Environmental Profile

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

Ecochain v3.5.80

Product:	3028275 - X-Stream PP Reducer BK 400x200
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	3.97E+0	2.11E-1	4.80E-2	4.23E+0	1.15E-1	1.00E+1	5.40E-2	-6.12E+0	8.31E+0
GWP-f	kg CO2 eq	1.05E+1	2.11E-1	4.84E-2	1.08E+1	1.15E-1	3.43E+0	5.40E-2	-6.10E+0	8.25E+0
GWP-b	kg CO2 eq	-6.53E+0	1.28E-4	-5.11E-4	-6.53E+0	6.96E-5	6.60E+0	4.71E-5	-1.87E-2	5.49E-2
GWP-luluc	kg CO2 eq	6.04E-3	7.46E-5	4.95E-5	6.16E-3	4.05E-5	6.61E-4	9.11E-7	-3.87E-3	2.99E-3
ODP	kg CFC11 eq	3.79E-7	4.86E-8	2.74E-9	4.31E-7	2.64E-8	9.12E-8	1.35E-9	-3.08E-7	2.42E-7
AP	mol H+ eq	4.00E-2	1.20E-3	4.89E-4	4.17E-2	6.53E-4	3.85E-3	3.23E-5	-2.04E-2	2.59E-2
EP-fw	kg P eq	1.87E-4	1.73E-6	2.73E-6	1.91E-4	9.43E-7	1.91E-5	4.19E-8	-9.64E-5	1.15E-4
EP-m	kg N eq	7.39E-3	4.30E-4	5.14E-5	7.88E-3	2.33E-4	1.15E-3	2.11E-5	-4.14E-3	5.15E-3
EP-T	mol N eq	8.45E-2	4.73E-3	6.14E-4	8.98E-2	2.57E-3	1.27E-2	1.31E-4	-4.74E-2	5.79E-2
POCP	kg NMVOC eq	3.62E-2	1.35E-3	2.08E-4	3.78E-2	7.36E-4	3.97E-3	4.92E-5	-1.97E-2	2.29E-2
ADP-mm	kg Sb eq	1.86E-4	5.45E-6	6.52E-6	1.98E-4	2.96E-6	1.47E-5	3.25E-8	-4.89E-5	1.67E-4
ADP-f	MJ	3.42E+2	3.24E+0	4.49E-1	3.45E+2	1.76E+0	1.17E+1	9.88E-2	-1.81E+2	1.78E+2
WDP	m3 depriv.	6.55E+0	9.93E-3	1.73E-2	6.57E+0	5.40E-3	2.23E-1	4.73E-4	-3.14E+0	3.66E+0
PM	disease inc.	4.62E-7	1.90E-8	3.01E-9	4.84E-7	1.03E-8	6.19E-8	6.79E-10	-2.34E-7	3.23E-7
IR	kBq U-235 eq	2.32E-1	1.41E-2	3.37E-4	2.46E-1	7.69E-3	3.62E-2	4.59E-4	-1.17E-1	1.74E-1
ETP-fw	CTUe	8.32E+1	2.63E+0	4.00E+0	8.98E+1	1.43E+0	1.31E+1	8.29E-2	-4.68E+1	5.76E+1
HTP-c	CTUh	5.55E-9	9.35E-11	2.04E-10	5.84E-9	5.08E-11	1.66E-9	2.40E-12	-3.00E-9	4.56E-9
HTP-nc	CTUh	9.12E-8	3.13E-9	5.19E-9	9.95E-8	1.70E-9	1.97E-8	5.32E-11	-4.41E-8	7.68E-8
SQP	Pt	5.74E+2	2.77E+0	7.42E-1	5.77E+2	1.50E+0	9.34E+0	2.54E-1	-4.22E+2	1.67E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.86E+1	4.64E-2	7.96E+0	1.07E+2	2.52E-2	5.68E-1	3.84E-3	-6.55E+1	4.17E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.86E+1	4.64E-2	7.96E+0	1.07E+2	2.52E-2	5.68E-1	3.84E-3	-6.55E+1	4.17E+1
PENRE	MJ	3.67E+2	3.44E+0	4.78E-1	3.71E+2	1.87E+0	1.25E+1	1.05E-1	-1.95E+2	1.90E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.67E+2	3.44E+0	4.78E-1	3.71E+2	1.87E+0	1.25E+1	1.05E-1	-1.95E+2	1.90E+2
PET	MJ	4.65E+2	3.48E+0	8.44E+0	4.77E+2	1.89E+0	1.30E+1	1.09E-1	-2.60E+2	2.32E+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	1.04E-1	3.66E-4	4.83E-4	1.05E-1	1.99E-4	6.78E-3	1.22E-4	-5.02E-2	6.16E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	9.94E-5	8.28E-6	9.05E-11	1.08E-4	4.50E-6	1.94E-5	1.19E-7	-7.13E-5	6.04E-5
NHWD	kg	7.41E-1	2.01E-1	3.49E-4	9.42E-1	1.09E-1	5.94E-1	4.36E-1	-3.60E-1	1.72E+0
RWD	kg	2.29E-4	2.20E-5	3.63E-11	2.51E-4	1.20E-5	4.62E-5	6.46E-7	-1.16E-4	1.95E-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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