Environmental Profile

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

Ecochain v3.5.80

Product:	3043166 - X-Stream PP Reducer BK 250x100
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	1.78E+0	6.86E-2	4.54E-3	1.86E+0	2.51E-2	1.22E+0	1.18E-2	-1.20E+0	1.91E+0
GWP-f	kg CO2 eq	2.21E+0	6.86E-2	4.59E-3	2.28E+0	2.51E-2	7.70E-1	1.18E-2	-1.21E+0	1.87E+0
GWP-b	kg CO2 eq	-4.24E-1	4.16E-5	-4.84E-5	-4.24E-1	1.52E-5	4.49E-1	1.03E-5	1.11E-2	3.58E-2
GWP-luluc	kg CO2 eq	9.60E-4	2.43E-5	4.69E-6	9.88E-4	8.88E-6	1.43E-4	2.01E-7	-4.49E-4	6.91E-4
ODP	kg CFC11 eq	7.59E-8	1.58E-8	2.59E-10	9.19E-8	5.78E-9	1.92E-8	2.97E-10	-5.79E-8	5.93E-8
AP	mol H+ eq	8.11E-3	3.91E-4	4.63E-5	8.55E-3	1.43E-4	8.22E-4	7.07E-6	-3.63E-3	5.89E-3
EP-fw	kg P eq	3.63E-5	5.64E-7	2.58E-7	3.71E-5	2.06E-7	4.14E-6	9.22E-9	-1.60E-5	2.55E-5
EP-m	kg N eq	1.43E-3	1.40E-4	4.87E-6	1.57E-3	5.11E-5	2.46E-4	4.66E-6	-6.74E-4	1.20E-3
EP-T	mol N eq	1.64E-2	1.54E-3	5.82E-5	1.80E-2	5.63E-4	2.71E-3	2.87E-5	-7.71E-3	1.36E-2
POCP	kg NMVOC eq	6.96E-3	4.40E-4	1.97E-5	7.42E-3	1.61E-4	8.47E-4	1.08E-5	-3.26E-3	5.18E-3
ADP-mm	kg Sb eq	4.13E-5	1.77E-6	6.17E-7	4.37E-5	6.49E-7	3.15E-6	7.13E-9	-8.40E-6	3.91E-5
ADP-f	MJ	7.32E+1	1.05E+0	4.26E-2	7.43E+1	3.85E-1	2.51E+0	2.16E-2	-3.74E+1	3.98E+1
WDP	m3 depriv.	1.42E+0	3.23E-3	1.64E-3	1.42E+0	1.18E-3	4.86E-2	1.09E-4	-6.83E-1	7.91E-1
PM	disease inc.	8.84E-8	6.19E-9	2.85E-10	9.49E-8	2.26E-9	1.33E-8	1.49E-10	-3.35E-8	7.71E-8
IR	kBq U-235 eq	4.69E-2	4.60E-3	3.19E-5	5.15E-2	1.68E-3	7.63E-3	1.00E-4	-1.98E-2	4.11E-2
ETP-fw	CTUe	1.74E+1	8.55E-1	3.79E-1	1.86E+1	3.13E-1	2.86E+0	1.83E-2	-7.85E+0	1.39E+1
HTP-c	CTUh	7.94E-10	3.04E-11	1.94E-11	8.43E-10	1.11E-11	3.65E-10	5.29E-13	-2.68E-10	9.52E-10
HTP-nc	CTUh	1.74E-8	1.02E-9	4.91E-10	1.89E-8	3.73E-10	4.29E-9	1.17E-11	-6.90E-9	1.66E-8
SQP	Pt	4.38E+1	9.00E-1	7.03E-2	4.47E+1	3.29E-1	2.00E+0	5.56E-2	-1.76E+1	2.95E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.35E+0	1.51E-2	7.54E-1	1.01E+1	5.52E-3	1.23E-1	8.40E-4	-3.40E+0	6.85E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.35E+0	1.51E-2	7.54E-1	1.01E+1	5.52E-3	1.23E-1	8.40E-4	-3.40E+0	6.85E+0
PENRE	MJ	7.86E+1	1.12E+0	4.53E-2	7.98E+1	4.09E-1	2.67E+0	2.30E-2	-4.03E+1	4.26E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.86E+1	1.12E+0	4.53E-2	7.98E+1	4.09E-1	2.67E+0	2.30E-2	-4.03E+1	4.26E+1
PET	MJ	8.80E+1	1.13E+0	8.00E-1	8.99E+1	4.14E-1	2.79E+0	2.38E-2	-4.37E+1	4.94E+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	2.24E-2	1.19E-4	4.58E-5	2.25E-2	4.36E-5	1.47E-3	2.67E-5	-1.05E-2	1.36E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.69E-5	2.69E-6	8.57E-12	1.96E-5	9.85E-7	4.14E-6	2.61E-8	-1.02E-5	1.46E-5
NHWD	kg	1.27E-1	6.52E-2	3.31E-5	1.92E-1	2.39E-2	1.30E-1	9.54E-2	-3.76E-2	4.03E-1
RWD	kg	4.58E-5	7.16E-6	3.44E-12	5.29E-5	2.62E-6	9.72E-6	1.41E-7	-1.82E-5	4.72E-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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