

# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.64



Product: 3053507 - SafeTech RCn Gas Pp 90x8.2 L=12 BC  
 Unit: 1 piece  
 Manufacturer: Wavin - DE - Westeregeln - verified  
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LCA standard: NMD Bepalingsmethode 1.1 (2022)  
 Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
 Externally verified: Yes  
 Issue date: 11-08-2022  
 End of validity: 11-08-2027  
 Verifier: Martijn van Hövell - SGS Search



This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - DE - Westeregeln - verified (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

## Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**ECI** = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO<sub>2</sub>-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO<sub>2</sub>-eq]; **EP** = Eutrophication potential [kg PO<sub>4</sub><sup>3-</sup>-eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **GWP-total** = EF Climate Change [kg CO<sub>2</sub> eq]; **GWP-f** = EF Climate change - Fossil [kg CO<sub>2</sub> eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO<sub>2</sub> eq]; **GWP-luluc** = EF Climate Change - Land use and LU change [kg CO<sub>2</sub> eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m<sup>3</sup> depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **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 [m<sup>3</sup>]; **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]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

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# Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	4.34	0.29	0.11	4.74	0.08	1.83	0.02	-2.55	4.12
ADPE	kg Sb-eq	5.11E-4	5.49E-5	2.10E-5	5.86E-4	1.75E-5	8.22E-5	1.91E-7	-2.18E-4	4.68E-4
ADPF	kg Sb-eq	8.63E-1	1.64E-2	4.78E-3	8.84E-1	4.92E-3	3.20E-2	2.69E-4	-4.92E-1	4.29E-1
GWP	kg CO <sub>2</sub> -eq	4.94E+1	2.25E+0	9.07E-1	5.26E+1	6.71E-1	2.19E+1	3.19E-1	-3.27E+1	4.28E+1
ODP	kg CFC-11-eq	2.43E-6	3.98E-7	8.80E-8	2.91E-6	1.24E-7	4.18E-7	6.44E-9	-1.53E-6	1.93E-6
POCP	kg ethene-eq	4.61E-2	1.46E-3	3.40E-4	4.79E-2	4.02E-4	3.15E-3	6.96E-5	-2.33E-2	2.82E-2
AP	kg SO <sub>2</sub> -eq	1.61E-1	1.31E-2	3.71E-3	1.77E-1	2.89E-3	1.61E-2	1.42E-4	-7.75E-2	1.19E-1
EP	kg PO <sub>4</sub> <sup>3-</sup> -eq	1.54E-2	2.24E-3	4.98E-4	1.81E-2	5.76E-4	2.83E-3	6.86E-5	-7.59E-3	1.40E-2
HTP	kg 1,4-DB-eq	8.83E+0	9.68E-1	4.44E-1	1.02E+1	2.87E-1	6.55E+0	2.31E-2	-4.27E+0	1.28E+1
FAETP	kg 1,4-DB-eq	1.85E-1	2.72E-2	1.13E-2	2.23E-1	8.40E-3	1.53E-1	2.77E-2	-7.63E-2	3.36E-1
MAETP	kg 1,4-DB-eq	5.78E+2	9.95E+1	3.66E+1	7.15E+2	3.00E+1	3.37E+2	2.75E+1	-2.49E+2	8.60E+2
TETP	kg 1,4-DB-eq	3.26E-2	3.37E-3	3.24E-2	6.84E-2	1.02E-3	2.01E-2	3.49E-5	-1.66E-2	7.30E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.16E+1	2.27E+0	9.40E-1	5.48E+1	6.77E-1	2.20E+1	3.74E-1	-3.39E+1	4.40E+1
GWP-f	kg CO2 eq	5.14E+1	2.27E+0	7.84E-1	5.44E+1	6.76E-1	2.20E+1	3.75E-1	-3.38E+1	4.37E+1
GWP-b	kg CO2 eq	2.51E-1	9.50E-4	7.33E-2	3.25E-1	4.11E-4	-2.53E-2	2.81E-4	-1.28E-1	1.72E-1
GWP-luluc	kg CO2 eq	1.56E-2	8.70E-4	8.19E-2	9.84E-2	2.39E-4	3.80E-3	5.38E-6	-7.69E-3	9.48E-2
ODP	kg CFC11 eq	2.66E-6	4.99E-7	1.09E-7	3.27E-6	1.56E-7	4.94E-7	7.99E-9	-1.62E-6	2.31E-6
AP	mol H+ eq	1.92E-1	1.71E-2	4.53E-3	2.14E-1	3.85E-3	2.08E-2	1.91E-4	-9.36E-2	1.45E-1
EP-fw	kg P eq	8.58E-4	2.20E-5	1.75E-5	8.97E-4	5.56E-6	1.10E-4	2.48E-7	-4.21E-4	5.91E-4
EP-m	kg N eq	3.21E-2	5.53E-3	9.85E-4	3.87E-2	1.38E-3	6.05E-3	1.35E-4	-1.71E-2	2.91E-2
EP-T	mol N eq	3.59E-1	6.11E-2	9.79E-3	4.30E-1	1.52E-2	6.65E-2	7.74E-4	-1.90E-1	3.22E-1
POCP	kg NMVOC eq	1.71E-1	1.71E-2	2.82E-3	1.91E-1	4.34E-3	2.10E-2	3.03E-4	-8.87E-2	1.28E-1
ADP-mm	kg Sb eq	5.11E-4	5.49E-5	2.10E-5	5.86E-4	1.75E-5	8.22E-5	1.91E-7	-2.18E-4	4.68E-4
ADP-f	MJ	1.82E+3	3.40E+1	9.37E+0	1.86E+3	1.04E+1	6.59E+1	5.84E-1	-1.01E+3	9.22E+2
WDP	m3 depriv.	3.96E+1	1.17E-1	4.80E+0	4.45E+1	3.18E-2	1.29E+0	2.71E-3	-1.97E+1	2.62E+1
PM	disease inc.	1.80E-6	1.96E-7	4.28E-8	2.04E-6	6.10E-8	3.42E-7	4.01E-9	-7.40E-7	1.70E-6
IR	kBq U-235 eq	1.53E+0	1.42E-1	2.69E-2	1.70E+0	4.54E-2	1.98E-1	2.72E-3	-6.12E-1	1.34E+0
ETP-fw	CTUe	3.33E+2	2.98E+1	2.15E+1	3.84E+2	8.43E+0	7.48E+1	5.14E-1	-1.47E+2	3.21E+2
HTP-c	CTUh	1.37E-8	1.00E-9	7.96E-10	1.55E-8	3.00E-10	8.89E-9	1.42E-11	-7.00E-9	1.77E-8
HTP-nc	CTUh	3.25E-7	3.22E-8	2.01E-8	3.77E-7	1.00E-8	1.12E-7	3.27E-10	-1.57E-7	3.43E-7
SQP	Pt	6.96E+1	2.81E+1	9.72E-1	9.87E+1	8.88E+0	5.26E+1	1.50E+0	-3.22E+1	1.30E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.96E+1	4.14E-1	4.41E+1	7.42E+1	1.49E-1	3.25E+0	2.31E-2	-1.47E+1	6.30E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.96E+1	4.14E-1	4.41E+1	7.42E+1	1.49E-1	3.25E+0	2.31E-2	-1.47E+1	6.30E+1
PENRE	MJ	1.95E+3	3.60E+1	1.00E+1	1.99E+3	1.10E+1	7.02E+1	6.19E-1	-1.09E+3	9.81E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.95E+3	3.60E+1	1.00E+1	1.99E+3	1.10E+1	7.02E+1	6.19E-1	-1.09E+3	9.81E+2
PET	MJ	1.98E+3	3.65E+1	5.42E+1	2.07E+3	1.12E+1	7.34E+1	6.42E-1	-1.11E+3	1.04E+3
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	6.02E-1	4.00E-3	1.14E-1	7.20E-1	1.17E-3	3.81E-2	7.21E-4	-3.01E-1	4.59E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.47E-4	8.30E-5	1.65E-5	3.47E-4	2.65E-5	1.07E-4	7.01E-7	-2.98E-4	1.83E-4
NHWD	kg	1.71E+0	2.04E+0	2.04E-2	3.77E+0	6.43E-1	3.24E+0	2.57E+0	-8.26E-1	9.40E+0
RWD	kg	1.64E-3	2.24E-4	3.94E-5	1.91E-3	7.06E-5	2.51E-4	3.82E-6	-5.68E-4	1.66E-3
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0



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