Environmental Profile

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

Ecochain v3.5.80

Product:	3023181 - X-Stream PP Reducer BK 500x300
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	6.89E+0	4.79E-1	3.33E-2	7.40E+0	2.12E-1	1.86E+1	9.99E-2	-1.13E+1	1.50E+1
GWP-f	kg CO2 eq	1.91E+1	4.79E-1	3.36E-2	1.96E+1	2.12E-1	6.25E+0	9.99E-2	-1.12E+1	1.49E+1
GWP-b	kg CO2 eq	-1.22E+1	2.91E-4	-3.55E-4	-1.22E+1	1.29E-4	1.23E+1	8.71E-5	-3.46E-2	9.74E-2
GWP-luluc	kg CO2 eq	1.10E-2	1.69E-4	3.43E-5	1.12E-2	7.50E-5	1.22E-3	1.69E-6	-7.20E-3	5.28E-3
ODP	kg CFC11 eq	6.89E-7	1.10E-7	1.90E-9	8.02E-7	4.88E-8	1.69E-7	2.50E-9	-5.69E-7	4.53E-7
AP	mol H+ eq	7.22E-2	2.73E-3	3.39E-4	7.53E-2	1.21E-3	7.11E-3	5.97E-5	-3.78E-2	4.58E-2
EP-fw	kg P eq	3.35E-4	3.94E-6	1.89E-6	3.41E-4	1.74E-6	3.54E-5	7.76E-8	-1.79E-4	1.99E-4
EP-m	kg N eq	1.34E-2	9.75E-4	3.57E-5	1.44E-2	4.32E-4	2.13E-3	3.90E-5	-7.66E-3	9.33E-3
EP-T	mol N eq	1.51E-1	1.07E-2	4.26E-4	1.62E-1	4.76E-3	2.35E-2	2.42E-4	-8.77E-2	1.03E-1
POCP	kg NMVOC eq	6.59E-2	3.07E-3	1.44E-4	6.91E-2	1.36E-3	7.33E-3	9.10E-5	-3.64E-2	4.14E-2
ADP-mm	kg Sb eq	2.46E-4	1.24E-5	4.52E-6	2.63E-4	5.48E-6	2.72E-5	6.01E-8	-9.06E-5	2.05E-4
ADP-f	MJ	6.27E+2	7.35E+0	3.12E-1	6.34E+2	3.25E+0	2.17E+1	1.83E-1	-3.34E+2	3.25E+2
WDP	m3 depriv.	1.20E+1	2.25E-2	1.20E-2	1.20E+1	9.98E-3	4.12E-1	8.86E-4	-5.81E+0	6.61E+0
PM	disease inc.	8.38E-7	4.32E-8	2.09E-9	8.83E-7	1.91E-8	1.14E-7	1.26E-9	-4.34E-7	5.83E-7
IR	kBq U-235 eq	4.23E-1	3.21E-2	2.34E-4	4.56E-1	1.42E-2	6.69E-2	8.48E-4	-2.16E-1	3.22E-1
ETP-fw	CTUe	1.47E+2	5.97E+0	2.78E+0	1.56E+2	2.64E+0	2.42E+1	1.53E-1	-8.70E+1	9.60E+1
HTP-c	CTUh	9.70E-9	2.12E-10	1.42E-10	1.01E-8	9.40E-11	3.08E-9	4.44E-12	-5.57E-9	7.66E-9
HTP-nc	CTUh	1.60E-7	7.11E-9	3.60E-9	1.71E-7	3.15E-9	3.63E-8	9.84E-11	-8.19E-8	1.29E-7
SQP	Pt	1.07E+3	6.29E+0	5.15E-1	1.07E+3	2.78E+0	1.73E+1	4.69E-1	-7.85E+2	3.08E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.83E+2	1.05E-1	5.52E+0	1.89E+2	4.67E-2	1.05E+0	7.10E-3	-1.22E+2	6.78E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.83E+2	1.05E-1	5.52E+0	1.89E+2	4.67E-2	1.05E+0	7.10E-3	-1.22E+2	6.78E+1
PENRE	MJ	6.72E+2	7.80E+0	3.32E-1	6.81E+2	3.45E+0	2.31E+1	1.94E-1	-3.60E+2	3.48E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.72E+2	7.80E+0	3.32E-1	6.81E+2	3.45E+0	2.31E+1	1.94E-1	-3.60E+2	3.48E+2
PET	MJ	8.56E+2	7.90E+0	5.86E+0	8.69E+2	3.50E+0	2.41E+1	2.01E-1	-4.82E+2	4.16E+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	1.89E-1	8.31E-4	3.35E-4	1.90E-1	3.68E-4	1.25E-2	2.26E-4	-9.30E-2	1.10E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.64E-4	1.88E-5	6.28E-11	1.83E-4	8.32E-6	3.59E-5	2.20E-7	-1.31E-4	9.64E-5
NHWD	kg	1.20E+0	4.55E-1	2.42E-4	1.66E+0	2.02E-1	1.10E+0	8.06E-1	-6.68E-1	3.09E+0
RWD	kg	4.19E-4	5.00E-5	2.52E-11	4.69E-4	2.21E-5	8.54E-5	1.19E-6	-2.14E-4	3.64E-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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