Environmental Profile

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

Ecochain v3.5.80

Product:	3015161 - X-Stream PP Reducer BK 400x300
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	2.73E+0	2.55E-1	5.55E-2	3.04E+0	9.96E-2	9.56E+0	4.69E-2	-5.40E+0	7.35E+0
GWP-f	kg CO2 eq	9.26E+0	2.54E-1	5.60E-2	9.57E+0	9.95E-2	2.96E+0	4.69E-2	-5.38E+0	7.30E+0
GWP-b	kg CO2 eq	-6.54E+0	1.54E-4	-5.91E-4	-6.54E+0	6.04E-5	6.60E+0	4.09E-5	-1.63E-2	5.02E-2
GWP-luluc	kg CO2 eq	5.70E-3	9.00E-5	5.73E-5	5.85E-3	3.52E-5	5.76E-4	7.96E-7	-3.74E-3	2.71E-3
ODP	kg CFC11 eq	3.64E-7	5.86E-8	3.17E-9	4.26E-7	2.29E-8	8.02E-8	1.18E-9	-2.86E-7	2.45E-7
AP	mol H+ eq	3.57E-2	1.45E-3	5.65E-4	3.77E-2	5.67E-4	3.38E-3	2.80E-5	-1.84E-2	2.33E-2
EP-fw	kg P eq	1.68E-4	2.09E-6	3.16E-6	1.74E-4	8.19E-7	1.67E-5	3.65E-8	-8.90E-5	1.02E-4
EP-m	kg N eq	6.64E-3	5.19E-4	5.95E-5	7.22E-3	2.03E-4	1.02E-3	1.83E-5	-3.79E-3	4.67E-3
EP-T	mol N eq	7.51E-2	5.71E-3	7.11E-4	8.16E-2	2.24E-3	1.12E-2	1.14E-4	-4.35E-2	5.17E-2
POCP	kg NMVOC eq	3.24E-2	1.63E-3	2.41E-4	3.43E-2	6.39E-4	3.49E-3	4.28E-5	-1.79E-2	2.06E-2
ADP-mm	kg Sb eq	1.37E-4	6.58E-6	7.54E-6	1.51E-4	2.57E-6	1.29E-5	2.83E-8	-4.44E-5	1.22E-4
ADP-f	MJ	2.99E+2	3.91E+0	5.20E-1	3.03E+2	1.53E+0	1.02E+1	8.59E-2	-1.59E+2	1.57E+2
WDP	m3 depriv.	5.70E+0	1.20E-2	2.00E-2	5.73E+0	4.69E-3	1.94E-1	4.25E-4	-2.77E+0	3.16E+0
PM	disease inc.	4.22E-7	2.30E-8	3.48E-9	4.49E-7	8.98E-9	5.42E-8	5.90E-10	-2.18E-7	2.95E-7
IR	kBq U-235 eq	2.11E-1	1.71E-2	3.90E-4	2.28E-1	6.68E-3	3.17E-2	3.98E-4	-1.07E-1	1.61E-1
ETP-fw	CTUe	7.84E+1	3.17E+0	4.63E+0	8.62E+1	1.24E+0	1.15E+1	7.21E-2	-4.42E+1	5.48E+1
HTP-c	CTUh	5.23E-9	1.13E-10	2.36E-10	5.58E-9	4.41E-11	1.47E-9	2.09E-12	-2.88E-9	4.21E-9
HTP-nc	CTUh	8.52E-8	3.78E-9	6.00E-9	9.50E-8	1.48E-9	1.72E-8	4.63E-11	-4.10E-8	7.27E-8
SQP	Pt	5.71E+2	3.34E+0	8.59E-1	5.75E+2	1.31E+0	8.16E+0	2.20E-1	-4.21E+2	1.63E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.05E+2	5.60E-2	9.21E+0	1.14E+2	2.19E-2	4.95E-1	3.33E-3	-6.52E+1	4.91E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.05E+2	5.60E-2	9.21E+0	1.14E+2	2.19E-2	4.95E-1	3.33E-3	-6.52E+1	4.91E+1
PENRE	MJ	3.21E+2	4.15E+0	5.54E-1	3.25E+2	1.62E+0	1.09E+1	9.11E-2	-1.71E+2	1.67E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.21E+2	4.15E+0	5.54E-1	3.25E+2	1.62E+0	1.09E+1	9.11E-2	-1.71E+2	1.67E+2
PET	MJ	4.25E+2	4.20E+0	9.77E+0	4.39E+2	1.64E+0	1.14E+1	9.45E-2	-2.36E+2	2.16E+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	9.10E-2	4.42E-4	5.59E-4	9.20E-2	1.73E-4	5.92E-3	1.06E-4	-4.46E-2	5.37E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	8.69E-5	9.99E-6	1.05E-10	9.68E-5	3.91E-6	1.70E-5	1.03E-7	-6.60E-5	5.19E-5
NHWD	kg	6.29E-1	2.42E-1	4.04E-4	8.72E-1	9.47E-2	5.21E-1	3.79E-1	-3.43E-1	1.52E+0
RWD	kg	2.12E-4	2.66E-5	4.20E-11	2.39E-4	1.04E-5	4.06E-5	5.61E-7	-1.07E-4	1.84E-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

Ecochain

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777