Environmental Profile

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

Ecochain v3.5.80

Product:	3028277 - X-Stream PP Reducer BK 600x300
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	3.96E+0	7.19E-1	4.80E-2	4.73E+0	2.32E-1	2.51E+1	1.09E-1	-1.27E+1	1.75E+1
GWP-f	kg CO2 eq	2.20E+1	7.19E-1	4.84E-2	2.28E+1	2.32E-1	6.87E+0	1.09E-1	-1.27E+1	1.74E+1
GWP-b	kg CO2 eq	-1.81E+1	4.36E-4	-5.11E-4	-1.81E+1	1.41E-4	1.82E+1	9.53E-5	-3.80E-2	1.22E-1
GWP-luluc	kg CO2 eq	1.49E-2	2.54E-4	4.95E-5	1.52E-2	8.21E-5	1.35E-3	1.85E-6	-9.41E-3	7.27E-3
ODP	kg CFC11 eq	9.04E-7	1.66E-7	2.74E-9	1.07E-6	5.35E-8	1.90E-7	2.74E-9	-6.78E-7	6.41E-7
AP	mol H+ eq	8.65E-2	4.09E-3	4.89E-4	9.11E-2	1.32E-3	8.11E-3	6.54E-5	-4.46E-2	5.60E-2
EP-fw	kg P eq	4.15E-4	5.91E-6	2.73E-6	4.23E-4	1.91E-6	3.92E-5	8.51E-8	-2.16E-4	2.49E-4
EP-m	kg N eq	1.64E-2	1.46E-3	5.14E-5	1.80E-2	4.73E-4	2.47E-3	4.27E-5	-9.30E-3	1.16E-2
EP-T	mol N eq	1.89E-1	1.61E-2	6.14E-4	2.06E-1	5.21E-3	2.73E-2	2.66E-4	-1.08E-1	1.30E-1
POCP	kg NMVOC eq	7.88E-2	4.61E-3	2.08E-4	8.36E-2	1.49E-3	8.43E-3	9.97E-5	-4.33E-2	5.04E-2
ADP-mm	kg Sb eq	4.08E-4	1.86E-5	6.52E-6	4.33E-4	6.00E-6	3.04E-5	6.59E-8	-1.06E-4	3.63E-4
ADP-f	MJ	7.03E+2	1.10E+1	4.49E-1	7.15E+2	3.56E+0	2.41E+1	2.00E-1	-3.72E+2	3.71E+2
WDP	m3 depriv.	1.34E+1	3.39E-2	1.73E-2	1.35E+1	1.09E-2	4.54E-1	9.84E-4	-6.48E+0	7.48E+0
PM	disease inc.	1.11E-6	6.49E-8	3.01E-9	1.18E-6	2.10E-8	1.29E-7	1.38E-9	-5.38E-7	7.93E-7
IR	kBq U-235 eq	5.21E-1	4.82E-2	3.37E-4	5.69E-1	1.56E-2	7.50E-2	9.29E-4	-2.56E-1	4.05E-1
ETP-fw	CTUe	1.91E+2	8.96E+0	4.00E+0	2.04E+2	2.89E+0	2.70E+1	1.68E-1	-1.14E+2	1.19E+2
HTP-c	CTUh	1.34E-8	3.19E-10	2.04E-10	1.39E-8	1.03E-10	3.57E-9	4.87E-12	-7.15E-9	1.04E-8
HTP-nc	CTUh	2.04E-7	1.07E-8	5.19E-9	2.20E-7	3.45E-9	4.07E-8	1.08E-10	-1.01E-7	1.62E-7
SQP	Pt	1.59E+3	9.44E+0	7.42E-1	1.60E+3	3.05E+0	1.92E+1	5.14E-1	-1.08E+3	5.39E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.62E+2	1.58E-1	7.96E+0	2.70E+2	5.11E-2	1.16E+0	7.77E-3	-1.69E+2	1.02E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.62E+2	1.58E-1	7.96E+0	2.70E+2	5.11E-2	1.16E+0	7.77E-3	-1.69E+2	1.02E+2
PENRE	MJ	7.55E+2	1.17E+1	4.78E-1	7.67E+2	3.78E+0	2.57E+1	2.12E-1	-4.00E+2	3.96E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.55E+2	1.17E+1	4.78E-1	7.67E+2	3.78E+0	2.57E+1	2.12E-1	-4.00E+2	3.96E+2
PET	MJ	1.02E+3	1.19E+1	8.44E+0	1.04E+3	3.83E+0	2.69E+1	2.20E-1	-5.69E+2	4.98E+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	2.17E-1	1.25E-3	4.83E-4	2.19E-1	4.03E-4	1.41E-2	2.47E-4	-1.05E-1	1.29E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.40E-4	2.82E-5	9.05E-11	2.68E-4	9.11E-6	4.03E-5	2.41E-7	-1.59E-4	1.58E-4
NHWD	kg	1.76E+0	6.84E-1	3.49E-4	2.44E+0	2.21E-1	1.26E+0	8.83E-1	-8.50E-1	3.95E+0
RWD	kg	5.28E-4	7.50E-5	3.63E-11	6.03E-4	2.42E-5	9.61E-5	1.31E-6	-2.57E-4	4.67E-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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