Environmental Profile

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

Ecochain v3.5.80

Product:	3028276 - X-Stream PP Reducer BK 500x200
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	7.03E+0	4.35E-1	4.80E-2	7.51E+0	2.15E-1	1.87E+1	1.01E-1	-1.14E+1	1.51E+1
GWP-f	kg CO2 eq	1.92E+1	4.35E-1	4.84E-2	1.97E+1	2.15E-1	6.36E+0	1.01E-1	-1.14E+1	1.50E+1
GWP-b	kg CO2 eq	-1.22E+1	2.64E-4	-5.11E-4	-1.22E+1	1.30E-4	1.23E+1	8.82E-5	-3.50E-2	9.31E-2
GWP-luluc	kg CO2 eq	1.10E-2	1.54E-4	4.95E-5	1.12E-2	7.59E-5	1.24E-3	1.71E-6	-7.22E-3	5.30E-3
ODP	kg CFC11 eq	6.72E-7	1.00E-7	2.74E-9	7.75E-7	4.94E-8	1.71E-7	2.54E-9	-5.70E-7	4.28E-7
AP	mol H+ eq	7.24E-2	2.48E-3	4.89E-4	7.54E-2	1.22E-3	7.20E-3	6.04E-5	-3.81E-2	4.57E-2
EP-fw	kg P eq	3.37E-4	3.58E-6	2.73E-6	3.43E-4	1.77E-6	3.58E-5	7.85E-8	-1.80E-4	2.01E-4
EP-m	kg N eq	1.34E-2	8.87E-4	5.14E-5	1.44E-2	4.37E-4	2.16E-3	3.95E-5	-7.73E-3	9.29E-3
EP-T	mol N eq	1.51E-1	9.77E-3	6.14E-4	1.62E-1	4.82E-3	2.38E-2	2.46E-4	-8.85E-2	1.02E-1
POCP	kg NMVOC eq	6.64E-2	2.79E-3	2.08E-4	6.94E-2	1.38E-3	7.42E-3	9.22E-5	-3.67E-2	4.15E-2
ADP-mm	kg Sb eq	2.38E-4	1.13E-5	6.52E-6	2.56E-4	5.55E-6	2.76E-5	6.08E-8	-9.13E-5	1.98E-4
ADP-f	MJ	6.34E+2	6.68E+0	4.49E-1	6.41E+2	3.29E+0	2.19E+1	1.85E-1	-3.38E+2	3.28E+2
WDP	m3 depriv.	1.21E+1	2.05E-2	1.73E-2	1.22E+1	1.01E-2	4.17E-1	8.86E-4	-5.87E+0	6.73E+0
PM	disease inc.	8.39E-7	3.93E-8	3.01E-9	8.81E-7	1.94E-8	1.16E-7	1.27E-9	-4.37E-7	5.80E-7
IR	kBq U-235 eq	4.23E-1	2.92E-2	3.37E-4	4.53E-1	1.44E-2	6.77E-2	8.59E-4	-2.17E-1	3.18E-1
ETP-fw	CTUe	1.44E+2	5.42E+0	4.00E+0	1.54E+2	2.67E+0	2.46E+1	1.55E-1	-8.74E+1	9.38E+1
HTP-c	CTUh	9.54E-9	1.93E-10	2.04E-10	9.94E-9	9.52E-11	3.11E-9	4.49E-12	-5.59E-9	7.57E-9
HTP-nc	CTUh	1.57E-7	6.46E-9	5.19E-9	1.69E-7	3.19E-9	3.68E-8	9.95E-11	-8.24E-8	1.26E-7
SQP	Pt	1.06E+3	5.71E+0	7.42E-1	1.07E+3	2.82E+0	1.75E+1	4.75E-1	-7.85E+2	3.07E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.77E+2	9.58E-2	7.96E+0	1.85E+2	4.73E-2	1.06E+0	7.19E-3	-1.22E+2	6.37E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.77E+2	9.58E-2	7.96E+0	1.85E+2	4.73E-2	1.06E+0	7.19E-3	-1.22E+2	6.37E+1
PENRE	MJ	6.80E+2	7.09E+0	4.78E-1	6.88E+2	3.50E+0	2.34E+1	1.96E-1	-3.64E+2	3.50E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.80E+2	7.09E+0	4.78E-1	6.88E+2	3.50E+0	2.34E+1	1.96E-1	-3.64E+2	3.50E+2
PET	MJ	8.57E+2	7.18E+0	8.44E+0	8.72E+2	3.54E+0	2.44E+1	2.04E-1	-4.86E+2	4.14E+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	1.91E-1	7.56E-4	4.83E-4	1.92E-1	3.73E-4	1.27E-2	2.28E-4	-9.39E-2	1.12E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.63E-4	1.71E-5	9.05E-11	1.80E-4	8.42E-6	3.64E-5	2.23E-7	-1.32E-4	9.29E-5
NHWD	kg	1.20E+0	4.14E-1	3.49E-4	1.62E+0	2.04E-1	1.11E+0	8.16E-1	-6.71E-1	3.08E+0
RWD	kg	4.17E-4	4.54E-5	3.63E-11	4.62E-4	2.24E-5	8.64E-5	1.21E-6	-2.15E-4	3.57E-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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