Environmental Profile

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

Ecochain v3.5.80

Product:	3015162 - X-Stream PP Reducer BK 500x400
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	3.25E+0	5.19E-1	5.55E-2	3.82E+0	1.81E-1	1.94E+1	8.55E-2	-1.01E+1	1.35E+1
GWP-f	kg CO2 eq	1.72E+1	5.18E-1	5.60E-2	1.77E+1	1.81E-1	5.37E+0	8.55E-2	-1.00E+1	1.34E+1
GWP-b	kg CO2 eq	-1.39E+1	3.15E-4	-5.91E-4	-1.39E+1	1.10E-4	1.41E+1	7.44E-5	-2.97E-2	9.36E-2
GWP-luluc	kg CO2 eq	1.15E-2	1.83E-4	5.73E-5	1.17E-2	6.42E-5	1.05E-3	1.45E-6	-7.76E-3	5.10E-3
ODP	kg CFC11 eq	7.04E-7	1.19E-7	3.17E-9	8.27E-7	4.18E-8	1.48E-7	2.14E-9	-5.55E-7	4.64E-7
AP	mol H+ eq	6.73E-2	2.95E-3	5.65E-4	7.08E-2	1.03E-3	6.25E-3	5.11E-5	-3.53E-2	4.28E-2
EP-fw	kg P eq	3.22E-4	4.27E-6	3.16E-6	3.30E-4	1.49E-6	3.06E-5	6.67E-8	-1.75E-4	1.87E-4
EP-m	kg N eq	1.27E-2	1.06E-3	5.95E-5	1.38E-2	3.69E-4	1.89E-3	3.33E-5	-7.37E-3	8.74E-3
EP-T	mol N eq	1.46E-1	1.16E-2	7.11E-4	1.58E-1	4.07E-3	2.08E-2	2.08E-4	-8.48E-2	9.81E-2
POCP	kg NMVOC eq	6.15E-2	3.33E-3	2.41E-4	6.51E-2	1.16E-3	6.46E-3	7.79E-5	-3.46E-2	3.82E-2
ADP-mm	kg Sb eq	3.19E-4	1.34E-5	7.54E-6	3.40E-4	4.69E-6	2.37E-5	5.15E-8	-8.55E-5	2.83E-4
ADP-f	MJ	5.48E+2	7.96E+0	5.20E-1	5.57E+2	2.78E+0	1.88E+1	1.56E-1	-2.93E+2	2.86E+2
WDP	m3 depriv.	1.05E+1	2.44E-2	2.00E-2	1.05E+1	8.54E-3	3.54E-1	7.89E-4	-5.12E+0	5.74E+0
PM	disease inc.	8.22E-7	4.68E-8	3.48E-9	8.72E-7	1.64E-8	9.98E-8	1.08E-9	-4.32E-7	5.58E-7
IR	kBq U-235 eq	4.02E-1	3.48E-2	3.90E-4	4.37E-1	1.22E-2	5.85E-2	7.26E-4	-2.07E-1	3.02E-1
ETP-fw	CTUe	1.48E+2	6.46E+0	4.63E+0	1.60E+2	2.26E+0	2.10E+1	1.31E-1	-8.84E+1	9.46E+1
HTP-c	CTUh	1.05E-8	2.30E-10	2.36E-10	1.10E-8	8.04E-11	2.72E-9	3.82E-12	-5.96E-9	7.84E-9
HTP-nc	CTUh	1.59E-7	7.70E-9	6.00E-9	1.73E-7	2.69E-9	3.16E-8	8.43E-11	-8.07E-8	1.26E-7
SQP	Pt	1.21E+3	6.81E+0	8.59E-1	1.22E+3	2.38E+0	1.50E+1	4.02E-1	-9.05E+2	3.33E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.02E+2	1.14E-1	9.21E+0	2.11E+2	3.99E-2	9.07E-1	6.06E-3	-1.40E+2	7.28E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.02E+2	1.14E-1	9.21E+0	2.11E+2	3.99E-2	9.07E-1	6.06E-3	-1.40E+2	7.28E+1
PENRE	MJ	5.88E+2	8.45E+0	5.54E-1	5.97E+2	2.95E+0	2.00E+1	1.66E-1	-3.15E+2	3.05E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.88E+2	8.45E+0	5.54E-1	5.97E+2	2.95E+0	2.00E+1	1.66E-1	-3.15E+2	3.05E+2
PET	MJ	7.91E+2	8.56E+0	9.77E+0	8.09E+2	2.99E+0	2.09E+1	1.72E-1	-4.55E+2	3.78E+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	1.69E-1	9.00E-4	5.59E-4	1.70E-1	3.15E-4	1.09E-2	1.93E-4	-8.35E-2	9.79E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.85E-4	2.03E-5	1.05E-10	2.05E-4	7.12E-6	3.14E-5	1.89E-7	-1.31E-4	1.13E-4
NHWD	kg	1.37E+0	4.93E-1	4.04E-4	1.86E+0	1.72E-1	9.58E-1	6.89E-1	-7.02E-1	2.98E+0
RWD	kg	4.08E-4	5.41E-5	4.20E-11	4.62E-4	1.89E-5	7.49E-5	1.02E-6	-2.09E-4	3.48E-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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