Environmental Profile

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

Ecochain v3.5.80

Product:	3024477 - X-Stream PP Reducer BK 600x400
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	3.95E+0	7.59E-1	4.43E-2	4.76E+0	2.52E-1	2.74E+1	1.19E-1	-1.39E+1	1.87E+1
GWP-f	kg CO2 eq	2.37E+1	7.58E-1	4.47E-2	2.45E+1	2.52E-1	7.47E+0	1.19E-1	-1.38E+1	1.86E+1
GWP-b	kg CO2 eq	-1.98E+1	4.61E-4	-4.72E-4	-1.98E+1	1.53E-4	2.00E+1	1.04E-4	-4.13E-2	1.29E-1
GWP-luluc	kg CO2 eq	1.61E-2	2.68E-4	4.57E-5	1.64E-2	8.92E-5	1.47E-3	2.02E-6	-1.04E-2	7.56E-3
ODP	kg CFC11 eq	9.74E-7	1.75E-7	2.53E-9	1.15E-6	5.81E-8	2.07E-7	2.98E-9	-7.52E-7	6.67E-7
AP	mol H+ eq	9.24E-2	4.32E-3	4.51E-4	9.72E-2	1.44E-3	8.80E-3	7.11E-5	-4.88E-2	5.87E-2
EP-fw	kg P eq	4.43E-4	6.24E-6	2.52E-6	4.52E-4	2.07E-6	4.26E-5	9.26E-8	-2.37E-4	2.59E-4
EP-m	kg N eq	1.76E-2	1.55E-3	4.75E-5	1.92E-2	5.14E-4	2.68E-3	4.64E-5	-1.02E-2	1.23E-2
EP-T	mol N eq	2.00E-1	1.70E-2	5.67E-4	2.18E-1	5.66E-3	2.96E-2	2.89E-4	-1.18E-1	1.35E-1
POCP	kg NMVOC eq	8.49E-2	4.87E-3	1.92E-4	8.99E-2	1.62E-3	9.14E-3	1.08E-4	-4.74E-2	5.34E-2
ADP-mm	kg Sb eq	3.39E-4	1.96E-5	6.02E-6	3.65E-4	6.52E-6	3.30E-5	7.16E-8	-1.16E-4	2.88E-4
ADP-f	MJ	7.61E+2	1.16E+1	4.15E-1	7.73E+2	3.87E+0	2.62E+1	2.18E-1	-4.05E+2	3.99E+2
WDP	m3 depriv.	1.45E+1	3.57E-2	1.60E-2	1.46E+1	1.19E-2	4.93E-1	1.09E-3	-7.08E+0	8.03E+0
PM	disease inc.	1.18E-6	6.85E-8	2.78E-9	1.25E-6	2.28E-8	1.40E-7	1.50E-9	-5.91E-7	8.27E-7
IR	kBq U-235 eq	5.61E-1	5.09E-2	3.11E-4	6.12E-1	1.69E-2	8.16E-2	1.01E-3	-2.81E-1	4.31E-1
ETP-fw	CTUe	2.01E+2	9.45E+0	3.70E+0	2.14E+2	3.14E+0	2.93E+1	1.82E-1	-1.25E+2	1.22E+2
HTP-c	CTUh	1.40E-8	3.36E-10	1.89E-10	1.45E-8	1.12E-10	3.87E-9	5.31E-12	-7.93E-9	1.06E-8
HTP-nc	CTUh	2.12E-7	1.13E-8	4.79E-9	2.28E-7	3.75E-9	4.42E-8	1.17E-10	-1.11E-7	1.65E-7
SQP	Pt	1.73E+3	9.96E+0	6.85E-1	1.74E+3	3.31E+0	2.09E+1	5.58E-1	-1.20E+3	5.60E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.82E+2	1.67E-1	7.35E+0	2.90E+2	5.55E-2	1.26E+0	8.43E-3	-1.87E+2	1.04E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.82E+2	1.67E-1	7.35E+0	2.90E+2	5.55E-2	1.26E+0	8.43E-3	-1.87E+2	1.04E+2
PENRE	MJ	8.17E+2	1.24E+1	4.42E-1	8.30E+2	4.11E+0	2.79E+1	2.31E-1	-4.36E+2	4.26E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.17E+2	1.24E+1	4.42E-1	8.30E+2	4.11E+0	2.79E+1	2.31E-1	-4.36E+2	4.26E+2
PET	MJ	1.10E+3	1.25E+1	7.80E+0	1.12E+3	4.16E+0	2.92E+1	2.39E-1	-6.23E+2	5.30E+2
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	2.34E-1	1.32E-3	4.46E-4	2.36E-1	4.38E-4	1.53E-2	2.68E-4	-1.15E-1	1.37E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.42E-4	2.98E-5	8.36E-11	2.72E-4	9.90E-6	4.38E-5	2.62E-7	-1.76E-4	1.50E-4
NHWD	kg	1.75E+0	7.22E-1	3.23E-4	2.47E+0	2.40E-1	1.36E+0	9.59E-1	-9.41E-1	4.09E+0
RWD	kg	5.69E-4	7.92E-5	3.35E-11	6.48E-4	2.63E-5	1.04E-4	1.42E-6	-2.83E-4	4.97E-4
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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