Environmental Profile

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

Ecochain v3.5.80

Product:	3043161 - X-Stream PP Reducer BK 200x100
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

Wavin X-Stream is a new generation of double-walled pipes and □ttings made of polypropylene. The system is

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
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 - PL -Buk - Extra products (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

GWP-total = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 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 [m3 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 [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]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

Statement of Confidentiality

Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.04E+0	4.68E-2	1.41E-2	2.10E+0	2.85E-2	1.15E+0	1.34E-2	-1.35E+0	1.95E+0
GWP-f	kg CO2 eq	2.32E+0	4.68E-2	1.43E-2	2.39E+0	2.85E-2	8.49E-1	1.34E-2	-1.36E+0	1.92E+0
GWP-b	kg CO2 eq	-2.85E-1	2.84E-5	-1.51E-4	-2.85E-1	1.73E-5	3.05E-1	1.17E-5	1.05E-2	3.11E-2
GWP-luluc	kg CO2 eq	8.86E-4	1.65E-5	1.46E-5	9.17E-4	1.01E-5	1.61E-4	2.28E-7	-4.58E-4	6.31E-4
ODP	kg CFC11 eq	6.28E-8	1.08E-8	8.06E-10	7.44E-8	6.57E-9	2.15E-8	3.37E-10	-6.14E-8	4.13E-8
AP	mol H+ eq	8.38E-3	2.66E-4	1.44E-4	8.79E-3	1.62E-4	9.10E-4	8.03E-6	-4.00E-3	5.87E-3
EP-fw	kg P eq	3.65E-5	3.85E-7	8.04E-7	3.77E-5	2.35E-7	4.67E-6	1.05E-8	-1.74E-5	2.52E-5
EP-m	kg N eq	1.45E-3	9.53E-5	1.51E-5	1.56E-3	5.81E-5	2.69E-4	5.30E-6	-7.30E-4	1.16E-3
EP-T	mol N eq	1.63E-2	1.05E-3	1.81E-4	1.75E-2	6.40E-4	2.96E-3	3.26E-5	-8.24E-3	1.29E-2
POCP	kg NMVOC eq	7.29E-3	3.00E-4	6.12E-5	7.65E-3	1.83E-4	9.30E-4	1.22E-5	-3.59E-3	5.18E-3
ADP-mm	kg Sb eq	3.03E-5	1.21E-6	1.92E-6	3.34E-5	7.37E-7	3.55E-6	8.09E-9	-9.39E-6	2.83E-5
ADP-f	MJ	8.04E+1	7.18E-1	1.32E-1	8.12E+1	4.38E-1	2.82E+0	2.46E-2	-4.22E+1	4.23E+1
WDP	m3 depriv.	1.56E+0	2.20E-3	5.09E-3	1.57E+0	1.34E-3	5.49E-2	1.21E-4	-7.67E-1	8.61E-1
PM	disease inc.	8.41E-8	4.22E-9	8.86E-10	8.92E-8	2.57E-9	1.48E-8	1.69E-10	-3.61E-8	7.07E-8
IR	kBq U-235 eq	4.66E-2	3.14E-3	9.93E-5	4.99E-2	1.91E-3	8.57E-3	1.14E-4	-2.18E-2	3.86E-2
ETP-fw	CTUe	1.61E+1	5.83E-1	1.18E+0	1.78E+1	3.55E-1	3.21E+0	2.08E-2	-7.85E+0	1.36E+1
HTP-c	CTUh	6.77E-10	2.07E-11	6.02E-11	7.58E-10	1.26E-11	3.97E-10	5.99E-13	-2.85E-10	8.84E-10
HTP-nc	CTUh	1.64E-8	6.95E-10	1.53E-9	1.86E-8	4.24E-10	4.78E-9	1.33E-11	-7.37E-9	1.65E-8
SQP	Pt	3.00E+1	6.14E-1	2.19E-1	3.09E+1	3.74E-1	2.25E+0	6.31E-2	-1.50E+1	1.86E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.66E+0	1.03E-2	2.35E+0	9.01E+0	6.28E-3	1.38E-1	9.55E-4	-2.90E+0	6.26E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.66E+0	1.03E-2	2.35E+0	9.01E+0	6.28E-3	1.38E-1	9.55E-4	-2.90E+0	6.26E+0
PENRE	MJ	8.63E+1	7.62E-1	1.41E-1	8.72E+1	4.65E-1	3.01E+0	2.61E-2	-4.55E+1	4.52E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.63E+1	7.62E-1	1.41E-1	8.72E+1	4.65E-1	3.01E+0	2.61E-2	-4.55E+1	4.52E+1
PET	MJ	9.29E+1	7.72E-1	2.49E+0	9.62E+1	4.71E-1	3.15E+0	2.71E-2	-4.84E+1	5.15E+1
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	m3	2.40E-2	8.12E-5	1.42E-4	2.43E-2	4.95E-5	1.64E-3	3.03E-5	-1.17E-2	1.43E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.30E-5	1.84E-6	2.66E-11	1.48E-5	1.12E-6	4.63E-6	2.96E-8	-1.10E-5	9.60E-6
NHWD	kg	1.02E-1	4.45E-2	1.03E-4	1.47E-1	2.71E-2	1.42E-1	1.08E-1	-4.01E-2	3.85E-1
RWD	kg	4.37E-5	4.88E-6	1.07E-11	4.85E-5	2.98E-6	1.09E-5	1.61E-7	-2.00E-5	4.26E-5
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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