Environmental Profile

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

Ecochain v3.5.80

Product:	3032297 - X-Stream PP Reducer BK 400x250
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	3.66E+0	2.27E-1	4.80E-2	3.93E+0	1.11E-1	9.95E+0	5.24E-2	-5.97E+0	8.07E+0
GWP-f	kg CO2 eq	1.02E+1	2.27E-1	4.84E-2	1.05E+1	1.11E-1	3.34E+0	5.24E-2	-5.95E+0	8.02E+0
GWP-b	kg CO2 eq	-6.53E+0	1.38E-4	-5.11E-4	-6.53E+0	6.75E-5	6.60E+0	4.57E-5	-1.82E-2	5.27E-2
GWP-luluc	kg CO2 eq	5.93E-3	8.03E-5	4.95E-5	6.06E-3	3.93E-5	6.42E-4	8.86E-7	-3.85E-3	2.89E-3
ODP	kg CFC11 eq	3.75E-7	5.23E-8	2.74E-9	4.30E-7	2.56E-8	8.88E-8	1.31E-9	-3.05E-7	2.40E-7
AP	mol H+ eq	3.87E-2	1.29E-3	4.89E-4	4.05E-2	6.33E-4	3.75E-3	3.13E-5	-2.00E-2	2.49E-2
EP-fw	kg P eq	1.81E-4	1.87E-6	2.73E-6	1.86E-4	9.15E-7	1.86E-5	4.07E-8	-9.48E-5	1.10E-4
EP-m	kg N eq	7.17E-3	4.62E-4	5.14E-5	7.68E-3	2.27E-4	1.13E-3	2.05E-5	-4.06E-3	4.99E-3
EP-T	mol N eq	8.09E-2	5.10E-3	6.14E-4	8.66E-2	2.50E-3	1.24E-2	1.27E-4	-4.65E-2	5.51E-2
POCP	kg NMVOC eq	3.52E-2	1.46E-3	2.08E-4	3.69E-2	7.14E-4	3.86E-3	4.78E-5	-1.93E-2	2.22E-2
ADP-mm	kg Sb eq	1.38E-4	5.87E-6	6.52E-6	1.51E-4	2.88E-6	1.43E-5	3.15E-8	-4.79E-5	1.20E-4
ADP-f	MJ	3.32E+2	3.48E+0	4.49E-1	3.36E+2	1.71E+0	1.14E+1	9.59E-2	-1.76E+2	1.73E+2
WDP	m3 depriv.	6.36E+0	1.07E-2	1.73E-2	6.38E+0	5.24E-3	2.16E-1	4.64E-4	-3.06E+0	3.55E+0
PM	disease inc.	4.48E-7	2.05E-8	3.01E-9	4.71E-7	1.00E-8	6.02E-8	6.59E-10	-2.30E-7	3.12E-7
IR	kBq U-235 eq	2.27E-1	1.52E-2	3.37E-4	2.42E-1	7.46E-3	3.52E-2	4.45E-4	-1.14E-1	1.71E-1
ETP-fw	CTUe	8.08E+1	2.83E+0	4.00E+0	8.77E+1	1.39E+0	1.27E+1	8.04E-2	-4.62E+1	5.56E+1
HTP-c	CTUh	5.29E-9	1.01E-10	2.04E-10	5.60E-9	4.93E-11	1.62E-9	2.33E-12	-2.97E-9	4.30E-9
HTP-nc	CTUh	8.78E-8	3.37E-9	5.19E-9	9.64E-8	1.65E-9	1.92E-8	5.16E-11	-4.35E-8	7.38E-8
SQP	Pt	5.71E+2	2.98E+0	7.42E-1	5.75E+2	1.46E+0	9.08E+0	2.46E-1	-4.22E+2	1.64E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.01E+2	5.00E-2	7.96E+0	1.09E+2	2.45E-2	5.51E-1	3.73E-3	-6.54E+1	4.38E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.01E+2	5.00E-2	7.96E+0	1.09E+2	2.45E-2	5.51E-1	3.73E-3	-6.54E+1	4.38E+1
PENRE	MJ	3.56E+2	3.70E+0	4.78E-1	3.61E+2	1.81E+0	1.21E+1	1.02E-1	-1.90E+2	1.85E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.56E+2	3.70E+0	4.78E-1	3.61E+2	1.81E+0	1.21E+1	1.02E-1	-1.90E+2	1.85E+2
PET	MJ	4.57E+2	3.75E+0	8.44E+0	4.69E+2	1.84E+0	1.27E+1	1.05E-1	-2.55E+2	2.29E+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	1.01E-1	3.94E-4	4.83E-4	1.02E-1	1.93E-4	6.59E-3	1.18E-4	-4.90E-2	5.98E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.99E-5	8.91E-6	9.05E-11	9.88E-5	4.36E-6	1.89E-5	1.15E-7	-7.04E-5	5.18E-5
NHWD	kg	6.56E-1	2.16E-1	3.49E-4	8.72E-1	1.06E-1	5.79E-1	4.23E-1	-3.56E-1	1.62E+0
RWD	kg	2.25E-4	2.37E-5	3.63E-11	2.48E-4	1.16E-5	4.49E-5	6.26E-7	-1.14E-4	1.92E-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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