Environmental Profile

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

Ecochain v3.5.80

Product:	3043193 - X-Stream PP DblSocketCoupler BK 100
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	2.36E-1	6.20E-4	1.45E-4	2.37E-1	3.79E-3	2.86E-1	1.79E-3	-1.95E-1	3.34E-1
GWP-f	kg CO2 eq	3.83E-1	6.19E-4	1.46E-4	3.84E-1	3.79E-3	1.24E-1	1.79E-3	-2.19E-1	2.94E-1
GWP-b	kg CO2 eq	-1.47E-1	3.76E-7	-1.54E-6	-1.47E-1	2.30E-6	1.62E-1	1.56E-6	2.46E-2	3.92E-2
GWP-luluc	kg CO2 eq	4.03E-4	2.19E-7	1.49E-7	4.04E-4	1.34E-6	2.27E-5	3.05E-8	-3.02E-4	1.25E-4
ODP	kg CFC11 eq	1.68E-8	1.43E-10	8.26E-12	1.69E-8	8.74E-10	3.42E-9	4.48E-11	-1.27E-8	8.56E-9
AP	mol H+ eq	1.57E-3	3.53E-6	1.47E-6	1.57E-3	2.16E-5	1.41E-4	1.07E-6	-7.76E-4	9.59E-4
EP-fw	kg P eq	9.03E-6	5.09E-9	8.24E-9	9.04E-6	3.12E-8	6.68E-7	1.40E-9	-5.48E-6	4.26E-6
EP-m	kg N eq	2.99E-4	1.26E-6	1.55E-7	3.01E-4	7.73E-6	4.29E-5	6.95E-7	-1.58E-4	1.94E-4
EP-T	mol N eq	3.26E-3	1.39E-5	1.85E-6	3.28E-3	8.51E-5	4.72E-4	4.34E-6	-1.79E-3	2.04E-3
POCP	kg NMVOC eq	1.32E-3	3.97E-6	6.28E-7	1.32E-3	2.43E-5	1.47E-4	1.63E-6	-7.06E-4	7.89E-4
ADP-mm	kg Sb eq	6.23E-6	1.60E-8	1.97E-8	6.26E-6	9.81E-8	5.53E-7	1.08E-9	-1.73E-6	5.18E-6
ADP-f	MJ	1.19E+1	9.50E-3	1.36E-3	1.19E+1	5.82E-2	4.14E-1	3.27E-3	-6.25E+0	6.12E+0
WDP	m3 depriv.	2.34E-1	2.92E-5	5.22E-5	2.34E-1	1.79E-4	7.59E-3	1.69E-5	-1.45E-1	9.70E-2
PM	disease inc.	1.68E-8	5.59E-11	9.08E-12	1.69E-8	3.42E-10	2.26E-9	2.25E-11	-9.64E-9	9.86E-9
IR	kBq U-235 eq	9.10E-3	4.15E-5	1.02E-6	9.15E-3	2.54E-4	1.31E-3	1.52E-5	-5.36E-3	5.37E-3
ETP-fw	CTUe	7.20E+0	7.72E-3	1.21E-2	7.22E+0	4.72E-2	4.93E-1	2.74E-3	-3.54E+0	4.22E+0
HTP-c	CTUh	2.44E-10	2.75E-13	6.17E-13	2.45E-10	1.68E-12	5.86E-11	8.02E-14	-1.00E-10	2.05E-10
HTP-nc	CTUh	4.71E-9	9.20E-12	1.57E-11	4.73E-9	5.63E-11	7.05E-10	1.76E-12	-1.44E-9	4.06E-9
SQP	Pt	1.42E+1	8.13E-3	2.24E-3	1.42E+1	4.98E-2	3.25E-1	8.40E-3	-1.56E+1	-1.04E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	4.21E+0	1.36E-4	2.40E-2	4.24E+0	8.35E-4	1.97E-2	1.26E-4	-2.55E+0	1.70E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	4.21E+0	1.36E-4	2.40E-2	4.24E+0	8.35E-4	1.97E-2	1.26E-4	-2.55E+0	1.70E+0
PENRE	MJ	1.28E+1	1.01E-2	1.44E-3	1.28E+1	6.18E-2	4.41E-1	3.47E-3	-6.73E+0	6.54E+0
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.28E+1	1.01E-2	1.44E-3	1.28E+1	6.18E-2	4.41E-1	3.47E-3	-6.73E+0	6.54E+0
PET	MJ	1.70E+1	1.02E-2	2.55E-2	1.70E+1	6.26E-2	4.61E-1	3.60E-3	-9.28E+0	8.24E+0
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	4.03E-3	1.08E-6	1.46E-6	4.03E-3	6.58E-6	2.33E-4	4.03E-6	-2.70E-3	1.57E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.37E-6	2.43E-8	2.73E-13	3.39E-6	1.49E-7	7.19E-7	3.95E-9	-2.87E-6	1.39E-6
NHWD	kg	2.64E-2	5.89E-4	1.05E-6	2.70E-2	3.61E-3	2.07E-2	1.44E-2	-1.29E-2	5.28E-2
RWD	kg	9.12E-6	6.46E-8	1.10E-13	9.19E-6	3.96E-7	1.70E-6	2.14E-8	-5.23E-6	6.07E-6
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 Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777