Environmental Profile

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

Ecochain v3.5.80

Product:	3010916 - X-Stream PP Protection Sleeve BK 800
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	2.17E+1	6.84E-1	2.18E-1	2.26E+1	3.49E-1	1.71E+1	1.64E-1	-1.71E+1	2.31E+1
GWP-f	kg CO2 eq	2.84E+1	6.83E-1	2.20E-1	2.93E+1	3.49E-1	1.02E+1	1.64E-1	-1.70E+1	2.30E+1
GWP-b	kg CO2 eq	-6.72E+0	4.15E-4	-2.32E-3	-6.72E+0	2.12E-4	6.89E+0	1.43E-4	-5.76E-2	1.15E-1
GWP-luluc	kg CO2 eq	1.05E-2	2.42E-4	2.25E-4	1.10E-2	1.24E-4	1.98E-3	2.83E-6	-6.53E-3	6.58E-3
ODP	kg CFC11 eq	8.81E-7	1.57E-7	1.24E-8	1.05E-6	8.04E-8	2.62E-7	4.13E-9	-8.43E-7	5.55E-7
AP	mol H+ eq	1.03E-1	3.89E-3	2.22E-3	1.09E-1	1.99E-3	1.10E-2	9.86E-5	-5.18E-2	7.05E-2
EP-fw	kg P eq	4.37E-4	5.62E-6	1.24E-5	4.56E-4	2.87E-6	5.71E-5	1.29E-7	-2.29E-4	2.87E-4
EP-m	kg N eq	1.78E-2	1.39E-3	2.34E-4	1.95E-2	7.11E-4	3.22E-3	6.38E-5	-9.72E-3	1.37E-2
EP-T	mol N eq	2.01E-1	1.53E-2	2.79E-3	2.19E-1	7.84E-3	3.54E-2	4.00E-4	-1.09E-1	1.54E-1
POCP	kg NMVOC eq	9.09E-2	4.39E-3	9.45E-4	9.63E-2	2.24E-3	1.12E-2	1.50E-4	-4.80E-2	6.18E-2
ADP-mm	kg Sb eq	3.87E-4	1.77E-5	2.96E-5	4.34E-4	9.03E-6	4.32E-5	9.97E-8	-1.27E-4	3.59E-4
ADP-f	MJ	9.79E+2	1.05E+1	2.04E+0	9.92E+2	5.36E+0	3.45E+1	3.01E-1	-5.23E+2	5.09E+2
WDP	m3 depriv.	1.88E+1	3.22E-2	7.86E-2	1.89E+1	1.64E-2	6.69E-1	1.63E-3	-9.35E+0	1.03E+1
PM	disease inc.	1.01E-6	6.17E-8	1.37E-8	1.09E-6	3.15E-8	1.80E-7	2.07E-9	-5.03E-7	7.96E-7
IR	kBq U-235 eq	5.91E-1	4.58E-2	1.53E-3	6.39E-1	2.34E-2	1.05E-1	1.40E-3	-2.90E-1	4.78E-1
ETP-fw	CTUe	1.73E+2	8.52E+0	1.82E+1	2.00E+2	4.35E+0	3.88E+1	2.52E-1	-9.26E+1	1.51E+2
HTP-c	CTUh	9.37E-9	3.03E-10	9.29E-10	1.06E-8	1.55E-10	4.80E-9	7.45E-12	-5.27E-9	1.03E-8
HTP-nc	CTUh	1.95E-7	1.02E-8	2.36E-8	2.29E-7	5.19E-9	5.80E-8	1.63E-10	-1.01E-7	1.92E-7
SQP	Pt	6.11E+2	8.97E+0	3.37E+0	6.24E+2	4.58E+0	2.76E+1	7.73E-1	-4.98E+2	1.58E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.70E+1	1.50E-1	3.62E+1	1.33E+2	7.69E-2	1.69E+0	1.16E-2	-7.91E+1	5.61E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.70E+1	1.50E-1	3.62E+1	1.33E+2	7.69E-2	1.69E+0	1.16E-2	-7.91E+1	5.61E+1
PENRE	MJ	1.05E+3	1.11E+1	2.17E+0	1.06E+3	5.69E+0	3.68E+1	3.20E-1	-5.63E+2	5.44E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.05E+3	1.11E+1	2.17E+0	1.06E+3	5.69E+0	3.68E+1	3.20E-1	-5.63E+2	5.44E+2
PET	MJ	1.15E+3	1.13E+1	3.84E+1	1.20E+3	5.76E+0	3.85E+1	3.31E-1	-6.42E+2	6.00E+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	2.87E-1	1.19E-3	2.20E-3	2.90E-1	6.06E-4	1.99E-2	3.71E-4	-1.42E-1	1.69E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.77E-4	2.68E-5	4.11E-10	2.04E-4	1.37E-5	5.66E-5	3.64E-7	-1.58E-4	1.16E-4
NHWD	kg	1.39E+0	6.50E-1	1.59E-3	2.04E+0	3.32E-1	1.70E+0	1.33E+0	-6.76E-1	4.72E+0
RWD	kg	5.77E-4	7.13E-5	1.65E-10	6.48E-4	3.64E-5	1.33E-4	1.97E-6	-2.73E-4	5.47E-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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