Environmental Profile

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

Ecochain v3.5.80

Product:	3071030 - X-Stream PP Reducer BK 250x150 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	1.60E+0	8.66E-2	1.88E-2	1.70E+0	2.73E-2	2.60E+0	1.28E-2	-1.53E+0	2.82E+0
GWP-f	kg CO2 eq	3.02E+0	8.66E-2	1.90E-2	3.13E+0	2.73E-2	1.11E+0	1.29E-2	-1.63E+0	2.65E+0
GWP-b	kg CO2 eq	-1.43E+0	5.26E-5	-2.00E-4	-1.43E+0	1.66E-5	1.49E+0	1.12E-5	1.06E-1	1.70E-1
GWP-luluc	kg CO2 eq	2.19E-3	3.06E-5	1.94E-5	2.24E-3	9.65E-6	1.62E-4	2.19E-7	-1.57E-3	8.38E-4
ODP	kg CFC11 eq	1.22E-7	1.99E-8	1.07E-9	1.43E-7	6.28E-9	2.38E-8	3.22E-10	-9.80E-8	7.53E-8
AP	mol H+ eq	1.17E-2	4.93E-4	1.91E-4	1.24E-2	1.55E-4	1.02E-3	7.69E-6	-5.33E-3	8.24E-3
EP-fw	kg P eq	5.81E-5	7.12E-7	1.07E-6	5.98E-5	2.24E-7	4.74E-6	1.00E-8	-3.13E-5	3.35E-5
EP-m	kg N eq	2.22E-3	1.76E-4	2.01E-5	2.42E-3	5.56E-5	3.18E-4	5.07E-6	-1.09E-3	1.70E-3
EP-T	mol N eq	2.48E-2	1.94E-3	2.41E-4	2.70E-2	6.13E-4	3.50E-3	3.12E-5	-1.26E-2	1.85E-2
POCP	kg NMVOC eq	1.02E-2	5.56E-4	8.14E-5	1.08E-2	1.75E-4	1.08E-3	1.17E-5	-4.92E-3	7.17E-3
ADP-mm	kg Sb eq	4.14E-5	2.24E-6	2.55E-6	4.62E-5	7.05E-7	3.79E-6	7.75E-9	-1.19E-5	3.88E-5
ADP-f	MJ	9.22E+1	1.33E+0	1.76E-1	9.37E+1	4.19E-1	2.94E+0	2.35E-2	-4.60E+1	5.10E+1
WDP	m3 depriv.	1.88E+0	4.08E-3	6.77E-3	1.89E+0	1.28E-3	5.48E-2	1.18E-4	-9.18E-1	1.03E+0
PM	disease inc.	1.37E-7	7.81E-9	1.18E-9	1.46E-7	2.46E-9	1.60E-8	1.62E-10	-6.24E-8	1.02E-7
IR	kBq U-235 eq	6.86E-2	5.81E-3	1.32E-4	7.45E-2	1.83E-3	9.20E-3	1.09E-4	-3.38E-2	5.19E-2
ETP-fw	CTUe	3.75E+1	1.08E+0	1.57E+0	4.02E+1	3.40E-1	3.51E+0	1.99E-2	-1.94E+1	2.47E+1
HTP-c	CTUh	1.39E-9	3.84E-11	8.00E-11	1.51E-9	1.21E-11	4.63E-10	5.75E-13	-6.88E-10	1.30E-9
HTP-nc	CTUh	2.55E-8	1.29E-9	2.03E-9	2.88E-8	4.05E-10	5.22E-9	1.27E-11	-1.24E-8	2.21E-8
SQP	Pt	1.33E+2	1.14E+0	2.91E-1	1.34E+2	3.58E-1	2.32E+0	6.04E-2	-1.01E+2	3.61E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.44E+1	1.91E-2	3.12E+0	2.76E+1	6.01E-3	1.40E-1	9.13E-4	-1.65E+1	1.12E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.44E+1	1.91E-2	3.12E+0	2.76E+1	6.01E-3	1.40E-1	9.13E-4	-1.65E+1	1.12E+1
PENRE	MJ	9.89E+1	1.41E+0	1.87E-1	1.01E+2	4.44E-1	3.13E+0	2.50E-2	-4.97E+1	5.45E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	9.89E+1	1.41E+0	1.87E-1	1.01E+2	4.44E-1	3.13E+0	2.50E-2	-4.97E+1	5.45E+1
PET	MJ	1.23E+2	1.43E+0	3.31E+0	1.28E+2	4.50E-1	3.27E+0	2.59E-2	-6.62E+1	6.57E+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	3.29E-2	1.50E-4	1.89E-4	3.32E-2	4.74E-5	1.73E-3	2.90E-5	-1.61E-2	1.89E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.62E-5	3.40E-6	3.54E-11	2.96E-5	1.07E-6	5.06E-6	2.84E-8	-1.99E-5	1.59E-5
NHWD	kg	2.00E-1	8.24E-2	1.37E-4	2.83E-1	2.59E-2	1.63E-1	1.04E-1	-8.49E-2	4.90E-1
RWD	kg	6.84E-5	9.04E-6	1.42E-11	7.74E-5	2.85E-6	1.18E-5	1.54E-7	-3.31E-5	5.91E-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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