Manufacturing	A3	6.40E-01	2.04E-04	0.00E+00	1.01E+00
	Total (Consumption grid)	A1-3	2.18E+01	2.04E-04	0.00E+00	2.91E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.90E-02
	Construction	A5	1.60E-04	0.00E+00	0.00E+00	5.92E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	9.44E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	2.40E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	2.79E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-3.72E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	4.98E+01	2.66E+02	4.73E-03
	Transport	A2	2.30E-02	4.47E-01	4.39E+01
	Manufacturing	A3	3.91E+00	2.68E+01	4.07E-03
	Total (Consumption grid)	A1-3	5.38E+01	2.94E+02	4.39E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.08E-01	3.50E+00	5.05E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.34E-03	1.66E-01	5.73E-05
	Waste processing	C3	8.79E-02	3.52E+00	2.64E-04
	Disposal	C4	4.83E-03	9.46E+00	1.60E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.39E+00	-1.37E+02	-4.68E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	3.22E-03	2.84E-06	1.92E-01	0.00E+00	-1.28E+00
	Total (Consumption grid)	A1-3	0.00E+00	3.22E-03	2.84E-06	1.92E-01	0.00E+00	-1.28E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.41E-06	0.00E+00	0.00E+00	6.23E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-2.47E-03	-1.50E-05	-2.51E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence EI 30 screens with the typical weight of 47.614 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	8.11E+01	8.05E+01	5.43E-01	6.69E-02	6.70E-06	9.57E-01	2.61E-02
	Transport	A2	2.29E+00	2.29E+00	2.79E-03	1.10E-03	5.11E-07	1.00E-02	2.03E-04
	Manufacturing	A3	3.44E+01	3.78E+01	- 3.35E+00	1.90E-02	2.98E-06	8.04E-02	7.63E-03
	Total	A1-3	1.18E+02	1.21E+02	- 2.80E+00	8.70E-02	1.02E-05	1.05E+00	3.39E-02
Construction process stage	Transport	A4	1.04E+01	1.04E+01	5.12E-03	6.39E-03	2.11E-06	4.15E-02	1.04E-03
	Construction	A5	6.66E+00	1.80E+00	4.82E+00	3.31E-02	7.07E-07	8.40E-03	6.43E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.96E-01	3.96E-01	3.37E-04	1.55E-04	9.16E-08	1.61E-03	2.55E-05
	Waste processing	C3	8.61E-01	8.60E-01	4.37E-04	4.61E-04	1.83E-07	8.67E-03	3.12E-05
	Disposal	C4	1.41E-01	1.40E-01	1.05E-03	1.41E-04	4.29E-08	1.18E-03	3.98E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 5.71E+01	- 5.67E+01	-3.75E-01	-4.66E-02	-4.17E-06	-3.81E-01	-2.16E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	1.23E-01	2.84E+00	3.76E-01	1.96E-03	9.02E+02	3.18E+01	1.10E-05
	Transport	A2	3.00E-03	3.28E-02	1.03E-02	1.53E-05	3.42E+01	1.85E-01	2.00E-07
	Manufacturing	A3	9.04E-02	2.26E-01	6.41E-02	1.54E-04	7.30E+02	2.95E+01	9.68E-07
	Total (Consumption grid)	A1-3	2.16E-01	3.10E+00	4.50E-01	2.13E-03	1.67E+03	6.15E+01	1.22E-05
Construction process stage	Transport	A4	1.11E-02	1.21E-01	3.74E-02	6.14E-05	1.48E+02	8.31E-01	6.61E-07
	Construction	A5	3.87E-03	1.72E-02	5.60E-03	1.62E-05	3.01E+01	2.63E+00	9.06E-08
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.84E-04	5.29E-03	1.62E-03	1.38E-06	5.98E+00	2.69E-02	3.41E-08
	Waste processing	C3	3.81E-03	4.17E-02	1.15E-02	6.35E-07	1.19E+01	3.13E-02	2.29E-07
	Disposal	C4	4.08E-04	4.44E-03	1.29E-03	4.53E-07	3.30E+00	1.49E-01	2.37E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-7.85E-02	-8.26E-01	-2.66E-01	-7.16E-04	-8.13E+02	-1.78E+01	-3.69E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	4.72E+00	2.51E+03	3.22E-07	1.97E-06	3.24E+02
	Transport	A2	1.88E-01	2.90E+01	1.62E-09	3.20E-08	2.06E+01
	Manufacturing	A3	6.97E+00	1.67E+03	8.09E-08	5.87E-07	4.85E+02
	Total (Consumption grid)	A1-3	1.19E+01	4.21E+03	4.04E-07	2.58E-06	8.30E+02
Construction process stage	Transport	A4	6.74E-01	1.49E+02	5.49E-09	1.32E-07	7.16E+01
	Construction	A5	1.78E-01	3.39E+01	1.36E-09	2.52E-08	9.95E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.08E-02	4.67E+00	1.51E-10	4.90E-09	4.11E+00
	Waste processing	C3	5.38E-02	7.26E+00	2.83E-10	5.51E-09	2.19E+00
	Disposal	C4	1.55E-02	2.35E+00	9.96E-11	1.57E-09	7.88E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.22E+00	-9.48E+02	-1.24E-07	-3.06E-06	-1.40E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	6.41E+01	0.00E+00	6.41E+01	8.94E+02	6.51E-01	8.94E+02
	Transport	A2	4.17E-01	0.00E+00	4.17E-01	2.14E+01	0.00E+00	2.14E+01
	Manufacturing	A3	9.15E+01	4.06E+01	1.32E+02	7.32E+02	5.64E+01	7.89E+02
	Total (Consumption grid)	A1-3	1.56E+02	4.06E+01	1.97E+02	1.65E+03	5.71E+01	1.70E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.96E+01	3.28E+01	3.16E+00	-1.59E+01	4.33E+01	2.74E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	8.43E-02	0.00E+00	8.43E-02	5.87E+00	0.00E+00	5.87E+00
	Waste processing	C3	1.81E-01	0.00E+00	1.81E-01	1.27E+01	0.00E+00	1.27E+01
	Disposal	C4	5.55E-02	0.00E+00	5.55E-02	3.25E+00	0.00E+00	3.25E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.86E+01	0.00E+00	-5.86E+01	-8.14E+02	0.00E+00	-8.14E+02

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	6.59E+00	0.00E+00	0.00E+00	7.75E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	4.60E-03
	Manufacturing	A3	5.21E-01	1.44E-04	0.00E+00	7.23E-01
	Total (Consumption grid)	A1-3	7.11E+00	1.44E-04	0.00E+00	1.50E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.05E-02
	Construction	A5	1.60E-04	0.00E+00	0.00E+00	6.18E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	6.67E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	7.71E-04
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.49E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-4.38E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	1.62E+01	1.01E+02	2.63E-03
	Transport	A2	3.23E-02	6.21E-01	5.34E+01
	Manufacturing	A3	2.99E+00	1.99E+01	2.90E-03
	Total (Consumption grid)	A1-3	1.92E+01	1.21E+02	5.34E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.13E-01	3.21E+00	5.16E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.59E-03	1.17E-01	4.05E-05
	Waste processing	C3	2.69E-02	9.95E-01	8.61E-05
	Disposal	C4	6.31E-03	1.31E+01	1.98E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.24E+00	-1.02E+02	-1.56E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.27E-03	2.01E-06	1.35E-01	0.00E+00	-1.28E+00
	Total (Consumption grid)	A1-3	0.00E+00	2.27E-03	2.01E-06	1.35E-01	0.00E+00	-1.28E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.41E-06	0.00E+00	0.00E+00	6.23E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-3.44E-03	-2.09E-05	-3.49E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence EI 60 Doors with the typical weight of 77.96 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	1.77E+02	1.76E+02	9.23E-01	1.56E-01	1.21E-05	2.23E+00	7.26E-02
	Transport	A2	3.54E+00	3.53E+00	3.45E-03	1.65E-03	7.95E-07	1.44E-02	2.74E-04
	Manufacturing	A3	6.24E+01	6.51E+01	2.81E+00	3.23E-02	5.03E-06	1.52E-01	1.36E-02
	Total	A1-3	2.43E+02	2.45E+02	1.89E+00	1.90E-01	1.79E-05	2.39E+00	8.65E-02
Construction process stage	Transport	A4	1.70E+01	1.70E+01	8.39E-03	1.05E-02	3.45E-06	6.79E-02	1.71E-03
	Construction	A5	6.83E+00	1.94E+00	4.85E+00	3.32E-02	7.44E-07	8.81E-03	6.64E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.49E-01	6.48E-01	5.52E-04	2.54E-04	1.50E-07	2.63E-03	4.17E-05
	Waste processing	C3	2.63E+00	2.63E+00	1.05E-03	6.13E-04	5.61E-07	2.71E-02	8.57E-05
	Disposal	C4	1.42E-01	1.40E-01	9.97E-04	1.41E-04	4.39E-08	1.20E-03	3.83E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	8.67E+01	8.64E+01	-2.46E-01	-5.30E-02	-5.23E-06	-4.77E-01	-3.34E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	2.51E-01	7.51E+00	8.07E-01	5.60E-03	1.97E+03	7.91E+01	2.66E-05
	Transport	A2	4.24E-03	4.63E-02	1.43E-02	1.75E-05	5.28E+01	2.70E-01	2.77E-07
	Manufacturing	A3	1.52E-01	4.09E-01	1.14E-01	3.55E-04	1.22E+03	4.89E+01	1.86E-06
	Total (Consumption grid)	A1-3	4.07E-01	7.96E+00	9.35E-01	5.97E-03	3.24E+03	1.28E+02	2.87E-05
Construction process stage	Transport	A4	1.81E-02	1.98E-01	6.12E-02	1.01E-04	2.42E+02	1.36E+00	1.08E-06
	Construction	A5	5.16E-03	1.81E-02	5.90E-03	1.68E-05	3.15E+01	2.75E+00	9.54E-08
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	7.92E-04	8.66E-03	2.65E-03	2.25E-06	9.80E+00	4.41E-02	5.59E-08
	Waste processing	C3	1.20E-02	1.31E-01	3.60E-02	1.53E-06	3.61E+01	8.71E-02	7.22E-07
	Disposal	C4	4.13E-04	4.49E-03	1.30E-03	4.47E-07	3.35E+00	1.51E-01	2.40E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.02E-01	-1.08E+00	-4.16E-01	-6.95E-04	-1.10E+03	-1.90E+01	-5.69E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			Parameters describing environmental impacts				
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	1.03E+01	6.32E+03	1.02E-06	5.70E-06	6.66E+02
	Transport	A2	2.82E-01	4.33E+01	1.77E-09	4.49E-08	3.18E+01
	Manufacturing	A3	1.16E+01	2.85E+03	2.19E-07	1.05E-06	5.79E+02
	Total (Consumption grid)	A1-3	2.22E+01	9.21E+03	1.24E-06	6.80E-06	1.28E+03
Construction process stage	Transport	A4	1.10E+00	2.43E+02	8.98E-09	2.16E-07	1.17E+02
	Construction	A5	1.86E-01	3.56E+01	1.42E-09	2.64E-08	1.06E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.04E-02	7.64E+00	2.48E-10	8.02E-09	6.73E+00
	Waste processing	C3	1.63E-01	2.14E+01	8.31E-10	1.58E-08	5.24E+00
	Disposal	C4	1.57E-02	2.36E+00	9.77E-11	1.58E-09	7.93E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.29E+00	-1.89E+03	-2.95E-07	-3.55E-06	-1.97E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			Parameters describing resource use, primary energy					
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.58E+02	0.00E+00	1.58E+02	1.95E+03	1.43E+00	1.95E+03
	Transport	A2	2.14E-01	0.00E+00	2.14E-01	1.21E+01	0.00E+00	1.21E+01
	Manufacturing	A3	1.41E+02	4.08E+01	1.82E+02	1.23E+03	8.33E+01	1.32E+03
	Total (Consumption grid)	A1-3	2.99E+02	4.08E+01	3.40E+02	3.19E+03	8.47E+01	3.28E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.97E+01	3.30E+01	3.27E+00	-3.21E+01	6.08E+01	2.87E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.38E-01	0.00E+00	1.38E-01	9.62E+00	0.00E+00	9.62E+00
	Waste processing	C3	3.10E-01	0.00E+00	3.10E-01	3.64E+01	0.00E+00	3.64E+01
	Disposal	C4	5.43E-02	0.00E+00	5.43E-02	3.30E+00	0.00E+00	3.30E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-6.18E+01	0.00E+00	-6.18E+01	-1.10E+03	0.00E+00	-1.10E+03

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	2.13E+01	0.00E+00	0.00E+00	1.94E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	6.71E-03
	Manufacturing	A3	1.21E+00	2.36E-04	0.00E+00	1.21E+00
	Total (Consumption grid)	A1-3	2.25E+01	2.36E-04	0.00E+00	3.15E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	3.36E-02
	Construction	A5	1.61E-04	0.00E+00	0.00E+00	6.48E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.09E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	2.15E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.55E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-4.68E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	5.03E+01	2.72E+02	5.06E-03
	Transport	A2	1.67E-02	3.13E-01	1.94E+01
	Manufacturing	A3	8.69E+00	3.81E+01	4.82E-03
	Total (Consumption grid)	A1-3	5.90E+01	3.10E+02	1.94E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.18E-01	3.87E+00	5.42E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.08E-02	1.92E-01	6.63E-05
	Waste processing	C3	5.81E-02	1.16E+00	2.53E-04
	Disposal	C4	6.20E-03	1.23E+01	2.03E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-6.12E+00	-1.59E+02	-5.04E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	3.72E-03	3.29E-06	2.22E-01	0.00E+00	-1.29E+00
	Total (Consumption grid)	A1-3	0.00E+00	3.72E-03	3.29E-06	2.22E-01	0.00E+00	-1.29E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.42E-06	0.00E+00	0.00E+00	6.23E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-3.22E-03	-1.96E-05	-3.26E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence EI 60 Screens with the typical weight of 62 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	1.04E+02	1.03E+02	6.85E-01	8.46E-02	8.37E-06	1.25E+00	3.42E-02
	Transport	A2	2.08E+00	2.08E+00	2.12E-03	9.54E-04	4.70E-07	8.65E-03	1.63E-04
	Manufacturing	A3	4.92E+01	5.23E+01	- 3.08E+00	2.70E-02	4.02E-06	1.23E-01	1.10E-02
	Total	A1-3	1.55E+02	1.57E+02	- 2.39E+00	1.13E-01	1.29E-05	1.38E+00	4.54E-02
Construction process stage	Transport	A4	1.35E+01	1.35E+01	6.67E-03	8.32E-03	2.74E-06	5.40E-02	1.36E-03
	Construction	A5	6.78E+00	1.90E+00	4.84E+00	3.32E-02	7.48E-07	8.82E-03	6.66E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.16E-01	5.15E-01	4.39E-04	2.02E-04	1.19E-07	2.09E-03	3.32E-05
	Waste processing	C3	1.24E+00	1.24E+00	6.03E-04	5.86E-04	2.64E-07	1.26E-02	4.40E-05
	Disposal	C4	1.75E-01	1.73E-01	1.29E-03	1.75E-04	5.32E-08	1.47E-03	4.92E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 7.37E+01	- 7.32E+01	-4.52E-01	-5.84E-02	-5.27E-06	-4.81E-01	-2.79E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	1.55E-01	3.76E+00	4.85E-01	2.61E-03	1.15E+03	4.06E+01	1.44E-05
	Transport	A2	2.56E-03	2.80E-02	8.66E-03	1.08E-05	3.12E+01	1.59E-01	1.70E-07
	Manufacturing	A3	1.21E-01	3.29E-01	9.26E-02	2.96E-04	9.74E+02	3.91E+01	1.52E-06
	Total (Consumption grid)	A1-3	2.79E-01	4.12E+00	5.86E-01	2.92E-03	2.16E+03	7.99E+01	1.61E-05
Construction process stage	Transport	A4	1.44E-02	1.57E-01	4.87E-02	7.99E-05	1.93E+02	1.08E+00	8.61E-07
	Construction	A5	4.31E-03	1.80E-02	5.88E-03	1.69E-05	3.16E+01	2.77E+00	9.51E-08
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.30E-04	6.88E-03	2.11E-03	1.79E-06	7.79E+00	3.51E-02	4.45E-08
	Waste processing	C3	5.53E-03	6.05E-02	1.67E-02	8.76E-07	1.71E+01	4.43E-02	3.33E-07
	Disposal	C4	5.05E-04	5.50E-03	1.59E-03	5.61E-07	4.09E+00	1.84E-01	2.94E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.97E-02	-1.05E+00	-3.44E-01	-8.86E-04	-1.04E+03	-2.22E+01	-4.77E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			Parameters describing environmental impacts				
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	5.93E+00	3.24E+03	4.37E-07	2.61E-06	4.10E+02
	Transport	A2	1.67E-01	2.56E+01	1.12E-09	2.70E-08	1.92E+01
	Manufacturing	A3	9.27E+00	2.28E+03	1.86E-07	8.48E-07	5.39E+02
	Total (Consumption grid)	A1-3	1.54E+01	5.55E+03	6.24E-07	3.48E-06	9.67E+02
Construction process stage	Transport	A4	8.78E-01	1.94E+02	7.14E-09	1.72E-07	9.33E+01
	Construction	A5	1.87E-01	3.55E+01	1.43E-09	2.65E-08	1.04E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.00E-02	6.08E+00	1.97E-10	6.37E-09	5.35E+00
	Waste processing	C3	7.75E-02	1.04E+01	4.05E-10	7.85E-09	3.02E+00
	Disposal	C4	1.92E-02	2.90E+00	1.23E-10	1.95E-09	9.76E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.02E+01	-1.27E+03	-1.71E-07	-3.84E-06	-1.79E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	8.24E+01	0.00E+00	8.24E+01	1.14E+03	5.44E-01	1.14E+03
	Transport	A2	2.38E-01	0.00E+00	2.38E-01	1.39E+01	0.00E+00	1.39E+01
	Manufacturing	A3	1.19E+02	4.07E+01	1.60E+02	9.85E+02	6.50E+01	1.05E+03
	Total (Consumption grid)	A1-3	2.02E+02	4.07E+01	2.43E+02	2.14E+03	6.56E+01	2.21E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.96E+01	3.29E+01	3.28E+00	-1.97E+01	4.85E+01	2.87E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.10E-01	0.00E+00	1.10E-01	7.65E+00	0.00E+00	7.65E+00
	Waste processing	C3	2.37E-01	0.00E+00	2.37E-01	1.81E+01	0.00E+00	1.81E+01
	Disposal	C4	6.85E-02	0.00E+00	6.85E-02	4.02E+00	0.00E+00	4.02E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-7.30E+01	0.00E+00	-7.30E+01	-1.04E+03	0.00E+00	-1.04E+03

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	9.01E+00	0.00E+00	0.00E+00	9.93E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	3.94E-03
	Manufacturing	A3	1.04E+00	1.88E-04	0.00E+00	9.66E-01
	Total (Consumption grid)	A1-3	1.01E+01	1.88E-04	0.00E+00	1.96E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.67E-02
	Construction	A5	1.60E-04	0.00E+00	0.00E+00	6.51E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	8.68E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.09E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	4.33E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-5.45E-01

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	2.18E+01	1.31E+02	3.31E-03
	Transport	A2	1.85E-02	3.46E-01	1.91E+01
	Manufacturing	A3	7.38E+00	3.13E+01	3.85E-03
	Total (Consumption grid)	A1-3	2.92E+01	1.63E+02	1.91E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.18E-01	3.48E+00	5.38E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	8.59E-03	1.53E-01	5.27E-05
	Waste processing	C3	3.64E-02	1.25E+00	1.23E-04
	Disposal	C4	7.80E-03	1.61E+01	2.46E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.30E+00	-1.33E+02	-2.28E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.96E-03	2.61E-06	1.77E-01	0.00E+00	-1.28E+00
	Total (Consumption grid)	A1-3	0.00E+00	2.96E-03	2.61E-06	1.77E-01	0.00E+00	-1.28E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.42E-06	0.00E+00	0.00E+00	6.23E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-4.24E-03	-2.58E-05	-4.30E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results – 1 m<sup>2</sup> of Komfort Defence EI 120 screens with the typical weight of 115.41 kg/m<sup>2</sup>

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq			
Product stage	Raw material supply	A1	1.94E+02	1.92E+02	1.28E+00	1.58E-01	1.56E-05	2.33E+00	6.38E-02
	Transport	A2	3.70E+00	3.70E+00	3.58E-03	1.67E-03	8.37E-07	1.52E-02	2.79E-04
	Manufacturing	A3	1.00E+02	1.02E+02	2.10E+00	5.21E-02	7.65E-06	2.55E-01	2.22E-02
	Total	A1-3	2.98E+02	2.98E+02	-8.15E-01	2.11E-01	2.41E-05	2.60E+00	8.62E-02
Construction process stage	Transport	A4	2.51E+01	2.51E+01	1.24E-02	1.55E-02	5.10E-06	1.01E-01	2.53E-03
	Construction	A5	7.63E+00	2.71E+00	4.89E+00	3.37E-02	1.08E-06	1.22E-02	8.55E-04
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.60E-01	9.59E-01	8.18E-04	3.77E-04	2.22E-07	3.89E-03	6.18E-05
	Waste processing	C3	2.30E+00	2.30E+00	1.12E-03	1.09E-03	4.89E-07	2.33E-02	8.17E-05
	Disposal	C4	3.26E-01	3.23E-01	2.41E-03	3.26E-04	9.92E-08	2.73E-03	9.16E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	1.37E+02	1.36E+02	-8.44E-01	-1.09E-01	-9.83E-06	-8.97E-01	-5.20E-02

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, 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; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	2.90E-01	7.02E+00	9.05E-01	4.86E-03	2.15E+03	7.57E+01	2.69E-05
	Transport	A2	4.48E-03	4.90E-02	1.51E-02	1.77E-05	5.54E+01	2.78E-01	2.99E-07
	Manufacturing	A3	2.29E-01	6.53E-01	1.82E-01	6.94E-04	1.86E+03	7.40E+01	3.14E-06
	Total (Consumption grid)	A1-3	5.23E-01	7.72E+00	1.10E+00	5.57E-03	4.07E+03	1.50E+02	3.04E-05
Construction process stage	Transport	A4	2.69E-02	2.93E-01	9.06E-02	1.49E-04	3.58E+02	2.01E+00	1.60E-06
	Construction	A5	7.37E-03	2.49E-02	8.13E-03	2.29E-05	4.34E+01	3.89E+00	1.32E-07
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.17E-03	1.28E-02	3.92E-03	3.33E-06	1.45E+01	6.53E-02	8.28E-08
	Waste processing	C3	1.03E-02	1.12E-01	3.09E-02	1.63E-06	3.17E+01	8.22E-02	6.17E-07
	Disposal	C4	9.42E-04	1.03E-02	2.97E-03	1.05E-06	7.63E+00	3.44E-01	5.48E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.86E-01	-1.95E+00	-6.41E-01	-1.65E-03	-1.93E+03	-4.13E+01	-8.88E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	1.11E+01	6.04E+03	8.13E-07	4.86E-06	7.65E+02
	Transport	A2	2.94E-01	4.51E+01	1.82E-09	4.71E-08	3.43E+01
	Manufacturing	A3	1.75E+01	4.40E+03	4.65E-07	1.70E-06	7.12E+02
	Total (Consumption grid)	A1-3	2.89E+01	1.05E+04	1.28E-06	6.60E-06	1.51E+03
Construction process stage	Transport	A4	1.63E+00	3.60E+02	1.33E-08	3.20E-07	1.74E+02
	Construction	A5	2.59E-01	4.87E+01	2.00E-09	3.63E-08	1.40E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	7.45E-02	1.13E+01	3.66E-10	1.19E-08	9.96E+00
	Waste processing	C3	1.44E-01	1.93E+01	7.52E-10	1.46E-08	5.61E+00
	Disposal	C4	3.59E-02	5.41E+00	2.30E-10	3.63E-09	1.82E+01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.90E+01	-2.36E+03	-3.17E-07	-7.15E-06	-3.33E+02

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; and  
 SQP = Potential soil quality index.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.54E+02	0.00E+00	1.54E+02	2.13E+03	8.89E-01	2.13E+03
	Transport	A2	3.77E-01	0.00E+00	3.77E-01	2.32E+01	0.00E+00	2.32E+01
	Manufacturing	A3	2.11E+02	4.09E+01	2.52E+02	1.88E+03	1.17E+02	2.00E+03
	Total (Consumption grid)	A1-3	3.65E+02	4.09E+01	4.06E+02	4.04E+03	1.18E+02	4.16E+03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	-2.88E+01	3.31E+01	4.25E+00	-4.38E+01	8.36E+01	3.98E+01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.04E-01	0.00E+00	2.04E-01	1.42E+01	0.00E+00	1.42E+01
	Waste processing	C3	4.42E-01	0.00E+00	4.42E-01	3.36E+01	0.00E+00	3.36E+01
	Disposal	C4	1.28E-01	0.00E+00	1.28E-01	7.50E+00	0.00E+00	7.50E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.36E+02	0.00E+00	-1.36E+02	-1.93E+03	0.00E+00	-1.93E+03

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	1.68E+01	0.00E+00	0.00E+00	1.85E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	6.89E-03
	Manufacturing	A3	2.43E+00	3.49E-04	0.00E+00	1.84E+00
	Total (Consumption grid)	A1-3	1.92E+01	3.49E-04	0.00E+00	3.69E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	4.97E-02
	Construction	A5	1.61E-04	0.00E+00	0.00E+00	9.16E-02
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.62E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	2.03E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	8.07E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.02E+00

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	4.05E+01	2.44E+02	6.18E-03
	Transport	A2	2.93E-02	5.40E-01	2.12E+01
	Manufacturing	A3	1.89E+01	6.62E+01	7.26E-03
	Total (Consumption grid)	A1-3	5.95E+01	3.11E+02	2.12E+01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	1.64E-01	5.40E+00	7.14E-05
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.60E-02	2.84E-01	9.81E-05
	Waste processing	C3	6.76E-02	2.33E+00	2.29E-04
	Disposal	C4	1.45E-02	3.00E+01	4.58E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.00E+00	-2.47E+02	-4.23E-04

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

### LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	5.51E-03	4.86E-06	3.29E-01	0.00E+00	-1.29E+00
	Total (Consumption grid)	A1-3	0.00E+00	5.51E-03	4.86E-06	3.29E-01	0.00E+00	-1.29E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.42E-06	0.00E+00	0.00E+00	6.23E-03	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-7.92E-03	-4.82E-05	-8.02E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## Scenarios and additional technical information

Scenarios and additional technical information							
Scenario	Parameter					Units	Results
A4 – Transport to the building site	Transported from Leeds to sites across the UK. Based on a worst case of 400km						
	Road transport - Lorry 3.5 metric ton to sites across the UK					km	400
	Capacity utilisation (incl. empty returns)					%	40%
	Fuel consumption					l/km	0.165
	Bulk density of transported products – for Komfort Defence EI 120 Screens with the weight of 115.41 kg/m <sup>2</sup> assuming the thickness of 0.05 m					kg/m <sup>3</sup>	2308.96
A5 – Installation in the building	The finished fire screens are transported to the commercial building. Professional installers assemble and fit the screens into place. As the product is made bespoke to fit the aperture, no wastage occurs on site except packaging waste.						
Products	E Doors	E screens	EI 30 Doors	EI30 screens	EI 60 Doors	EI 60Screens	EI 120 Doors
Plastic wrap (kg) - landfill	0.79	0.55	1.28	0.91	1.48	1.08	2.22
Foam protection (kg) - Landfill	0.31	0.27	0.31	0.31	0.31	0.31	0.31
Pallets (kg) - recycling	3.27	2.87	3.26	3.26	3.28	3.27	3.29
C1 - Deconstruction	At the end of their lifecycle, the fire screens are disassembled by using the heavy machines. The materials which are used during the product installation like a glazing media and the sealant will be associated with the product during the end of life. Therefore, the product waste is then transported for final disposal or recycling, ensuring compliance with environmental regulations. The energy required to dismantle the doors and screens are not included in the analysis.						
C2 – Transportation to waste processing facility	50km by road has been modelled for module C2 as a typical distance from the demolition site to the disposal unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required.						
	Road transport					km	50
C3 – Pre-processing	Once the waste doors and screens reached the waste processing facility, they will be separated from the other wastages and sent to the recycling. The sorting and separation activity is not included in the pre-processing analysis. The Defence screens and doors are made up of 95% carbon steel and glass, which have significant potential for recycling and reuse in other systems. An industrial average end-of-life data has been used according to BRE 2023 Product Category Rules (PN 514 Rev 3.1). This data indicates that 95% of steel waste will be recycled and 61% of glazing will be recycled.						
Komfort Defence E Doors	Steel waste - 95% recycling					kg	24.52
	Glass waste – 61% recycling					kg	9.49
Komfort Defence E Screens	Steel waste - 95% recycling					kg	12.65
	Glass waste – 61% recycling					kg	12.20
Komfort Defence EI 30 Doors	Steel waste - 95% recycling					kg	41.41
	Glass waste – 61% recycling					kg	14.47

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
Komfort Defence EI 30 Screens	Steel waste - 95% recycling	kg	13.84
	Glass waste – 61% recycling	kg	20.13
Komfort Defence EI 60 Screens	Steel waste - 95% recycling	kg	20.20
	Glass waste – 61% recycling	kg	24.82
Komfort Defence EI 60 Doors	Steel waste - 95% recycling	kg	44.63
	Glass waste – 61% recycling	kg	18.83
Komfort Defence EI 120 Screens	Steel waste - 95% recycling	kg	37.46
	Glass waste – 61% recycling	kg	46.30
C4 – Disposal	Unrecovered waste sent to landfill i.e., 5% of steel waste to landfill and 39% of glass waste sent to landfill, 100% powder coating waste sent to landfill		
Komfort Defence E Doors	Steel waste – 5% landfill	kg	1.29
	Other waste (Glass waste + powder coat waste)	kg	6.19
Komfort Defence E Screens	Steel waste – 5% landfill	kg	0.67
	Other waste (Glass waste + powder coat waste)	kg	7.86
Komfort Defence EI 30 Doors	Steel waste – 5% landfill	kg	2.18
	Other waste (Glass waste + powder coat waste)	kg	9.36
Komfort Defence EI 30 Screens	Steel waste – 5% landfill	kg	0.73
	Other waste (Glass waste + powder coat waste)	kg	12.92
Komfort Defence EI 60 Screens	Steel waste – 5% landfill	kg	1.06
	Other waste (Glass waste + powder coat waste)	kg	15.92
Komfort Defence EI 60 Doors	Steel waste – 5% landfill	kg	2.35
	Other waste (Glass waste + powder coat waste)	kg	12.15
Komfort Defence EI 120 Screens	Steel waste – 5% landfill	kg	1.97
	Other waste (Glass waste + powder coat waste)	kg	29.68

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
Module D	Benefit and load have been calculated for the virgin steel and glass. In calculating the benefits of recycling steel at the end of life, the pre-existing recycled content has been removed, and the benefits have been calculated for only virgin inputs. Steel can be recycled indefinitely without losing its properties, making it a highly sustainable material. Recycled glass can be used as a replacement for virgin glass fibers.		
	According to BRE PCR EN15804 V3.1, Steel recycling percentage = 95% Glass recycling percentage = 61%		
It is assumed as 100% yield during the recycling process.			
Benefit of recycling Komfort Defence E Doors	Steel	kg	15.30
	Glass	kg	9.49
Benefit of recycling Komfort Defence E Screens	Steel	kg	8.56
	Glass	kg	12.20
Benefit of recycling Komfort Defence EI 30 Doors	Steel	kg	25.84
	Glass	kg	14.47
Benefit of recycling Komfort Defence EI 30 Screens	Steel	kg	8.63
	Glass	kg	20.13
Benefit of recycling Komfort Defence EI 60 Doors	Steel	kg	27.85
	Glass	kg	18.83
Benefit of recycling Komfort Defence EI 60 Screens	Steel	kg	12.61
	Glass	kg	24.82
Benefit of recycling Komfort Defence EI 120 Screens	Steel	kg	23.38
	Glass	kg	46.3

### Interpretation of results:

The bulk of the environmental impacts and primary energy demand are attributed to the manufacturing phase of Komfort fire screen and door products, covered by information modules A1-A3 of EN15804:2012+A2:2019. Komfort Defence EI 30 screens have been taken as a representative to interpret the results. The results in the bar chart reflect the environmental impact of different processes involved in the production and lifecycle of Komfort Defence EI 30 screens, with a focus on Global Warming Potential (GWP) in kgCO<sub>2</sub> equivalent. The most significant contributors to GWP are flat glass production (uncoated) and steel production (low-alloyed, hot rolled), indicating that the material composition of these screens heavily influences their carbon footprint. Natural gas usage in industrial furnaces also plays a major role, suggesting that energy-intensive processes in manufacturing contribute significantly to emissions. Transport, electricity consumption, and recycling processes have comparatively lower impacts, with zinc coating coils having the smallest contribution. These findings highlight that reducing emissions in glass and steel production, optimizing energy efficiency, and exploring

alternative materials or energy sources could be key strategies for minimizing the environmental impact of Komfort Defence EI 30 screens.

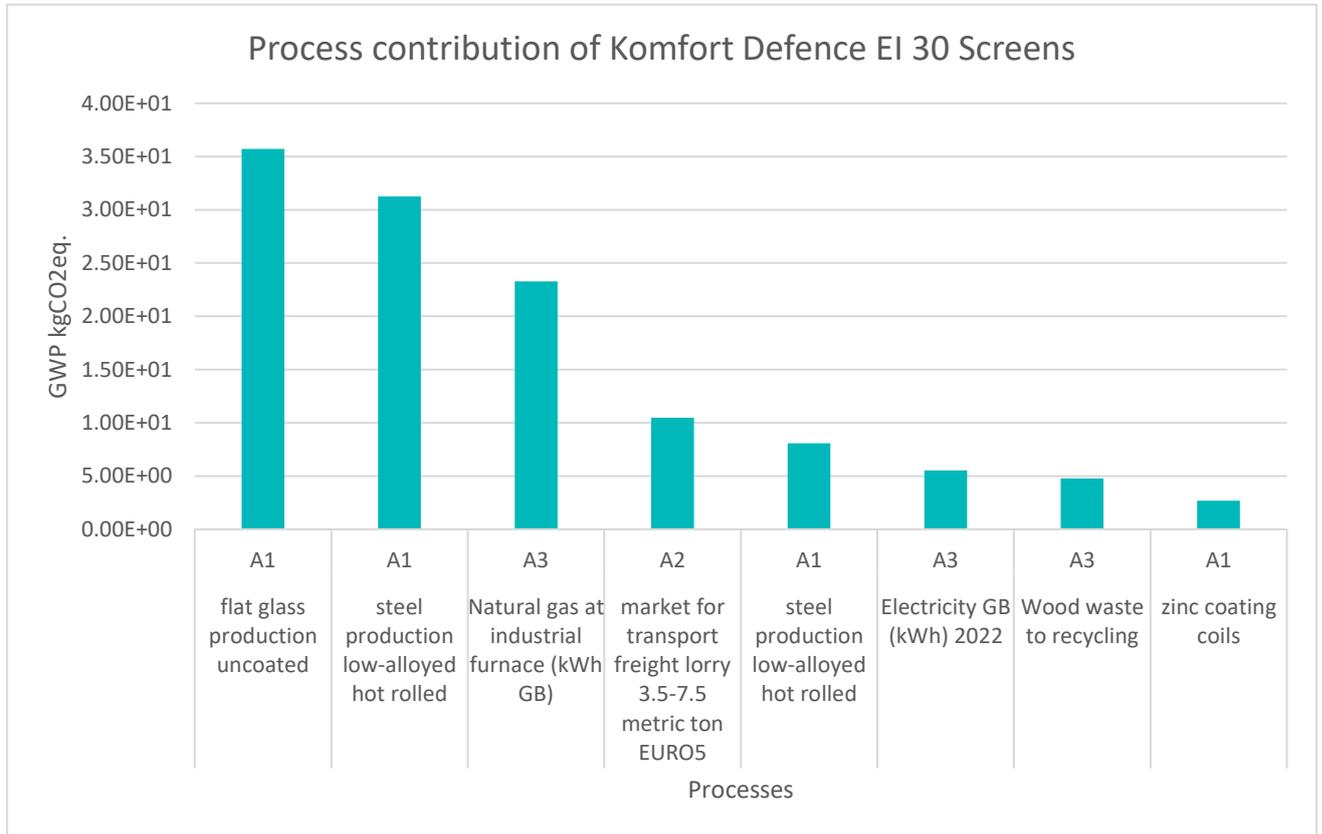


Figure 1 Process Contribution

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