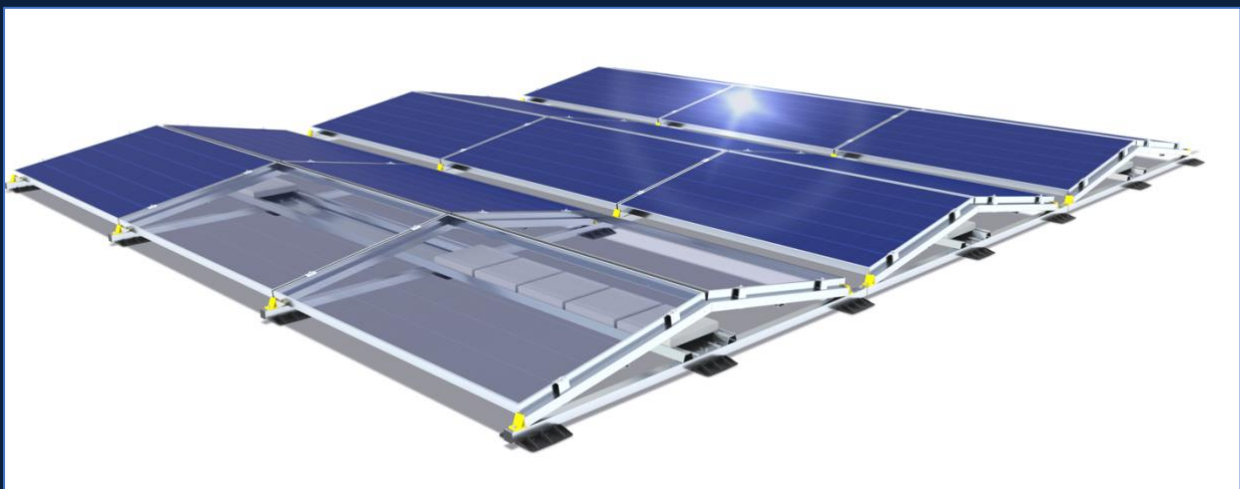


# Environmental Product Declaration

Conform ISO 14025 and EN 15804+A2



*Productverklaring*

Sunbeam Nova montagesysteem voor  
zonnepanelen (plat dak)

*Functionele Eenheid*

1 stuk montage systeem voor het monteren  
van 1 zonnepaneel

*Verklaard door:*

Sunbeam B.V.

*Eigenaar declaratie*

Sunbeam B.V.

*Verificateur:*

Ecochain Technologies B.V.

*LCA-studie door:*

EcoReview B.V.

*Declaratienummer*

2024.037.

*Datum van publicatie*

17/10/2024

*Vervaldatum van publicatie*

17/10/2029

## Algemene Informatie

### Eigenaar van Declaratie

Naam Sunbeam B.V.  
Straat Kryptonweg 8  
Postcode 3812 RZ  
Stad Amersfoort  
Contact Luuk Eeftink



### Declaratie voor

Declaratienummer 2024.037.  
Datum van publicatie 17/10/2024  
Vervaldatum van publicatie 17/10/2029  
Product Sunbeam Nova montagesysteem voor zonnepanelen (plat dak).  
Functionele eenheid 1 stuk montage systeem voor het monteren van 1 zonnepaneel  
Referentielevensduur 20 jaar  
Schaalbaar product Nee  
Productomschrijving Montagesysteem voor het monteren van zonnepanelen op een plat dak.

## Declaratie Informatie

Deze zelfstandig verklaarde EPD is overeenkomstig met ISO 14025:2006 en EN 15804+A2. Dit certificaat is gebaseerd op een LCA-dossier, overeenkomst met ISO14025:2006, ISO14040 en EN15804+A2 en de NMD Bepalingsmethode 1.1. Een EPD van een constructief product is niet vergelijkbaar, wanneer deze niet is opgesteld conform EN15804+A2 en de Bepalingsmethode 1.1. Zeer zorgwekkende stoffen die opgenomen zijn in de 'Candidate List of Substances of Very High Concern for authorization' zijn opgenomen indien toxische inhoud de gestelde limieten voor ECHA-registratie overschrijdt.

Deze LCA-studie is uitgevoerd door: Stijn Mulder, EcoReview B.V.

## Bewijs van Verificatie

Verificateur Extern  
Naam Lex Roes, Ecochain Technologies B.V.  
Verklaring Verificatie van de declaratie en data is onafhankelijk uitgevoerd volgens EN15804+A2 en NMD Bepalingsmethode 1.1.

Handtekening:



## LCA Informatie

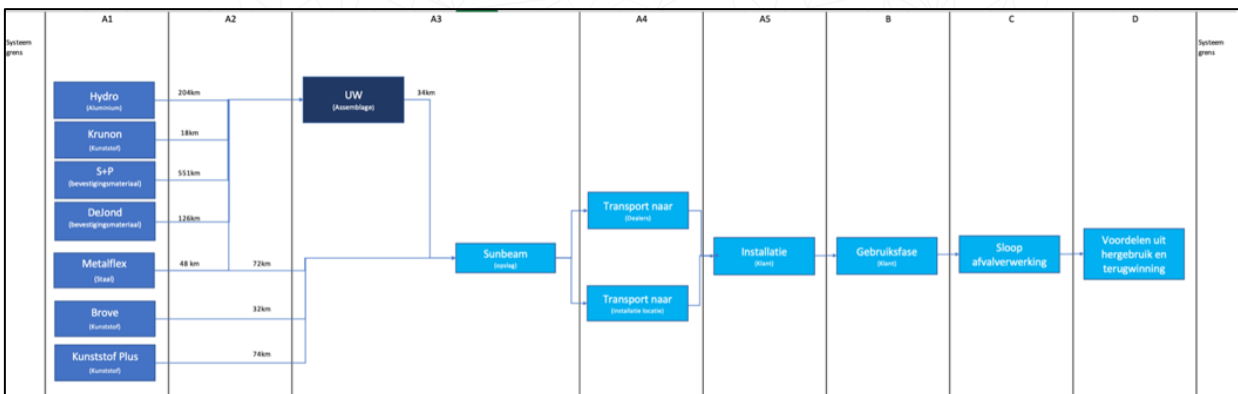
LCA standaard ISO 14040:2006  
Product Category Rules (PCR) EN 15804+A2/NMD Bepalingsmethode 1.1  
Aanvullende PCR Niet van toepassing  
Standaard database EcoInvent 3.6 + NMD 3.8  
LCA-software SimaPro 9.6.0.1  
Jaar van datacollectie 2024

## Scope van Declaratie

Productie Fase	A1	X	Winning van grondstoffen
	A2	X	Transport naar producent
	A3	X	Productieprocessen
Bouwfase	A4	X	Transport naar gebruikslocatie
	A4	X	Installatie op gebruikslocatie
Gebruiksfase	B1	X	Gebruik product
	B2	X	Onderhoud
	B3	X	Reparatie
	B4	X	Vervanging van onderdelen
	B5	X	Renovatie
	B6	X	Energiegebruik product
	B7	X	Watergebruik product
Einde Levensduurfase	C1	X	Sloop
	C2	X	Transport naar afvalverwerking
	C3	X	Afvalverwerkingsprocessen
	C4	X	Stort
Benefits and loads beyond the system boundaries	D	X	Herwinning van grondstoffen

X = Module toegepast  
 MND = Module niet verklaard

## Proces Diagram



## Gedetailleerde Productbeschrijving

### Algemene Productinformatie

Sunbeam verkoopt diverse type montage systemen voor zonnepanelen. De diverse varianten verschillen in toepassing voor platte (Nova) of schuine (Luna) daken en ook in de oriëntatie van de panelen.

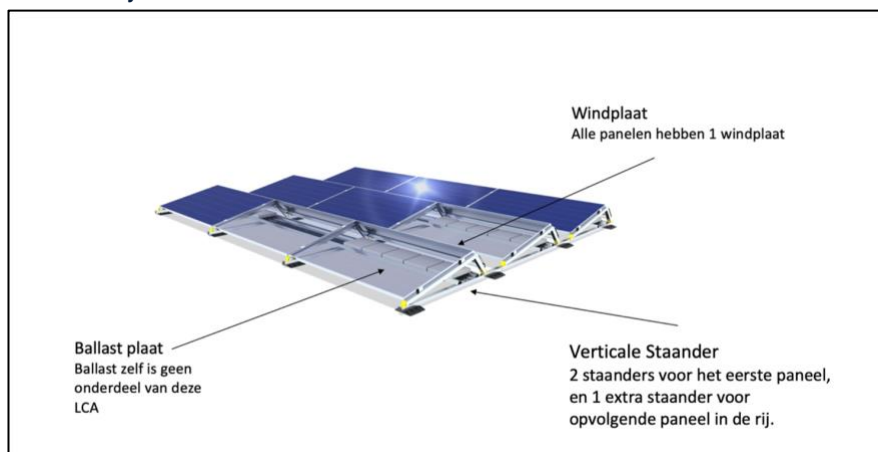
In deze EPD zijn 4 typen opgenomen voor platte daken. Dit zijn de Sunbeam Nova *Universeel* en de Sunbeam Nova *Symmetrisch* geplaatst in residentiële of klein commerciële setting. Er zijn per type systeem twee varianten opgesteld welke zijn weergegeven in onderstaande tabel.

Nova	Universeel 1	Universeel 2	Symmetrisch 1	Symmetrisch 2
Oriëntatie	Zuidelijk	Zuidelijk	Oost-West	Oost-West
Referentie Veld	Residentieel	Klein Commercieel	Residentieel	Klein Commercieel
Aantal panelen	12-134	135+	18-161	162+

Tabel: Verschillende varianten Nova systeem.

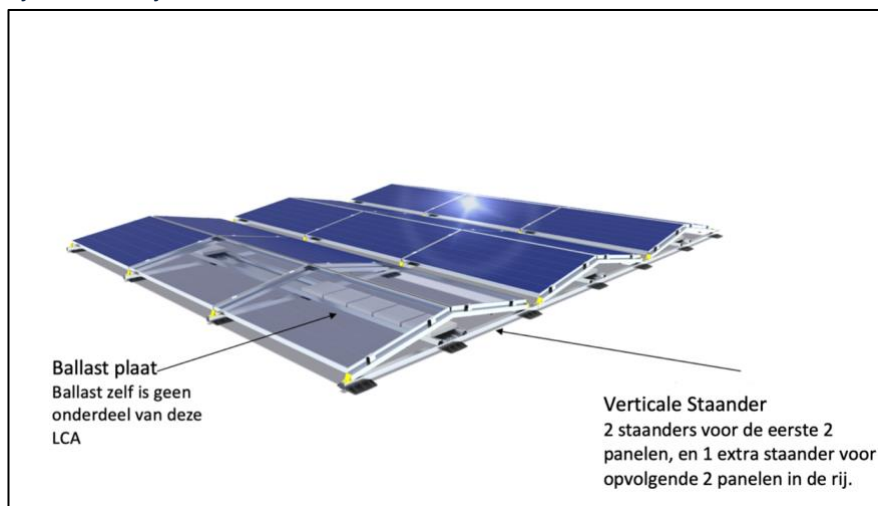
Afhankelijk van het aantal toegepaste panelen (residentieel of klein commercieel) is er een ander milieuprofiel van toepassing. Dit wordt weergegeven in bovenstaande tabel.

### Universeel Systeem



Figuur: Weergave Nova Universeel systeem.

### Symmetrisch Systeem



Figuur: Weergave Nova Symmetrisch Systeem.

## Resultaten Universeel 1 (Residentieel)

Set 1	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 5,12	€ 0,02	€ 1,88	€ 7,02	€ 0,03	€ 0,22	€ -	€ 0,01	€ 0,09	€ 0,03	€ -1,69	€ 5,72
ECI	euro	5,12E+00	1,71E-02	1,88E+00	7,02E+00	3,16E-02	2,16E-01	0,00E+00	1,14E-02	9,12E-02	3,43E-02	-1,69E+00	5,72E+00
Core Impact Indicators													
ADPE	kg Sb eq	3,99E-02	3,63E-06	2,55E-04	4,02E-02	6,70E-06	1,21E-03	0,00E+00	2,42E-06	1,98E-05	7,17E-07	-5,89E-03	3,56E-02
ADPF	kg Sb eq	2,16E-01	1,04E-03	8,49E-02	3,02E-01	1,93E-03	9,22E-03	0,00E+00	6,96E-04	2,75E-03	2,82E-04	-7,16E-02	2,45E-01
GWP	kg CO2 eq	3,18E+01	1,42E-01	1,28E+01	4,47E+01	2,62E-01	1,38E+00	0,00E+00	9,46E-02	4,82E-01	5,70E-01	-1,27E+01	3,48E+01
ODP	kg CFC-11 eq	2,00E-06	2,52E-08	1,15E-06	3,17E-06	4,65E-08	9,90E-08	0,00E+00	1,68E-08	4,91E-08	1,88E-08	-5,09E-07	2,89E-06
POCP	kg C2H4	4,28E-02	8,56E-05	5,58E-03	4,85E-02	1,58E-04	1,47E-03	0,00E+00	5,71E-05	3,35E-04	2,37E-05	-2,62E-02	2,43E-02
AP	kg SO2 eq	2,61E-01	6,24E-04	5,01E-02	3,11E-01	1,15E-03	9,50E-03	0,00E+00	4,16E-04	3,52E-03	2,27E-04	-4,52E-02	2,81E-01
EP	kg PO4 <sup>---</sup> eq	4,56E-02	1,23E-04	7,26E-03	5,30E-02	2,27E-04	1,61E-03	0,00E+00	8,17E-05	4,51E-04	3,84E-05	-5,18E-03	5,02E-02
Toxicity Indicators for Dutch Market													
HTP	kg 1,4-DB eq	2,06E+01	5,97E-02	9,99E+00	3,06E+01	1,10E-01	9,39E-01	0,00E+00	3,98E-02	4,88E-01	4,14E-02	-8,86E+00	2,34E+01
FAETP	kg 1,4-DB eq	3,20E-01	1,74E-03	2,25E-01	5,47E-01	3,22E-03	1,69E-02	0,00E+00	1,16E-03	9,63E-03	3,61E-03	6,83E-02	6,49E-01
MAETP	kg 1,4-DB eq	9,01E+02	6,27E+00	4,52E+02	1,36E+03	1,16E+01	4,25E+01	0,00E+00	4,18E+00	3,61E+01	6,48E+00	-7,21E+01	1,39E+03
TETP	kg 1,4-DB eq	6,29E-02	2,11E-04	7,55E-02	1,39E-01	3,90E-04	4,22E-03	0,00E+00	1,41E-04	1,55E-03	1,02E-04	6,29E-01	7,74E-01

ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; POCP = Formation potential of tropospheric ozone photochemical oxidants; AP = Acidification potential of land and water; EP = Eutrophication potential; HTP = Human toxicity potential; FAETP = Freshwater aquatic ecotoxicity potential; MAETP = Marine aquatic ecotoxicity potential; TETP = Terrestrial ecotoxicity potential; ECI = Environmental Costs Indicator; ADPF = Abiotic depletion potential for fossil resources

Set 2	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 7,91	€ 0,03	€ 2,23	€ 10,17	€ 0,05	€ 0,31	€ 0,02	€ 0,11	€ 0,07	€ -1,94	€ 8,80	€ 10,17
ECI	euro	7,91E+00	2,92E-02	2,23E+00	1,02E+01	5,40E-02	3,13E-01	1,95E-02	1,09E-01	7,17E-02	-1,94E+00	8,80E+00	1,02E+01
GWP-Total	kg CO2 eq	3,32E+01	1,43E-01	1,36E+01	4,69E+01	2,65E-01	1,45E+00	9,55E-02	4,69E-01	5,71E-01	-1,34E+01	3,63E+01	4,69E+01
GWP-f	kg CO2 eq	3,32E+01	1,43E-01	1,23E+01	4,56E+01	2,64E-01	1,41E+00	9,54E-02	4,87E-01	5,70E-01	-1,36E+01	3,48E+01	4,56E+01
GWP-b	kg CO2 eq	-2,32E-02	6,61E-05	1,25E+00	1,23E+00	1,22E-04	3,64E-02	4,41E-05	-1,81E-02	3,71E-04	1,32E-01	1,38E+00	1,23E+00
GWP-luluc	kg CO2 eq	2,13E-02	5,24E-05	1,53E-02	3,66E-02	9,69E-05	1,12E-03	3,50E-05	4,41E-04	4,51E-05	7,48E-03	4,58E-02	3,66E-02
ODP	kg CFC11 eq	2,01E-06	3,16E-08	1,15E-06	3,19E-06	5,84E-08	1,00E-07	2,11E-08	5,69E-08	1,91E-08	-4,54E-07	2,99E-06	3,19E-06
AP	mol H+ eq	4,06E-01	8,30E-04	6,04E-02	4,67E-01	1,53E-03	1,42E-02	5,54E-04	4,38E-03	2,93E-04	-5,52E-02	4,33E-01	4,67E-01
EP-fw	kg P eq	1,52E-03	1,44E-06	7,37E-04	2,26E-03	2,67E-06	6,86E-05	9,63E-07	2,50E-05	1,71E-06	-4,70E-04	1,89E-03	2,26E-03
EP-m	kg N eq	3,89E-02	2,92E-04	1,07E-02	4,99E-02	5,40E-04	1,55E-03	1,95E-04	9,60E-04	8,47E-05	-9,91E-03	4,34E-02	4,99E-02
EP-t	mol N eq	1,45E+00	3,22E-03	1,08E-01	1,57E+00	5,96E-03	4,76E-02	2,15E-03	1,11E-02	9,43E-04	-1,15E-01	1,52E+00	1,57E+00
POCP	kg NMVOC eq	1,57E-01	9,21E-04	2,89E-02	1,86E-01	1,70E-03	5,76E-03	6,14E-04	3,08E-03	2,55E-04	-7,52E-02	1,23E-01	1,86E-01
ADP-mm	kg Sb eq	4,00E-02	3,63E-06	2,55E-04	4,02E-02	6,70E-06	1,21E-03	2,42E-06	1,98E-05	7,17E-07	-5,90E-03	3,56E-02	4,02E-02
ADP-f	MJ	3,53E+02	2,16E+00	1,84E+02	5,39E+02	3,99E+00	1,65E+01	1,44E+00	5,81E+00	5,47E-01	-8,57E+01	4,82E+02	5,39E+02
WDP	m3 depriv.	1,02E+01	7,72E-03	2,10E+00	1,23E+01	1,43E-02	3,72E-01	5,15E-03	6,59E-02	2,88E-02	-2,48E+00	1,03E+01	1,23E+01
PM	disease inc.	4,22E-06	1,29E-08	4,86E-07	4,72E-06	2,38E-08	1,44E-07	8,57E-09	5,61E-08	2,87E-09	-8,12E-07	4,14E-06	4,72E-06
IR	kBq U-235 eq	7,91E-01	9,04E-03	9,92E-01	1,79E+00	1,67E-02	5,53E-02	6,03E-03	2,68E-02	2,43E-03	1,87E-01	2,09E+00	1,79E+00
ETP-fw	CTUe	1,27E+03	1,92E+00	6,83E+02	1,95E+03	3,56E+00	5,97E+01	1,28E+00	2,15E+01	1,40E+01	-4,87E+02	1,56E+03	1,95E+03
HTP-c	CTUh	1,48E-07	6,24E-11	8,42E-09	1,57E-07	1,15E-10	4,73E-09	4,16E-11	5,92E-10	1,11E-10	-5,56E-09	1,57E-07	1,57E-07
HTP-nc	CTUh	1,28E-06	2,10E-09	1,74E-07	1,46E-06	3,89E-09	4,47E-08	1,40E-09	2,49E-08	2,76E-09	2,44E-06	3,97E-06	1,46E-06
SQP	Pt	1,03E+02	1,87E+00	8,41E+01	1,89E+02	3,46E+00	6,12E+00	1,25E+00	9,95E+00	4,98E-01	-2,41E+01	1,86E+02	1,89E+02

GWP-total = Climate change; GWP-f = Climate change - Fossil; GWP-b = Climate change - Biogenic; GWP-luluc = Climate change - Land use and LU change; ODP = Ozone depletion; AP = Acidification; EP-fw = Eutrophication, freshwater; EP-m = Eutrophication, marine; EP-T = Eutrophication, terrestrial; POCP = Photochemical ozone formation; ADP-mm = Resource use, minerals and metals; ADP-f = Resource use, fossils; WDP = Water use; PM = Particulate matter; IR = Ionising radiation; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer; HTP-nc = Human toxicity, non-cancer; SQP = Land use;

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
Resource Use													
PERE	MJ	1,96E+01	0,00E+00	-3,10E-01	1,93E+01	0,00E+00	5,82E-01	4,56E-04	7,48E-02	3,74E-04	-1,74E+01	2,63E+00	1,93E+01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,67E+01	2,70E-02	2,35E+01	6,03E+01	4,99E-02	1,84E+00	1,80E-02	7,88E-01	5,11E-02	-1,45E+01	4,85E+01	6,03E+01
PENRE	MJ	1,59E+01	0,00E+00	-1,72E-01	1,58E+01	0,00E+00	4,96E-01	3,87E-02	7,25E-01	8,63E-03	-1,03E+01	6,69E+00	1,58E+01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,72E+02	2,29E+00	1,96E+02	5,70E+02	4,23E+00	1,75E+01	1,53E+00	6,17E+00	5,81E-01	-8,68E+01	5,13E+02	5,70E+02
PET	MJ	4,09E+02	2,32E+00	2,20E+02	6,30E+02	4,28E+00	1,93E+01	1,55E+00	6,96E+00	6,32E-01	-1,01E+02	5,62E+02	6,30E+02
SM	kg	3,18E+00	0,00E+00	0,00E+00	3,18E+00	0,00E+00	9,55E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,28E+00	3,18E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	4,34E-01	2,63E-04	1,08E-01	5,43E-01	4,86E-04	1,64E-02	1,75E-04	2,85E-03	1,01E-03	-1,90E-01	3,74E-01	5,43E-01
Waste Categories													
HWD	kg	7,30E-03	5,47E-06	2,60E-04	7,57E-03	1,01E-05	2,89E-04	3,65E-06	2,05E-03	9,55E-07	-1,56E-03	8,36E-03	7,57E-03
NHWD	kg	6,41E+00	1,37E-01	1,14E+00	7,69E+00	2,53E-01	2,66E-01	9,13E-02	1,91E-01	6,44E-01	-1,88E+00	7,25E+00	7,69E+00
RWD	kg	7,80E-04	1,42E-05	8,92E-04	1,69E-03	2,62E-05	5,27E-05	9,45E-06	3,18E-05	2,41E-06	3,58E-05	1,84E-03	1,69E-03
Output Flows													
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	1,44E-01	0,00E+00	5,54E-03	1,49E-01	0,00E+00	3,71E-01	0,00E+00	1,22E+01	0,00E+00	2,05E-02	1,27E+01	1,49E-01
MER	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-E	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-T	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total Energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m3]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]

## Resultaten Universeel 2 (Klein Commercieel)

Set 1	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 3,60	€ 0,01	€ 1,21	€ 4,83	€ 0,02	€ 0,15	€ -	€ 0,01	€ 0,06	€ 0,02	€ -1,20	€ 3,89
ECI	euro	3,60E+00	1,22E-02	1,21E+00	4,83E+00	2,20E-02	1,48E-01	0,00E+00	7,94E-03	6,47E-02	2,42E-02	-1,20E+00	3,89E+00
Core Impact Indicators													
ADPE	kg Sb eq	2,77E-02	2,58E-06	1,48E-04	2,78E-02	4,66E-06	8,36E-04	0,00E+00	1,68E-06	1,39E-05	5,06E-07	-4,08E-03	2,46E-02
ADPF	kg Sb eq	1,51E-01	7,42E-04	5,92E-02	2,11E-01	1,34E-03	6,44E-03	0,00E+00	4,84E-04	1,95E-03	1,99E-04	-5,02E-02	1,71E-01
GWP	kg CO2 eq	2,23E+01	1,01E-01	8,74E+00	3,11E+01	1,82E-01	9,63E-01	0,00E+00	6,59E-02	3,47E-01	4,02E-01	-8,96E+00	2,41E+01
ODP	kg CFC-11 eq	1,41E-06	1,79E-08	8,41E-07	2,26E-06	3,24E-08	7,07E-08	0,00E+00	1,17E-08	3,48E-08	1,33E-08	-3,67E-07	2,06E-06
POCP	kg C2H4	2,98E-02	6,09E-05	3,96E-03	3,38E-02	1,10E-04	1,03E-03	0,00E+00	3,98E-05	2,36E-04	1,67E-05	-1,82E-02	1,70E-02
AP	kg SO2 eq	1,82E-01	4,44E-04	3,40E-02	2,16E-01	8,02E-04	6,60E-03	0,00E+00	2,90E-04	2,48E-03	1,60E-04	-3,21E-02	1,94E-01
EP	kg PO4-- eq	3,17E-02	8,72E-05	4,83E-03	3,67E-02	1,58E-04	1,12E-03	0,00E+00	5,69E-05	3,17E-04	2,70E-05	-3,65E-03	3,47E-02
Toxicity Indicators for Dutch Market													
HTP	kg 1,4-DB eq	1,46E+01	4,25E-02	6,02E+00	2,07E+01	7,68E-02	6,35E-01	0,00E+00	2,77E-02	3,44E-01	2,92E-02	-6,32E+00	1,55E+01
FAETP	kg 1,4-DB eq	2,25E-01	1,24E-03	1,38E-01	3,65E-01	2,24E-03	1,13E-02	0,00E+00	8,10E-04	6,93E-03	2,53E-03	4,47E-02	4,33E-01
MAETP	kg 1,4-DB eq	6,49E+02	4,46E+00	2,93E+02	9,46E+02	8,07E+00	2,96E+01	0,00E+00	2,91E+00	2,55E+01	4,57E+00	-7,09E+01	9,46E+02
TETP	kg 1,4-DB eq	4,45E-02	1,50E-04	5,10E-02	9,57E-02	2,72E-04	2,92E-03	0,00E+00	9,81E-05	1,09E-03	7,22E-05	4,35E-01	5,35E-01

ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; POCP = Formation potential of tropospheric ozone photochemical oxidants; AP = Acidification potential of land and water; EP = Eutrophication potential; HTP = Human toxicity potential; FAETP = Freshwater aquatic ecotoxicity potential; MAETP = Marine aquatic ecotoxicity potential; TETP = Terrestrial ecotoxicity potential; ECI = Environmental Costs Indicator; ADPF = Abiotic depletion potential for fossil resources



Set 2	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 5,53	€ 0,02	€ 1,49	€ 7,04	€ 0,04	€ 0,22	€ -	€ 0,01	€ 0,08	€ 0,05	€ -1,37	€ 6,07
ECI	euro	5,53E+00	2,08E-02	1,49E+00	7,04E+00	3,76E-02	2,17E-01	0,00E+00	1,36E-02	7,81E-02	5,07E-02	-1,37E+00	6,07E+00
GWP-Total	kg CO2 eq	2,32E+01	1,02E-01	9,23E+00	3,26E+01	1,84E-01	1,01E+00	0,00E+00	6,65E-02	3,39E-01	4,03E-01	-9,47E+00	2,51E+01
GWP-f	kg CO2 eq	2,32E+01	1,02E-01	8,47E+00	3,18E+01	1,84E-01	9,84E-01	0,00E+00	6,64E-02	3,51E-01	4,02E-01	-9,56E+00	2,42E+01
GWP-b	kg CO2 eq	-1,45E-02	4,70E-05	7,48E-01	7,34E-01	8,49E-05	2,16E-02	0,00E+00	3,07E-05	-1,25E-02	2,59E-04	9,11E-02	8,34E-01
GWP-luluc	kg CO2 eq	1,52E-02	3,73E-05	1,07E-02	2,60E-02	6,74E-05	7,92E-04	0,00E+00	2,43E-05	3,12E-04	3,19E-05	4,86E-03	3,21E-02
ODP	kg CFC11 eq	1,42E-06	2,25E-08	8,42E-07	2,29E-06	4,06E-08	7,19E-08	0,00E+00	1,47E-08	4,04E-08	1,35E-08	-3,37E-07	2,13E-06
AP	mol H+ eq	2,83E-01	5,90E-04	4,09E-02	3,24E-01	1,07E-03	9,87E-03	0,00E+00	3,85E-04	3,09E-03	2,07E-04	-3,91E-02	3,00E-01
EP-fw	kg P eq	1,06E-03	1,03E-06	5,12E-04	1,57E-03	1,86E-06	4,78E-05	0,00E+00	6,70E-07	1,77E-05	1,21E-06	-3,27E-04	1,31E-03
EP-m	kg N eq	2,72E-02	2,08E-04	7,02E-03	3,44E-02	3,76E-04	1,07E-03	0,00E+00	1,36E-04	6,74E-04	5,96E-05	-6,99E-03	2,97E-02
EP-t	mol N eq	1,01E+00	2,29E-03	7,23E-02	1,08E+00	4,15E-03	3,30E-02	0,00E+00	1,50E-03	7,80E-03	6,64E-04	-8,13E-02	1,05E+00
POCP	kg NMVOC eq	1,09E-01	6,55E-04	1,93E-02	1,29E-01	1,18E-03	4,00E-03	0,00E+00	4,27E-04	2,16E-03	1,79E-04	-5,25E-02	8,47E-02
ADP-mm	kg Sb eq	2,77E-02	2,58E-06	1,48E-04	2,79E-02	4,66E-06	8,36E-04	0,00E+00	1,68E-06	1,39E-05	5,06E-07	-4,08E-03	2,46E-02
ADP-f	MJ	2,47E+02	1,54E+00	1,31E+02	3,80E+02	2,78E+00	1,16E+01	0,00E+00	1,00E+00	4,13E+00	3,85E-01	-6,08E+01	3,39E+02
WDP	m3 depriv.	7,09E+00	5,49E-03	1,41E+00	8,51E+00	9,93E-03	2,58E-01	0,00E+00	3,58E-03	4,67E-02	2,03E-02	-1,74E+00	7,11E+00
PM	disease inc.	2,94E-06	9,14E-09	3,01E-07	3,25E-06	1,65E-08	9,94E-08	0,00E+00	5,97E-09	3,95E-08	2,02E-09	-5,73E-07	2,84E-06
IR	kBq U-235 eq	5,58E-01	6,43E-03	7,39E-01	1,30E+00	1,16E-02	4,02E-02	0,00E+00	4,20E-03	1,90E-02	1,71E-03	1,24E-01	1,50E+00
ETP-fw	CTUe	8,85E+02	1,37E+00	4,10E+02	1,30E+03	2,47E+00	3,98E+01	0,00E+00	8,94E-01	1,52E+01	1,06E+01	-3,42E+02	1,02E+03
HTP-c	CTUh	1,04E-07	4,44E-11	5,34E-09	1,09E-07	8,03E-11	3,29E-09	0,00E+00	2,90E-11	4,18E-10	7,81E-11	-4,27E-09	1,09E-07
HTP-nc	CTUh	8,97E-07	1,50E-09	1,15E-07	1,01E-06	2,71E-09	3,11E-08	0,00E+00	9,77E-10	1,75E-08	1,94E-09	1,68E-06	2,75E-06
SQP	Pt	7,26E+01	1,33E+00	5,35E+01	1,27E+02	2,41E+00	4,14E+00	0,00E+00	8,69E-01	6,99E+00	3,47E-01	-1,72E+01	1,25E+02

GWP-total = Climate change; GWP-f = Climate change - Fossil; GWP-b = Climate change - Biogenic; GWP-luluc = Climate change - Land use and LU change; ODP = Ozone depletion; AP = Acidification; EP-fw = Eutrophication, freshwater; EP-m = Eutrophication, marine; EP-T = Eutrophication, terrestrial; POCP = Photochemical ozone formation; ADP-mm = Resource use, minerals and metals; ADP-f = Resource use, fossils; WDP = Water use; PM = Particulate matter; IR = Ionising radiation; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer; HTP-nc = Human toxicity, non-cancer; SQP = Land use;

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
Resource Use													
PERE	MJ	1,64E+01	0,00E+00	-2,59E-01	1,61E+01	0,00E+00	4,85E-01	0,00E+00	3,80E-04	6,23E-02	3,12E-04	-1,45E+01	2,19E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,83E+01	1,92E-02	1,67E+01	4,50E+01	3,47E-02	1,37E+00	0,00E+00	1,25E-02	5,56E-01	3,60E-02	-1,25E+01	3,45E+01
PENRE	MJ	1,33E+01	0,00E+00	-1,43E-01	1,31E+01	0,00E+00	4,13E-01	0,00E+00	3,23E-02	6,04E-01	7,19E-03	-8,61E+00	5,58E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,60E+02	1,63E+00	1,40E+02	4,02E+02	2,95E+00	1,23E+01	0,00E+00	1,06E+00	4,38E+00	4,09E-01	-6,13E+01	3,61E+02
PET	MJ	2,88E+02	1,65E+00	1,56E+02	4,47E+02	2,98E+00	1,37E+01	0,00E+00	1,08E+00	4,94E+00	4,45E-01	-7,38E+01	3,96E+02
SM	kg	2,29E+00	0,00E+00	0,00E+00	2,29E+00	0,00E+00	6,86E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,35E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	3,24E-01	1,87E-04	7,61E-02	4,00E-01	3,38E-04	1,21E-02	0,00E+00	1,22E-04	2,03E-03	7,13E-04	-1,52E-01	2,64E-01
Waste Categories													
HWD	kg	5,06E-03	3,89E-06	1,87E-04	5,26E-03	7,03E-06	2,09E-04	0,00E+00	2,54E-06	1,71E-03	6,72E-07	-1,08E-03	6,10E-03
NHWD	kg	4,56E+00	9,74E-02	7,17E-01	5,38E+00	1,76E-01	1,86E-01	0,00E+00	6,36E-02	1,36E-01	4,47E-01	-1,40E+00	4,99E+00
RWD	kg	5,51E-04	1,01E-05	6,69E-04	1,23E-03	1,82E-05	3,84E-05	0,00E+00	6,58E-06	2,25E-05	1,69E-06	1,78E-05	1,34E-03
Output Flows													
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	1,20E-01	0,00E+00	4,62E-03	1,24E-01	0,00E+00	2,58E-01	0,00E+00	0,00E+00	8,49E+00	0,00E+00	1,44E-02	8,89E+00
MER	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-E	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-T	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total Energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m3]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]

## Resultaten Symmetrisch 1 (Residentieel)

Set 1	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 2,56	€ 0,01	€ 0,82	€ 3,38	€ 0,02	€ 0,10	€ -	€ 0,01	€ 0,05	€ 0,03	€ -0,86	€ 2,73
ECI	euro	2,56E+00	8,77E-03	8,15E-01	3,38E+00	1,54E-02	1,04E-01	0,00E+00	5,68E-03	5,08E-02	2,90E-02	-8,57E-01	2,73E+00
Core Impact Indicators													
ADPE	kg Sb eq	1,88E-02	1,86E-06	9,41E-05	1,89E-02	3,26E-06	5,69E-04	0,00E+00	1,21E-06	1,02E-05	5,95E-07	-2,79E-03	1,67E-02
ADPF	kg Sb eq	1,08E-01	5,35E-04	4,16E-02	1,50E-01	9,38E-04	4,59E-03	0,00E+00	3,47E-04	1,54E-03	2,15E-04	-3,47E-02	1,23E-01
GWP	kg CO2 eq	1,61E+01	7,28E-02	6,07E+00	2,22E+01	1,27E-01	6,95E-01	0,00E+00	4,72E-02	2,85E-01	4,86E-01	-6,29E+00	1,76E+01
ODP	kg CFC-11 eq	9,84E-07	1,29E-08	5,99E-07	1,60E-06	2,26E-08	5,01E-08	0,00E+00	8,37E-09	2,68E-08	1,55E-08	-2,68E-07	1,45E-06
POCP	kg C2H4	2,07E-02	4,39E-05	2,79E-03	2,35E-02	7,69E-05	7,15E-04	0,00E+00	2,85E-05	1,80E-04	1,82E-05	-1,25E-02	1,20E-02
AP	kg SO2 eq	1,27E-01	3,20E-04	2,35E-02	1,51E-01	5,61E-04	4,61E-03	0,00E+00	2,07E-04	1,83E-03	1,80E-04	-2,28E-02	1,35E-01
EP	kg PO4-- eq	2,21E-02	6,29E-05	3,31E-03	2,55E-02	1,10E-04	7,77E-04	0,00E+00	4,07E-05	2,35E-04	3,00E-05	-2,56E-03	2,41E-02
Toxicity Indicators for Dutch Market													
HTP	kg 1,4-DB eq	1,03E+01	3,06E-02	3,90E+00	1,42E+01	5,37E-02	4,39E-01	0,00E+00	1,99E-02	2,72E-01	3,36E-02	-4,54E+00	1,05E+01
FAETP	kg 1,4-DB eq	1,60E-01	8,95E-04	9,06E-02	2,52E-01	1,57E-03	7,85E-03	0,00E+00	5,80E-04	5,39E-03	2,51E-03	2,78E-02	2,97E-01
MAETP	kg 1,4-DB eq	4,73E+02	3,22E+00	1,98E+02	6,75E+02	5,64E+00	2,12E+01	0,00E+00	2,09E+00	1,90E+01	5,39E+00	-7,22E+01	6,56E+02
TETP	kg 1,4-DB eq	3,20E-02	1,08E-04	3,47E-02	6,68E-02	1,90E-04	2,04E-03	0,00E+00	7,02E-05	8,68E-04	8,30E-05	2,97E-01	3,67E-01

**ADPE** = Abiotic depletion potential for non-fossil resources; **ADPF** = Abiotic depletion potential for fossil resources; **GWP** = Global warming potential; **ODP** = Depletion potential of the stratospheric ozone layer; **POCP** = Formation potential of tropospheric ozone photochemical oxidants; **AP** = Acidification potential of land and water; **EP** = Eutrophication potential; **HTP** = Human toxicity potential; **FAETP** = Freshwater aquatic ecotoxicity potential; **MAETP** = Marine aquatic ecotoxicity potential; **TETP** = Terrestrial ecotoxicity potential; **ECI** = Environmental Costs Indicator; **ADPF** = Abiotic depletion potential for fossil resources

Set 2	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 3,92	€ 0,01	€ 1,03	€ 4,96	€ 0,03	€ 0,15	€ -	€ 0,01	€ 0,06	€ 0,06	€ -0,97	€ 4,30
ECI	euro	3,92E+00	1,50E-02	1,03E+00	4,96E+00	2,63E-02	1,54E-01	0,00E+00	9,72E-03	6,13E-02	6,06E-02	-9,70E-01	4,30E+00
GWP-Total	kg CO2 eq	1,68E+01	7,35E-02	6,39E+00	2,33E+01	1,29E-01	7,26E-01	0,00E+00	4,76E-02	2,79E-01	4,87E-01	-6,64E+00	1,83E+01
GWP-f	kg CO2 eq	1,68E+01	7,34E-02	5,91E+00	2,28E+01	1,29E-01	7,12E-01	0,00E+00	4,76E-02	2,88E-01	4,86E-01	-6,71E+00	1,77E+01
GWP-b	kg CO2 eq	-5,69E-03	3,39E-05	4,73E-01	4,67E-01	5,94E-05	1,38E-02	0,00E+00	2,20E-05	-8,74E-03	2,18E-04	6,19E-02	5,35E-01
GWP-luluc	kg CO2 eq	1,10E-02	2,69E-05	7,56E-03	1,86E-02	4,71E-05	5,68E-04	0,00E+00	1,74E-05	2,40E-04	3,80E-05	2,97E-03	2,25E-02
ODP	kg CFC11 eq	1,00E-06	1,62E-08	6,00E-07	1,62E-06	2,84E-08	5,12E-08	0,00E+00	1,05E-08	3,10E-08	1,56E-08	-2,55E-07	1,50E-06
AP	mol H+ eq	1,97E-01	4,26E-04	2,83E-02	2,25E-01	7,46E-04	6,86E-03	0,00E+00	2,76E-04	2,28E-03	2,32E-04	-2,78E-02	2,08E-01
EP-fw	kg P eq	7,33E-04	7,40E-07	3,57E-04	1,09E-03	1,30E-06	3,32E-05	0,00E+00	4,80E-07	1,31E-05	1,44E-06	-2,26E-04	9,15E-04
EP-m	kg N eq	1,93E-02	1,50E-04	4,78E-03	2,43E-02	2,63E-04	7,56E-04	0,00E+00	9,72E-05	4,98E-04	6,56E-05	-4,92E-03	2,10E-02
EP-t	mol N eq	6,96E-01	1,65E-03	4,98E-02	7,47E-01	2,90E-03	2,27E-02	0,00E+00	1,07E-03	5,75E-03	7,30E-04	-5,71E-02	7,23E-01
POCP	kg NMVOC eq	7,71E-02	4,72E-04	1,34E-02	9,10E-02	8,27E-04	2,82E-03	0,00E+00	3,06E-04	1,61E-03	1,96E-04	-3,63E-02	6,04E-02
ADP-mm	kg Sb eq	1,88E-02	1,86E-06	9,40E-05	1,89E-02	3,26E-06	5,69E-04	0,00E+00	1,21E-06	1,02E-05	5,95E-07	-2,80E-03	1,67E-02
ADP-f	MJ	1,79E+02	1,11E+00	9,29E+01	2,73E+02	1,94E+00	8,39E+00	0,00E+00	7,17E-01	3,26E+00	4,10E-01	-4,26E+01	2,46E+02
WDP	m3 depriv.	5,10E+00	3,96E-03	9,87E-01	6,09E+00	6,94E-03	1,85E-01	0,00E+00	2,57E-03	3,92E-02	2,44E-02	-1,21E+00	5,14E+00
PM	disease inc.	2,04E-06	6,59E-09	1,99E-07	2,25E-06	1,15E-08	6,88E-08	0,00E+00	4,27E-09	2,95E-08	2,07E-09	-4,04E-07	1,96E-06
IR	kBq U-235 eq	3,92E-01	4,64E-03	5,29E-01	9,25E-01	8,12E-03	2,86E-02	0,00E+00	3,01E-03	1,44E-02	1,79E-03	7,81E-02	1,06E+00
ETP-fw	CTUe	6,10E+02	9,87E-01	2,65E+02	8,76E+02	1,73E+00	2,70E+01	0,00E+00	6,40E-01	1,11E+01	1,09E+01	-2,39E+02	6,88E+02
HTP-c	CTUh	7,12E-08	3,20E-11	3,56E-09	7,48E-08	5,61E-11	2,26E-09	0,00E+00	2,08E-11	3,29E-10	9,21E-11	-3,40E-09	7,41E-08
HTP-nc	CTUh	6,24E-07	1,08E-09	7,82E-08	7,03E-07	1,89E-09	2,16E-08	0,00E+00	7,00E-10	1,29E-08	2,15E-09	1,14E-06	1,88E-06
SQP	Pt	5,08E+01	9,60E-01	3,61E+01	8,79E+01	1,68E+00	2,87E+00	0,00E+00	6,22E-01	5,15E+00	2,84E-01	-1,24E+01	8,61E+01

GWP-total = Climate change; GWP-f = Climate change - Fossil; GWP-b = Climate change - Biogenic; GWP-luluc = Climate change - Land use and LU change; ODP = Ozone depletion; AP = Acidification; EP-fw = Eutrophication, freshwater; EP-m = Eutrophication, marine; EP-T = Eutrophication, terrestrial; POCP = Photochemical ozone formation; ADP-mm = Resource use, minerals and metals; ADP-f = Resource use, fossils; WDP = Water use; PM = Particulate matter; IR = Ionising radiation; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer; HTP-nc = Human toxicity, non-cancer; SQP = Land use;

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
Resource Use													
PERE	MJ	1,44E+01	0,00E+00	-2,18E-01	1,41E+01	0,00E+00	4,26E-01	0,00E+00	3,34E-04	5,47E-02	2,74E-04	-1,27E+01	1,92E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,25E+01	1,39E-02	1,18E+01	3,43E+01	2,43E-02	1,04E+00	0,00E+00	8,98E-03	4,09E-01	4,05E-02	-1,13E+01	2,45E+01
PENRE	MJ	1,16E+01	0,00E+00	-1,20E-01	1,15E+01	0,00E+00	3,63E-01	0,00E+00	2,83E-02	5,30E-01	6,31E-03	-7,56E+00	4,89E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,89E+02	1,18E+00	9,87E+01	2,89E+02	2,06E+00	8,87E+00	0,00E+00	7,62E-01	3,46E+00	4,36E-01	-4,27E+01	2,62E+02
PET	MJ	2,11E+02	1,19E+00	1,11E+02	3,23E+02	2,08E+00	9,91E+00	0,00E+00	7,71E-01	3,87E+00	4,76E-01	-5,40E+01	2,86E+02
SM	kg	1,40E+00	0,00E+00	0,00E+00	1,40E+00	0,00E+00	4,20E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,44E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	2,53E-01	1,35E-04	5,34E-02	3,06E-01	2,36E-04	9,27E-03	0,00E+00	8,74E-05	1,62E-03	7,97E-04	-1,27E-01	1,91E-01
Waste Categories													
HWD	kg	3,44E-03	2,81E-06	1,38E-04	3,59E-03	4,91E-06	1,53E-04	0,00E+00	1,82E-06	1,50E-03	7,46E-07	-7,41E-04	4,50E-03
NHWD	kg	3,25E+00	7,02E-02	4,78E-01	3,79E+00	1,23E-01	1,32E-01	0,00E+00	4,55E-02	1,13E-01	3,11E-01	-1,06E+00	3,46E+00
RWD	kg	3,88E-04	7,27E-06	4,80E-04	8,75E-04	1,27E-05	2,73E-05	0,00E+00	4,71E-06	1,72E-05	1,68E-06	4,57E-06	9,43E-04
Output Flows													
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	1,05E-01	0,00E+00	3,89E-03	1,09E-01	0,00E+00	1,80E-01	0,00E+00	0,00E+00	5,88E+00	0,00E+00	1,10E-02	6,17E+00
MER	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-E	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-T	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total Energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m3]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]

## Resultaten Symmetrisch 2 (Klein Commercieel)

Set 1	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 1,67	€ 0,01	€ 0,43	€ 2,11	€ 0,01	€ 0,07	€ -	€ 0,00	€ 0,03	€ 0,02	€ -0,57	€ 1,67
ECI	euro	1,67E+00	5,87E-03	4,31E-01	2,11E+00	9,80E-03	6,52E-02	0,00E+00	3,66E-03	3,47E-02	2,15E-02	-5,70E-01	1,67E+00
Core Impact Indicators													
ADPE	kg Sb eq	1,18E-02	1,24E-06	3,35E-05	1,19E-02	2,08E-06	3,56E-04	0,00E+00	7,76E-07	6,75E-06	4,39E-07	-1,75E-03	1,05E-02
ADPF	kg Sb eq	6,97E-02	3,58E-04	2,66E-02	9,67E-02	5,98E-04	2,96E-03	0,00E+00	2,23E-04	1,06E-03	1,56E-04	-2,23E-02	7,94E-02
GWP	kg CO2 eq	1,05E+01	4,87E-02	3,74E+00	1,43E+01	8,13E-02	4,48E-01	0,00E+00	3,04E-02	2,01E-01	3,61E-01	-4,10E+00	1,13E+01
ODP	kg CFC-11 eq	6,41E-07	8,63E-09	4,20E-07	1,07E-06	1,44E-08	3,36E-08	0,00E+00	5,39E-09	1,82E-08	1,14E-08	-1,84E-07	9,69E-07
POCP	kg C2H4	1,31E-02	2,94E-05	1,85E-03	1,50E-02	4,91E-05	4,56E-04	0,00E+00	1,83E-05	1,21E-04	1,32E-05	-7,89E-03	7,78E-03
AP	kg SO2 eq	8,13E-02	2,14E-04	1,42E-02	9,57E-02	3,58E-04	2,93E-03	0,00E+00	1,34E-04	1,21E-03	1,32E-04	-1,51E-02	8,53E-02
EP	kg PO4-- eq	1,41E-02	4,20E-05	1,91E-03	1,60E-02	7,02E-05	4,89E-04	0,00E+00	2,62E-05	1,56E-04	2,19E-05	-1,67E-03	1,51E-02
Toxicity Indicators for Dutch Market													
HTP	kg 1,4-DB eq	6,85E+00	2,05E-02	1,65E+00	8,52E+00	3,42E-02	2,63E-01	0,00E+00	1,28E-02	1,84E-01	2,47E-02	-3,05E+00	5,99E+00
FAETP	kg 1,4-DB eq	1,05E-01	5,98E-04	4,14E-02	1,47E-01	9,99E-04	4,61E-03	0,00E+00	3,73E-04	3,75E-03	1,78E-03	1,47E-02	1,73E-01
MAETP	kg 1,4-DB eq	3,24E+02	2,15E+00	1,07E+02	4,33E+02	3,60E+00	1,36E+01	0,00E+00	1,34E+00	1,27E+01	3,99E+00	-6,76E+01	4,00E+02
TETP	kg 1,4-DB eq	2,12E-02	7,24E-05	2,07E-02	4,19E-02	1,21E-04	1,28E-03	0,00E+00	4,52E-05	5,90E-04	6,11E-05	1,86E-01	2,30E-01

ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; POCP = Formation potential of tropospheric ozone photochemical oxidants; AP = Acidification potential of land and water; EP = Eutrophication potential; HTP = Human toxicity potential; FAETP = Freshwater aquatic ecotoxicity potential; MAETP = Marine aquatic ecotoxicity potential; TETP = Terrestrial ecotoxicity potential; ECI = Environmental Costs Indicator; ADPF = Abiotic depletion potential for fossil resources

Set 2	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
ECI	euro	€ 2,53	€ 0,01	€ 0,61	€ 3,14	€ 0,02	€ 0,10	€ -	€ 0,01	€ 0,04	€ 0,04	€ -0,64	€ 2,71
ECI	euro	2,53E+00	1,00E-02	6,05E-01	3,14E+00	1,68E-02	9,76E-02	0,00E+00	6,26E-03	4,22E-02	4,50E-02	-6,38E-01	2,71E+00
GWP-Total	kg CO2 eq	1,09E+01	4,91E-02	3,89E+00	1,49E+01	8,21E-02	4,67E-01	0,00E+00	3,06E-02	1,97E-01	3,61E-01	-4,32E+00	1,17E+01
GWP-f	kg CO2 eq	1,09E+01	4,91E-02	3,70E+00	1,47E+01	8,20E-02	4,61E-01	0,00E+00	3,06E-02	2,03E-01	3,61E-01	-4,37E+00	1,15E+01
GWP-b	kg CO2 eq	-1,24E-03	2,27E-05	1,89E-01	1,88E-01	3,79E-05	5,47E-03	0,00E+00	1,41E-05	-5,53E-03	1,48E-04	3,83E-02	2,26E-01
GWP-luluc	kg CO2 eq	7,44E-03	1,80E-05	4,91E-03	1,24E-02	3,00E-05	3,78E-04	0,00E+00	1,12E-05	1,62E-04	2,82E-05	1,52E-03	1,45E-02
ODP	kg CFC11 eq	6,62E-07	1,08E-08	4,19E-07	1,09E-06	1,81E-08	3,45E-08	0,00E+00	6,76E-09	2,10E-08	1,15E-08	-1,83E-07	1,00E-06
AP	mol H+ eq	1,25E-01	2,85E-04	1,70E-02	1,43E-01	4,76E-04	4,35E-03	0,00E+00	1,78E-04	1,51E-03	1,70E-04	-1,84E-02	1,31E-01
EP-fw	kg P eq	4,66E-04	4,95E-07	2,27E-04	6,94E-04	8,27E-07	2,11E-05	0,00E+00	3,09E-07	8,74E-06	1,07E-06	-1,43E-04	5,83E-04
EP-m	kg N eq	1,25E-02	1,00E-04	2,65E-03	1,52E-02	1,68E-04	4,75E-04	0,00E+00	6,26E-05	3,29E-04	4,78E-05	-3,21E-03	1,31E-02
EP-t	mol N eq	4,40E-01	1,11E-03	2,90E-02	4,70E-01	1,85E-03	1,43E-02	0,00E+00	6,90E-04	3,80E-03	5,32E-04	-3,73E-02	4,54E-01
POCP	kg NMVOC eq	4,95E-02	3,16E-04	7,86E-03	5,77E-02	5,28E-04	1,79E-03	0,00E+00	1,97E-04	1,07E-03	1,43E-04	-2,32E-02	3,82E-02
ADP-mm	kg Sb eq	1,18E-02	1,24E-06	3,34E-05	1,19E-02	2,08E-06	3,56E-04	0,00E+00	7,76E-07	6,74E-06	4,39E-07	-1,75E-03	1,05E-02
ADP-f	MJ	1,17E+02	7,40E-01	6,20E+01	1,80E+02	1,24E+00	5,52E+00	0,00E+00	4,62E-01	2,23E+00	2,97E-01	-2,79E+01	1,62E+02
WDP	m3 depriv.	3,29E+00	2,65E-03	5,85E-01	3,88E+00	4,42E-03	1,18E-01	0,00E+00	1,65E-03	2,72E-02	1,81E-02	-7,84E-01	3,27E+00
PM	disease inc.	1,30E-06	4,41E-09	9,35E-08	1,40E-06	7,36E-09	4,29E-08	0,00E+00	2,75E-09	1,96E-08	1,48E-09	-2,65E-07	1,21E-06
IR	kBq U-235 eq	2,57E-01	3,10E-03	3,80E-01	6,40E-01	5,18E-03	1,98E-02	0,00E+00	1,94E-03	9,74E-03	1,29E-03	4,27E-02	7,21E-01
ETP-fw	CTUe	3,90E+02	6,60E-01	1,11E+02	5,01E+02	1,10E+00	1,55E+01	0,00E+00	4,12E-01	7,41E+00	8,48E+00	-1,55E+02	3,79E+02
HTP-c	CTUh	4,54E-08	2,14E-11	1,80E-09	4,72E-08	3,58E-11	1,43E-09	0,00E+00	1,34E-11	2,23E-10	6,81E-11	-2,58E-09	4,64E-08
HTP-nc	CTUh	4,01E-07	7,22E-10	4,44E-08	4,47E-07	1,21E-09	1,38E-08	0,00E+00	4,50E-10	8,53E-09	1,57E-09	7,08E-07	1,18E-06
SQP	Pt	3,31E+01	6,42E-01	1,87E+01	5,24E+01	1,07E+00	1,72E+00	0,00E+00	4,01E-01	3,40E+00	1,92E-01	-8,35E+00	5,08E+01

GWP-total = Climate change; GWP-f = Climate change - Fossil; GWP-b = Climate change - Biogenic; GWP-luluc = Climate change - Land use and LU change; ODP = Ozone depletion; AP = Acidification; EP-fw = Eutrophication, freshwater; EP-m = Eutrophication, marine; EP-T = Eutrophication, terrestrial; POCP = Photochemical ozone formation; ADP-mm = Resource use, minerals and metals; ADP-f = Resource use, fossils; WDP = Water use; PM = Particulate matter; IR = Ionising radiation; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer; HTP-nc = Human toxicity, non-cancer; SQP = Land use;

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D	A1-D
Resource Use													
PERE	MJ	1,20E+01	0,00E+00	-1,81E-01	1,18E+01	0,00E+00	3,55E-01	0,00E+00	2,78E-04	4,56E-02	2,28E-04	-1,06E+01	1,60E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,71E+01	9,27E-03	7,86E+00	2,50E+01	1,55E-02	7,59E-01	0,00E+00	5,78E-03	2,72E-01	2,96E-02	-9,71E+00	1,64E+01
PENRE	MJ	9,70E+00	0,00E+00	-1,00E-01	9,60E+00	0,00E+00	3,02E-01	0,00E+00	2,36E-02	4,42E-01	5,26E-03	-6,30E+00	4,08E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,23E+02	7,86E-01	6,59E+01	1,90E+02	1,31E+00	5,82E+00	0,00E+00	4,90E-01	2,37E+00	3,16E-01	-2,78E+01	1,72E+02
PET	MJ	1,40E+02	7,95E-01	7,38E+01	2,15E+02	1,33E+00	6,58E+00	0,00E+00	4,96E-01	2,64E+00	3,45E-01	-3,75E+01	1,89E+02
SM	kg	8,85E-01	0,00E+00	0,00E+00	8,85E-01	0,00E+00	2,66E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,12E-01
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	1,84E-01	9,02E-05	3,48E-02	2,19E-01	1,51E-04	6,63E-03	0,00E+00	5,62E-05	1,12E-03	5,82E-04	-1,02E-01	1,26E-01
Waste Categories													
HWD	kg	2,16E-03	1,88E-06	9,48E-05	2,26E-03	3,13E-06	1,05E-04	0,00E+00	1,17E-06	1,25E-03	5,45E-07	-4,65E-04	3,15E-03
NHWD	kg	2,16E+00	4,70E-02	2,38E-01	2,45E+00	7,84E-02	8,49E-02	0,00E+00	2,93E-02	7,85E-02	1,97E-01	-7,62E-01	2,15E+00
RWD	kg	2,55E-04	4,86E-06	3,48E-04	6,09E-04	8,12E-06	1,90E-05	0,00E+00	3,03E-06	1,16E-05	1,20E-06	-4,43E-06	6,47E-04
Output Flows													
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	8,75E-02	0,00E+00	3,24E-03	9,07E-02	0,00E+00	1,15E-01	0,00E+00	0,00E+00	3,73E+00	0,00E+00	7,52E-03	3,94E+00
MER	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-E	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE-T	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total Energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m3]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]



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