Environmental Profile

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

Ecochain v3.5.80

Product:	3024130 - X-Stream PP Reducer BK 600x250
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	1.21E+1	6.92E-1	2.56E-2	1.28E+1	3.36E-1	2.82E+1	1.58E-1	-1.75E+1	2.39E+1
GWP-f	kg CO2 eq	3.01E+1	6.91E-1	2.59E-2	3.08E+1	3.35E-1	9.92E+0	1.58E-1	-1.75E+1	2.38E+1
GWP-b	kg CO2 eq	-1.80E+1	4.20E-4	-2.73E-4	-1.80E+1	2.04E-4	1.82E+1	1.38E-4	-5.47E-2	1.53E-1
GWP-luluc	kg CO2 eq	1.69E-2	2.45E-4	2.64E-5	1.72E-2	1.19E-4	1.93E-3	2.67E-6	-1.03E-2	8.92E-3
ODP	kg CFC11 eq	1.06E-6	1.59E-7	1.46E-9	1.22E-6	7.73E-8	2.66E-7	3.96E-9	-8.55E-7	7.11E-7
AP	mol H+ eq	1.14E-1	3.94E-3	2.61E-4	1.18E-1	1.91E-3	1.13E-2	9.44E-5	-5.81E-2	7.36E-2
EP-fw	kg P eq	5.28E-4	5.69E-6	1.46E-6	5.35E-4	2.76E-6	5.59E-5	1.23E-7	-2.68E-4	3.26E-4
EP-m	kg N eq	2.11E-2	1.41E-3	2.75E-5	2.25E-2	6.84E-4	3.39E-3	6.18E-5	-1.17E-2	1.50E-2
EP-T	mol N eq	2.41E-1	1.55E-2	3.28E-4	2.57E-1	7.53E-3	3.75E-2	3.84E-4	-1.34E-1	1.68E-1
POCP	kg NMVOC eq	1.03E-1	4.44E-3	1.11E-4	1.08E-1	2.15E-3	1.16E-2	1.44E-4	-5.55E-2	6.64E-2
ADP-mm	kg Sb eq	5.04E-4	1.79E-5	3.48E-6	5.26E-4	8.68E-6	4.30E-5	9.50E-8	-1.38E-4	4.40E-4
ADP-f	MJ	9.90E+2	1.06E+1	2.40E-1	1.00E+3	5.15E+0	3.42E+1	2.89E-1	-5.24E+2	5.17E+2
WDP	m3 depriv.	1.90E+1	3.26E-2	9.23E-3	1.90E+1	1.58E-2	6.52E-1	1.38E-3	-9.10E+0	1.06E+1
PM	disease inc.	1.36E-6	6.24E-8	1.61E-9	1.42E-6	3.03E-8	1.81E-7	1.99E-9	-6.51E-7	9.82E-7
IR	kBq U-235 eq	6.66E-1	4.64E-2	1.80E-4	7.12E-1	2.25E-2	1.05E-1	1.34E-3	-3.26E-1	5.16E-1
ETP-fw	CTUe	2.29E+2	8.61E+0	2.14E+0	2.39E+2	4.18E+0	3.83E+1	2.42E-1	-1.33E+2	1.49E+2
HTP-c	CTUh	1.50E-8	3.07E-10	1.09E-10	1.55E-8	1.49E-10	4.92E-9	7.01E-12	-7.95E-9	1.26E-8
HTP-nc	CTUh	2.50E-7	1.03E-8	2.77E-9	2.63E-7	4.98E-9	5.76E-8	1.56E-10	-1.24E-7	2.02E-7
SQP	Pt	1.60E+3	9.08E+0	3.96E-1	1.61E+3	4.40E+0	2.73E+1	7.43E-1	-1.08E+3	5.53E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.61E+2	1.52E-1	4.25E+0	2.66E+2	7.39E-2	1.66E+0	1.12E-2	-1.71E+2	9.67E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.61E+2	1.52E-1	4.25E+0	2.66E+2	7.39E-2	1.66E+0	1.12E-2	-1.71E+2	9.67E+1
PENRE	MJ	1.06E+3	1.13E+1	2.56E-1	1.07E+3	5.47E+0	3.64E+1	3.07E-1	-5.64E+2	5.52E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.06E+3	1.13E+1	2.56E-1	1.07E+3	5.47E+0	3.64E+1	3.07E-1	-5.64E+2	5.52E+2
PET	MJ	1.32E+3	1.14E+1	4.51E+0	1.34E+3	5.54E+0	3.81E+1	3.18E-1	-7.35E+2	6.49E+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	3.00E-1	1.20E-3	2.58E-4	3.01E-1	5.83E-4	1.99E-2	3.57E-4	-1.44E-1	1.78E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.76E-4	2.71E-5	4.83E-11	3.03E-4	1.32E-5	5.67E-5	3.48E-7	-1.95E-4	1.78E-4
NHWD	kg	2.06E+0	6.57E-1	1.87E-4	2.72E+0	3.19E-1	1.75E+0	1.28E+0	-9.66E-1	5.10E+0
RWD	kg	6.55E-4	7.21E-5	1.94E-11	7.27E-4	3.50E-5	1.35E-4	1.89E-6	-3.20E-4	5.79E-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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