Environmental Profile

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

Ecochain v3.5.80

Product:	3071019 - X-Stream PP Reducer BK 250x200 Nor
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	2.00E+0	9.93E-2	2.84E-2	2.13E+0	3.33E-2	3.25E+0	1.57E-2	-1.89E+0	3.54E+0
GWP-f	kg CO2 eq	3.78E+0	9.92E-2	2.86E-2	3.90E+0	3.32E-2	1.39E+0	1.57E-2	-2.03E+0	3.31E+0
GWP-b	kg CO2 eq	-1.78E+0	6.02E-5	-3.02E-4	-1.78E+0	2.02E-5	1.86E+0	1.37E-5	1.41E-1	2.23E-1
GWP-luluc	kg CO2 eq	2.81E-3	3.51E-5	2.93E-5	2.88E-3	1.18E-5	1.98E-4	2.67E-7	-2.05E-3	1.03E-3
ODP	kg CFC11 eq	1.52E-7	2.29E-8	1.62E-9	1.77E-7	7.66E-9	2.94E-8	3.93E-10	-1.24E-7	8.99E-8
AP	mol H+ eq	1.48E-2	5.65E-4	2.89E-4	1.57E-2	1.89E-4	1.25E-3	9.38E-6	-6.64E-3	1.05E-2
EP-fw	kg P eq	7.42E-5	8.16E-7	1.61E-6	7.67E-5	2.74E-7	5.80E-6	1.22E-8	-3.99E-5	4.28E-5
EP-m	kg N eq	2.81E-3	2.02E-4	3.04E-5	3.04E-3	6.78E-5	3.90E-4	6.17E-6	-1.37E-3	2.14E-3
EP-T	mol N eq	3.17E-2	2.23E-3	3.63E-4	3.43E-2	7.47E-4	4.30E-3	3.81E-5	-1.58E-2	2.36E-2
POCP	kg NMVOC eq	1.28E-2	6.37E-4	1.23E-4	1.36E-2	2.13E-4	1.32E-3	1.43E-5	-6.14E-3	8.98E-3
ADP-mm	kg Sb eq	6.74E-5	2.57E-6	3.85E-6	7.39E-5	8.60E-7	4.66E-6	9.45E-9	-1.49E-5	6.45E-5
ADP-f	MJ	1.14E+2	1.52E+0	2.66E-1	1.16E+2	5.10E-1	3.60E+0	2.87E-2	-5.69E+1	6.31E+1
WDP	m3 depriv.	2.34E+0	4.67E-3	1.02E-2	2.35E+0	1.57E-3	6.70E-2	1.45E-4	-1.14E+0	1.28E+0
PM	disease inc.	1.71E-7	8.95E-9	1.78E-9	1.82E-7	3.00E-9	1.97E-8	1.97E-10	-7.88E-8	1.26E-7
IR	kBq U-235 eq	8.58E-2	6.65E-3	1.99E-4	9.26E-2	2.23E-3	1.13E-2	1.33E-4	-4.28E-2	6.35E-2
ETP-fw	CTUe	4.91E+1	1.24E+0	2.37E+0	5.27E+1	4.14E-1	4.32E+0	2.42E-2	-2.47E+1	3.28E+1
HTP-c	CTUh	1.85E-9	4.40E-11	1.21E-10	2.01E-9	1.47E-11	5.68E-10	7.02E-13	-8.85E-10	1.71E-9
HTP-nc	CTUh	3.33E-8	1.47E-9	3.07E-9	3.79E-8	4.94E-10	6.42E-9	1.55E-11	-1.56E-8	2.92E-8
SQP	Pt	1.66E+2	1.30E+0	4.39E-1	1.68E+2	4.37E-1	2.84E+0	7.36E-2	-1.32E+2	3.91E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.11E+1	2.18E-2	4.71E+0	3.58E+1	7.32E-3	1.71E-1	1.11E-3	-2.15E+1	1.46E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.11E+1	2.18E-2	4.71E+0	3.58E+1	7.32E-3	1.71E-1	1.11E-3	-2.15E+1	1.46E+1
PENRE	MJ	1.22E+2	1.62E+0	2.83E-1	1.24E+2	5.42E-1	3.83E+0	3.04E-2	-6.13E+1	6.74E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.22E+2	1.62E+0	2.83E-1	1.24E+2	5.42E-1	3.83E+0	3.04E-2	-6.13E+1	6.74E+1
PET	MJ	1.54E+2	1.64E+0	4.99E+0	1.60E+2	5.49E-1	4.01E+0	3.16E-2	-8.28E+1	8.20E+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	4.14E-2	1.72E-4	2.86E-4	4.18E-2	5.78E-5	2.12E-3	3.54E-5	-2.03E-2	2.38E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.52E-5	3.89E-6	5.35E-11	3.91E-5	1.31E-6	6.23E-6	3.46E-8	-2.54E-5	2.13E-5
NHWD	kg	2.77E-1	9.44E-2	2.06E-4	3.71E-1	3.16E-2	2.00E-1	1.26E-1	-1.09E-1	6.21E-1
RWD	kg	8.53E-5	1.04E-5	2.15E-11	9.57E-5	3.47E-6	1.46E-5	1.87E-7	-4.21E-5	7.19E-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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