fitt batipro

PVC pipes and fittings system

Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:201+A2:2019/AC:2021

EPD®

ECO PLATFORM EPD VERIFIED

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Programme operator:
EPD International AB

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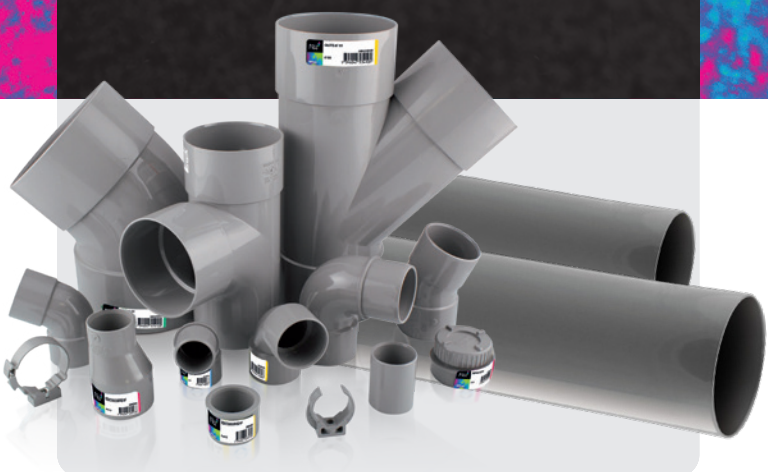

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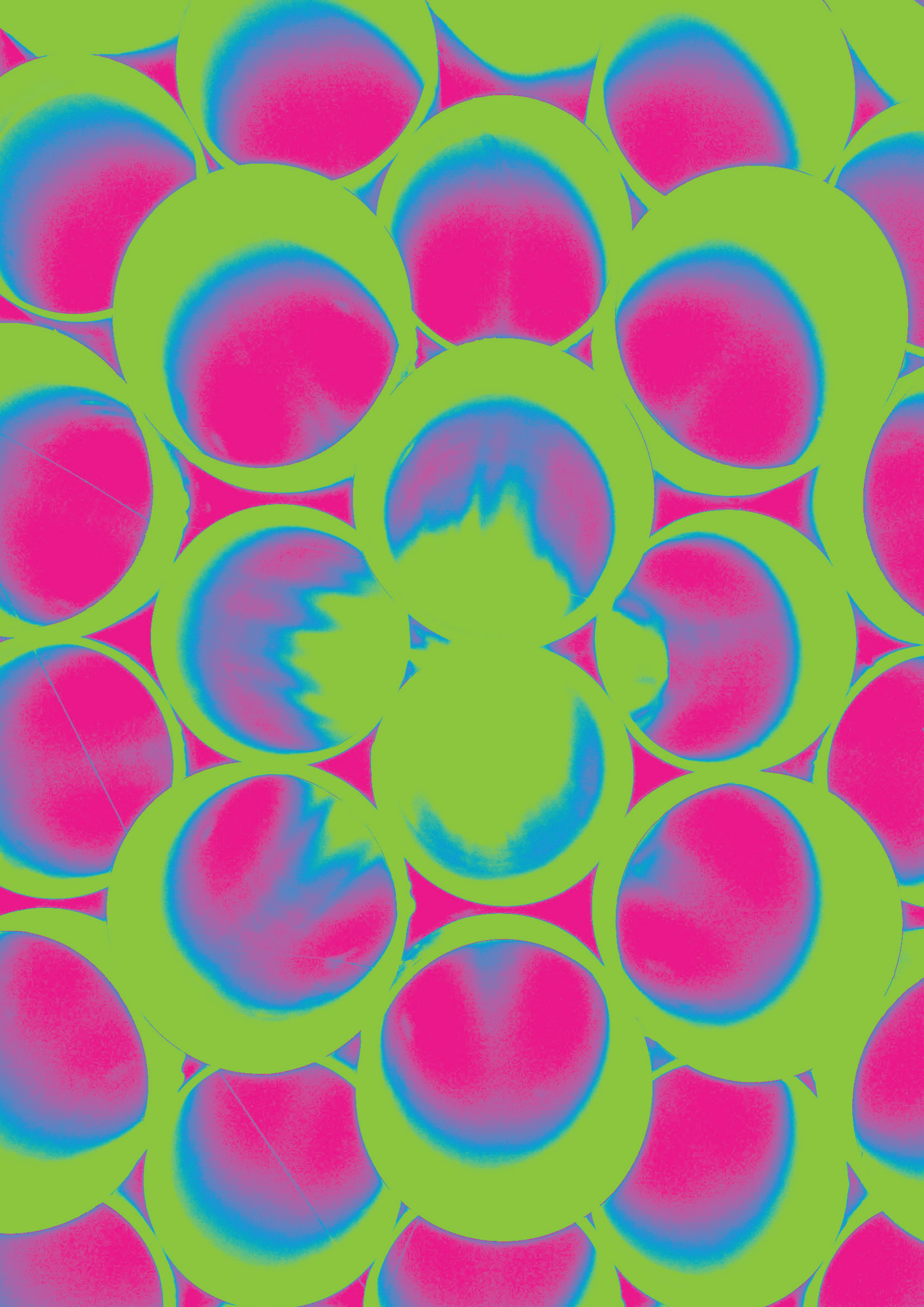
FITT BUILDING SOLUTIONS



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Environmental Product Declaration

EPD®

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EPD®

1. programme information

An Environmental Product Declaration, or EPD®, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules). Environmental product declarations within the same product category from different programmes may not be comparable. EPD® of construction products may not be comparable if they do not comply with EN 15804. This version of the EPD® has been updated to clarify which pipe dimensions the installation results refer to.

Programme	The International EPD® System EPD® International AB, Box 210 60 SE-100 31 Stockholm - Sweden www.environdec.com / info@environdec.com
Product category rules (PCR):	PCR 2019:14 Construction products (v1.2.5), CPC 36320
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to: ISO 14025:2006:	EPD® process certification ☐ EPD® verification ☑
Third party verifier:	SGS Italia S.p.A. via Caldera, 21, 20153 – Milano T +39 02 73 931 - F +39 02 70 21 46 30 / www.it.sgs.com
In case of accredited certification bodies:	
Accredited by:	Accredia, certification n.006H
In case of recognised individual verifiers:	
Approved by:	The International EPD® System
Procedure for follow-up of data during EPD® validity involves third party verifier:	Yes ☑ No ☐

The EPD® owner has the sole ownership, liability, and responsibility for the EPD®.

2. company information

FITT is an international leader and a company specialised in the creation of complete fluid transfer systems made of thermoplastic materials, both for the industrial and the building sectors – at infrastructural and civil engineering level – and also for the home, gardening and hobby markets.

Established in 1969, for 50 years FITT has been developing technologically advanced solutions that offer reliability, safety, extremely high performance levels and ease of use. With headquarters in Sandrigo (Vicenza), FITT exports to 87 countries, has a total staff of 950 employees, 10 production sites (7 in Italy and 3 in other countries), 13 logistic sites all over the world and 5 subsidiaries. In 2021 FITT had a turnover of 304 M Euros.

Export
Export countries
87

Production plants
7 in Italy e 2 in France and 1 in Poland
10

Logistic centres
6 in Italy, 3 in France, 1 in Spain, 1 in China, 1 in Poland and 1 in USA
13

Commercial branches
1 in France, 1 in Monaco, 1 in Spain, 1 in China and 1 in USA
5

Technological partner
In Japan
1

Owner of the EPD: **FITT S.p.A.**
Contact: Martina Carraro, martina.carraro@fitt.com
Technical support: Spin Life s.r.l - University of Padova Spinoff
Name and location of the production site:
FITT S.p.A., Via Astico 40, Fara Vicentino (Italy) and Via Dalmastro 11, Lugo di Vicenza (Italy)

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2.1 / TALES OF CONTINUOUS INNOVATION
FITT is the creator of technologies that have revolutionised the markets in which it operates: a digital Concept Lab, fully dedicated to the development of new products and process technologies, is supported by the continuous and consistent innovation capabilities of the company. Open innovation and the collaboration with a network of international partners and research bodies, allows FITT to be always up to date with the latest generation materials, the most recent technologies and current regulations. External certifying bodies validate protocols and quality tests.

2.2 / THE RESPONSIBLE FLOW: FITT'S SUSTAINABILITY STRATEGY FOR 2030
In FITT's vision, being a responsible company means transforming its business model to achieve an ideal balance, with the objective of creating economic value and having a positive impact on the planet and on people's lives. FITT is a "Società Benefit", and in addition to the object of making a profit, it has added in its statute the public and official commitment of a positive impact on society and the biosphere, operating in a sustainable and transparent manner.

2.3 / CORPORATE RESPONSABILITY
FITT is committed to producing state-of-the-art products, providing its customers with the best technologies in the field of fluid handling. Investing in innovation, scientifically measuring the impact of its offering and adopting a supply chain approach that aims at minimising negative effects throughout the product life cycle, enables FITT to create an increasingly sustainable business model.

2.4 / ENVIRONMENT
FITT is engaged on two parallel fronts: energy, water and waste management and development of innovative products.
For the first, the target is to achieve carbon neutrality (Scope 1-2) for all Italian plants by 2025 and for all group plants by 2030.
For the second, the aim is to reach by 2025 a 10% turnover from innovative products with lower impact, producing 10% less Co2eq than their traditional equivalents.

2.5 / SOCIAL
FITT is engaged again on two complementary fronts, one internal and one external.
The first includes the creation of wellbeing, inclusion and security for the FITT people.
The second concentrates on support of social and environmental initiatives, both local and international, mainly in the fields of health, women, youth and people with special needs, creating partnerships with the stakeholders.

2.6 / GOVERNANCE
Act as a responsible company by rewriting a new business model that creates shared value, thus contributing to bring about a positive impact in the life of people and the environment.

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3. product information

3.1 FITT BATIPRO NF PIPES IN PVC
FITT Batipro piping system is considered as a single product.
FITT group has developed a range of NF - French Standard - EN 1453-1 - N°61-2-ES-3 certified pipes dedicated to wastewater evacuation in order to meet the needs of the building market, combining both reliability and efficiency.

This range of pipes, which carries both NF E and NF Me certification, guarantees continuous and standardised quality [socket tolerance, nominal diameter, length, nominal thickness, impact resistance] by meeting the general requirements of the NF mark, certified by the CSTB [1] and the LNE [2] respectively, both of which are mandated by AFNOR [3].

Designed from microbeads that allow perfect cohesion of the material during the manufacturing process, this range of drainage pipes has a perfectly smooth inner surface.

Available in 2 metre bars from diameter 32 to diameter 125 and in 4 metre bars from diameter 32 to diameter 200, the FITT BATIPRO range of pipes have smooth ends from diameter 32 to diameter 50, and are pre-sleeved on one side from diameter 80.

Recognisable by the grey colour [RAL 7037] used for PVC drainage products, the FITT BATIPRO range of pipes are extensively marked to allow full traceability of each bar. The FITT BATIPRO range of PVC pipes is an ideal solution for wastewater drainage systems.

3.2 / PVC DRAINAGE FITTINGS
With a wide range of fittings for Sanitary Evacuation, FITT offers its customers all the components necessary to create a solid and durable water evacuation system. With more than 110 fittings that comply with French standards and Unified Technical Documents (UDT) in force, FITT is an expert in this market. Certified to NF EN 1329-1 (NF, NF E and/or NF Me), choosing FITT's bonding fittings means using standardised and reliable products that fulfil high technical requirements [bending radius, length/depth and socket tolerance, nominal diameter, nominal thickness, impact resistance]. Precise marking on each part allows the exact identification of the type of standard, date of manufacture, diameter, angle and material of the fitting.
Certification authorities:
[1] CSTB: Centre Scientifique et Technique du Bâtiment
[2] LNE: Laboratoire National de Métrologie et d'Essais
[3] AFNOR: French Association for Standardisation

Physical and mechanical characteristics	Unit	Value	Test method
Vicat Point (VST)	°C	≥ 79	EN ISO 2507
Longitudinal reversion	%	≤ 5	NF EN ISO 2505 – Method A
Impact resistance	%	≤ 10,0	EN ISO 3127
Nominal ring stifness (SN)	kN/m²	≥ 2	NF EN ISO 9969
Specific weight	g/cm³	≤ 1,37	EN ISO 1183
Fire resistance class	-	B s_2 d_0	NF 13501-1

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3.3 / FITT BATIPRO SYSTEM MANUFACTURING

FITT Batipro pipes and fittings are manufactured primarily from PVC resin along with additives, including: calcium carbonate, titanium dioxide, calcium-based stabiliser, lubricants, processing aids and pigments.

FITT Batipro pipe is a multilayer product with an inner layer made of PVC foam and a compact PVC outer layer. FITT Batipro Fittings are made of compact PVC. The feed mix is heated and mixed prior to extrusion and then water cooled to form the pipe structure. One end of the pipe is then re-heated after cutting and expanded to allow for pipe jointing.

Finally, the pipes are palletised, packaged with softwood timber frames, steel nails and strapping.

FITT Batipro fittings are made through injection moulding, starting with virgin PVC granules. Fittings are packaged with cartonboard box and then palletised.

FITT Batipro pipes range is manufactured in Fara Vicentino plant, while FITT Batipro fittings range is produced in Lugo di Vicenza plant.

4. lca information

4.1 / LIFE CYCLE ASSESSMENT

Life Cycle Assessment (LCA) is an analytical tool that captures the overall environmental impacts of a product, process or human activity from raw material acquisition, through production and use, to waste management.

LCA studies are structured in 4 phases. The goal and scope definition is implemented to clarify the objective of the study, to determine the main methodological boundaries as well as the life cycle processes to be included in the analysis (also referred as system boundaries). Another fundamental step of this phase is the definition of the so called functional unit which is the measuring unit that quantify the function of the product under study. The inventory analysis phase includes the data collection and modelling of all of the input and outputs of material, energy and other elementary flows that can cause potential environmental impacts. In this study, the inventory phase is supported by the collection of primary data related to the production of PVC piping system occurring in the FITT's plants located in Fara Vicentino and Lugo di Vicenza (Italy). In the impact assessment phase inventory
data are characterized into potential environmental impacts. Finally, the interpretation phase is applied to discuss the validity of the results concerning the goal and scope of the study and to identify the most impacting life cycle stage.

The development of this EPD followed an application of type ""Cradle to gate with options, modules C1-C4, module D and with optional modules"

4.2 / DECLARED UNIT

The declared unit corresponds to a PVC piping system with FITT Batipro pipes for collecting and draining fluids.

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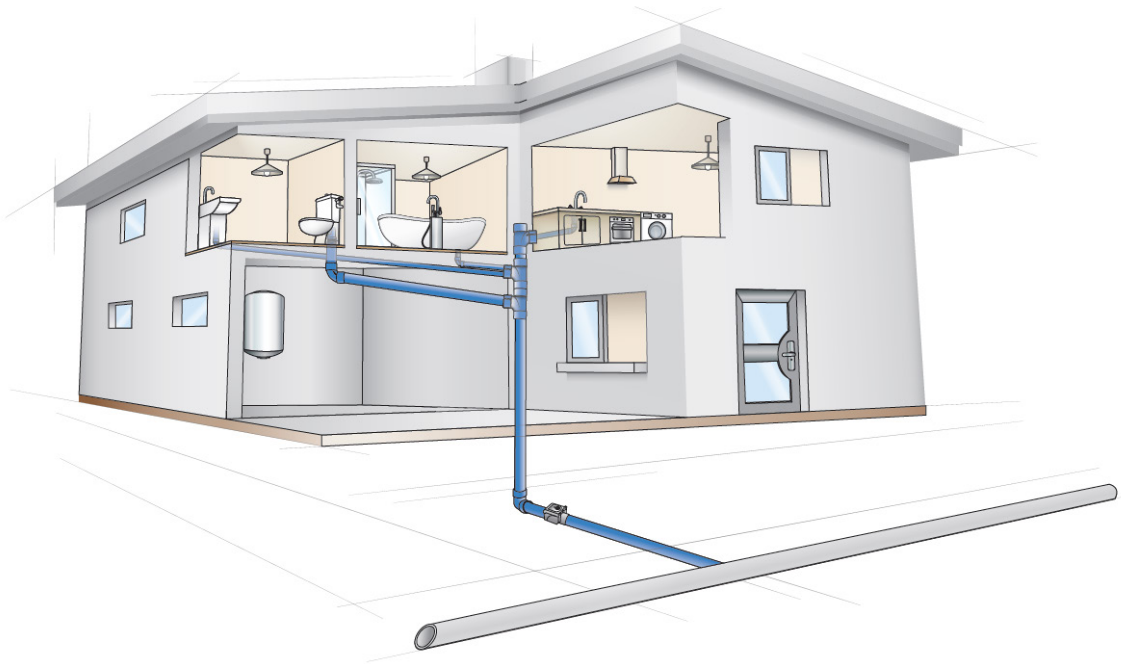


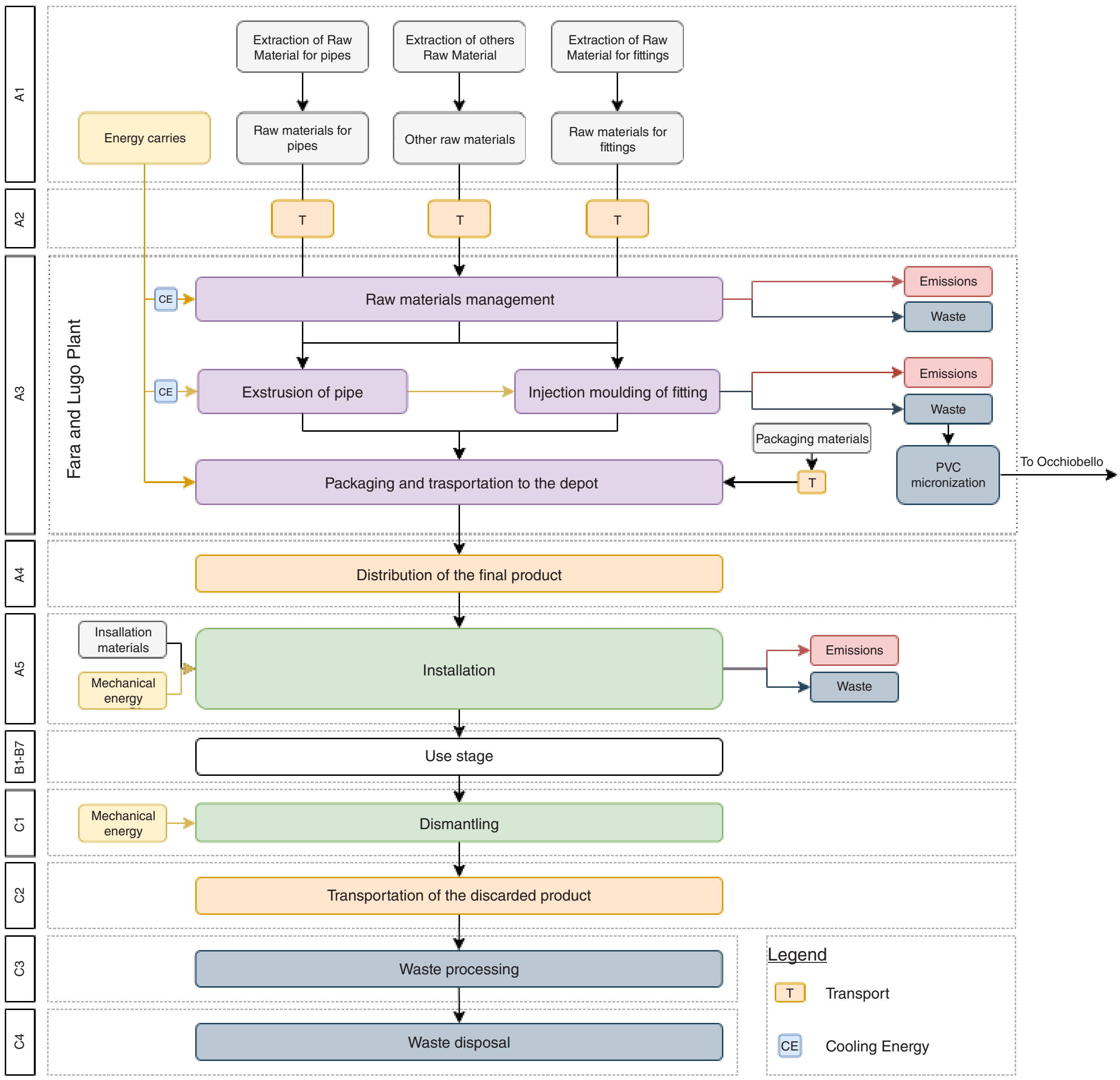
Code	Family	Description	Q.ty on the system
30502.03220.05102	Pipe Batipro	Ø 32 mm, weight 0,319 kg/m	1
30502.04020.05102	Pipe Batipro	Ø 40 mm, weight 0,407 kg/m	3
30502.10020.05101	Pipe Batipro	Ø 100 mm, weight 1,071 kg/m	3
30502.12520.05101	Pipe Batipro	Ø 125 mm, weight 1,469 kg/m	1
4107288	Fitting	Coude D.32 87° FF	1
4107322	Fitting	Coude D.40 87° FF	2
4107348	Fitting	Reduction excentree MF 40/32	1
4107350	Fitting	Te pied de biche D.40 87° FF	1
4107440	Fitting	Coude D.100 FF 87°	3
4107450	Fitting	Culotte D.100 MF 45°	1
4107454	Fitting	Manchon D.100	1
4107463	Fitting	Tampon de reduction 100/40/40	2
4107479	Fitting	Tampon de reduction 125/100	1

4. lca information

4.3 / TIME REPRESENTATIVENESS
Data cover the year 2021

4.4 / DATABASE(S) AND LCA SOFTWARE USED
Secondary data has been obtained from Ecoinvent v.3.8 and using the software SimaPro v.9.3.0.3 to carry out the assessment.

4.5 / SYSTEM DIAGRAM



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X=module included in EPD® / ND= not declared
Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO, EU, IT	EU	EU, IT	EU	EU, FR								FR	EU	FR	FR	EU
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

4. lca information

4.6 / DESCRIPTION OF SYSTEM BOUNDARIES

The system boundaries include the modules A1-A3, A4, A5, C1, C2, C3, C4 and D provided by the Standard EN 15804, as shown in the following table according to an application of type "Cradle to gate with options, modules C1-C4, module D and with optional modules".

The construction, maintenance, and disposal of the infrastructures, intended as building, and the occupation of industrial land were not considered, due to the negligible contribution to the environmental impact. The use phase is not included in the study.

The parameter chosen for the initial inclusion of input and output elements is based on the definition of a cut-off level of 1%, in terms of mass, energy and environmental relevance. This means that a process has been neglected if it is responsible for less than 1% of the total mass, primary energy and total impact.

In Accordance with this criterion, the consumption of diesel, packaging of the final product packaging and their transport were excluded.

In this study, the allocation principle was used to allocate the impacts associated with plant consumption (mass-based allocation) and to allocate the impacts of pipe production scraps produced at Fara (economic allocation).

Modules A1, A2 and A3 include:

A1. Extraction and treatment of raw materials (PVC resins, calcium carbonate, chlorinated polyethylene, stabilisers, dyes, gasketing systems and packaging materials) as well as production processes of energy carriers;

A2. Raw material transport from the production site to FITT production plant

A3. The following processes are part of this module:

- Mixing of substances that make up the mixtures for pipe production
- Pipe extrusion and belling processes
- Pipe packaging (including packaging material production)

Modules	Scenarios
A4	The distribution of the pipe system was defined by considering the sales market for the products. FITT Batipro pipe and fittings are only installed in France and to a small part in Switzerland. Therefore, transport to FITT's warehouse in Grenay, France, plus 200 km to include transport to the installation site is considered.
A5	The pipe system installation scenario was defined following the TEPPFA document. Consumption of materials (lubricants, cement, plastics, and brackets) and electricity used were defined (referred to 50 years of service life). The generated waste was modelled considering the scenarios indicated by EN 15804 and a transport of 100km.
C1	The impacts associated with the dismantling phase of the pipe system were modelled considering the diesel consumption of the machinery used. The figure was extrapolated from the JRC technical report (Model for Life Cycle Assessment (LCA) of buildings) and is 0.070MJ/kg.
C2	The product at the end of its life is sent to selection centres, therefore a distance of 100km is assumed.
C3	-
C4	The disposal of the product at the end of its life was modelled by creating the scenario in the TEPPFA document, which shows the recycling, incineration and landfill rates in 50 years.
D	Benefits and impacts related to material recycling as well as heat and power production from materials sent for incineration are part of this module.

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- Transport to storage
- Loading and preparation for shipment

The following table shows the scenarios adopted for the modeling of the modules A4, A5, C1-C4 and D.

4.7 / MODELLING OF ELECTRICAL ENERGY (MODULE A3)

The modelling of electricity consumption in Module A3 was carried out using the Italian national residual mix, using as a source of data from the latest AIB report (AIB, 2022). The emission factor obtained is equal to 607 gCO_2eq/kWh.

Source	Residual Mix 2021
Renewables Unspecified	0.00%
Solar	5.24%
Wind	0,76%
Hydro&Marine	2,48%
Geothermal	0.00%
Biomass	2,33%
Nuclear	6.42%
Fossil Unspecified	1.80%
Lignite	0.19%
Hard Coal	12.75%
Gas	63.60%
Oil	4.43%
TOTALE	100.00%

5. content declaration

5.1 / PRODUCT
No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in FITT PVC pipes and fittings, either above the threshold for registration with the European Chemicals Agency or above 0.1 % (wt/wt).

5.2 / PACKAGING
FITT Batipro pipes are packed using wood, nails and metallic strips; FITT Batipro fittings are packed using cardboard box stacked on a wood pallet.

5.3 / RECYCLED MATERIAL
In FITT Batipro system production systems, no recycled material is used as raw material.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Polyvinyl chloride resin K65-68	12,16	0	0
Calcium Carbonate	1,83	0	0
Stabilizers based on Organic Calcium	0,27	0	0
Lubricants	0,08	0	0
Dyes	0,05	0	0
Antimony Trioxide	0,04	0	0
Azodicarbonamide	0,04	0	0
TOTAL	**14,47**	**0**	**0**
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/ kg**
Steel	0,05	3,5%	0
Wood	1,96	13,5%	0,47
Paper	0,05	0,3%	0,42
Paperboard	0,20	1,4%	0,45

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6. environmental information

6.1 / POTENTIAL ENVIRONMENTAL IMPACT
To present a clear and complete view of the environmental impacts associated with the FITT Batipro system, these are proposed disaggregated into modules for all the considered impact categories:

Climate change.
Global Warming Potential (GWP) expressed as kgCO2eq. This category quantifies how the process contributes to the release of greenhouse gases, based on the model developed by IPCC. Results are presented thorough the following indicators: GWP-total, GWP-fossil, GWP-biogenic, GWP-luluc (land use and land use change). According to the used PCR, the additional indicator GWP-GHG will be presented. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product

Ozone Depletion.
Ozone Depletion Potential (ODP) expressed as kgCFC11eq. This category refers to the degradation of stratospheric ozone layer, reducing its ability to prevent UV light entering the earth's atmosphere.

Acidification.
Acidification Potential (AP) expressed as mol H+eq. This category quantifies the impact of the release of oxides of nitrogen and sulphur in the atmosphere, soil and water, where the acidity can be modified, affecting the flora and fauna, as well as human health and construction materials.

Eutrophication.
Eutrophication potential (EP) refers the nutrient enrichment, which determines unbalance in ecosystems causing negative effects on flora and fauna. It considers: EP-freshwater (expressed as kg PO4eq and kg Peq), EP-marine (expressed as kg Neq) and EP-terrestrial (mol N eq).

Photochemical Ozone Formation.
Formation potential of tropospheric ozone (POCP) expressed as kg NMVOC eq. Photochemical ozone formation takes place in the atmosphere by the degradation of volatile organic compounds in presence of lights and nitrogen oxides. This phenomenon is harmful to both plants and humans, causing irritation, respiratory problems and damage to the respiratory system.

Depletion of abiotic resources.
Abiotic depletion potential (ADP) evaluates the impact of the activity on different non-renewable natural resources, such as ores containing metals, petroleum, mineral raw materials etc. It considers two indicators: ADP-mineral&metals (expressed as kg Sb eq.) and ADP-fossil (expressed as MJ, net calorific value).

Water use.
Water (user) deprivation potential (WDP) expressed as m3 world eq. deprived. This indicator evaluates the potential for deprivation of water resources, both for humans and ecosystems, starting from the assumption that the less water is available, the more likely it is that a further user, human or ecosystem, will be deprived of it.

7. results fitt batipro

Potential environmental impact

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq.	3,67E+01	1,84E+00	3,86E-01	3,89E+01	2,80E+00	7,19E+00	2,78E+00	1,47E+00	0,00E+00	5,95E+00	-2,86E+00
GWP-biogenic	kg CO2 eq.	4,54E-01	4,88E-03	-2,52E+00	-2,06E+00	7,43E-03	2,57E+00	2,41E-03	5,75E-03	0,00E+00	1,43E-02	8,28E-01
GWP-luluc	kg CO2 eq.	2,46E-02	7,23E-04	3,05E-03	2,84E-02	1,10E-03	9,39E-02	2,77E-04	8,82E-04	0,00E+00	2,40E-03	-2,45E-03
GWP-total	kg CO2 eq.	3,72E+01	1,84E+00	-2,13E+00	3,69E+01	2,81E+00	9,85E+00	2,78E+00	1,47E+00	0,00E+00	5,97E+00	-2,03E+00
ODP	kg CFC 11 eq.	1,64E-05	4,29E-07	4,39E-08	1,68E-05	6,54E-07	4,61E-07	5,94E-07	3,22E-07	0,00E+00	8,43E-07	-9,56E-07
AP	mol H+ eq.	1,51E-01	1,25E-02	2,15E-03	1,66E-01	1,91E-02	2,72E-02	2,89E-02	7,04E-03	0,00E+00	9,33E-03	-8,93E-03
EP-freshwater	kg P eq	1,15E-02	1,19E-04	2,34E-04	1,18E-02	1,81E-04	2,23E-03	8,61E-05	1,37E-04	0,00E+00	6,36E-04	-5,39E-04
EP-marine	kg N eq.	3,03E-02	4,90E-03	8,70E-04	3,61E-02	7,46E-03	6,15E-03	1,28E-02	2,25E-03	0,00E+00	6,45E-03	-1,69E-03
EP-terrestrial	mol N eq.	2,73E-01	5,36E-02	6,99E-03	3,33E-01	8,17E-02	5,61E-02	1,40E-01	2,46E-02	0,00E+00	2,29E-02	-1,62E-02
POCP	kg NMVOC eq.	7,21E-02	1,30E-02	1,67E-03	8,67E-02	1,98E-02	1,49E-02	3,36E-02	6,03E-03	0,00E+00	5,83E-03	-4,25E-03
ADP-minerals&metals*	kg Sb eq.	5,38E-04	6,40E-06	2,29E-06	5,47E-04	9,75E-06	3,64E-05	1,43E-06	9,17E-06	0,00E+00	1,91E-05	-2,37E-05
ADP-fossil*	MJ	8,14E+02	2,80E+01	5,31E+00	8,47E+02	4,27E+01	1,66E+02	3,81E+01	2,20E+01	0,00E+00	2,03E+01	-5,77E+01
WDP	m3	4,87E+01	8,07E-02	1,30E-01	4,89E+01	1,23E-01	3,52E+00	5,43E-02	8,23E-02	0,00E+00	1,34E+00	-2,64E+00
GWP-GHG	kg CO2 eq.	3,59E+01	1,83E+00	3,96E-01	3,81E+01	2,79E+00	7,14E+00	2,77E+00	1,46E+00	0,00E+00	5,80E+00	-2,78E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption											

***The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.**

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

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7. results fitt batipro

Use of resources

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3,16E+01	2,95E-01	2,85E-01	3,22E+01	4,49E-01	5,65E+00	1,66E-01	3,43E-01	0,00E+00	1,72E+00	-2,98E+00
PERM	MJ	0,00E+00	0,00E+00	1,64E+01	1,64E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,49E+01	3,93E-01	3,14E+01	7,67E+01	5,98E-01	1,19E+01	2,14E-01	4,66E-01	0,00E+00	2,17E+00	-1,42E+01
PENRE	MJ	5,97E+02	2,80E+01	5,31E+00	6,31E+02	4,27E+01	1,66E+02	3,81E+01	2,20E+01	0,00E+00	2,03E+01	-4,69E+01
PENRM	MJ.	2,16E+02	0,00E+00	0,00E+00	2,16E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,08E+01
PENRT	MJ	8,14E+02	2,80E+01	5,31E+00	8,47E+02	4,27E+01	1,66E+02	3,81E+01	2,20E+01	0,00E+00	2,03E+01	-5,77E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	5,68E-01	2,90E-03	4,51E-03	5,76E-01	4,42E-03	8,42E-02	1,92E-03	3,14E-03	0,00E+00	3,76E-02	-3,28E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water											

Waste production

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9,79E-03	7,32E-05	2,13E-05	9,88E-03	1,12E-04	1,99E-04	1,04E-04	6,07E-05	0,00E+00	3,25E-05	-5,09E-05
Non-hazardous waste disposed	kg	3,12E+00	1,43E+00	1,16E-01	4,67E+00	2,18E+00	4,68E+00	5,19E-02	7,19E-01	0,00E+00	1,20E+01	-2,15E-02
Radioactive waste disposed	kg	1,72E-03	1,90E-04	2,17E-05	1,93E-03	2,89E-04	3,29E-04	2,63E-04	1,45E-04	0,00E+00	8,70E-05	-7,42E-05

Output flows

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	2,46E-01	2,46E-01	0,00E+00	6,91E-02	0,00E+00	0,00E+00	0,00E+00	7,23E-01	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Information on biogenic carbon content

BIOGENIC CARBON CONTENT	Unit	Quantity
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in packaging	kg C	5,53E-01

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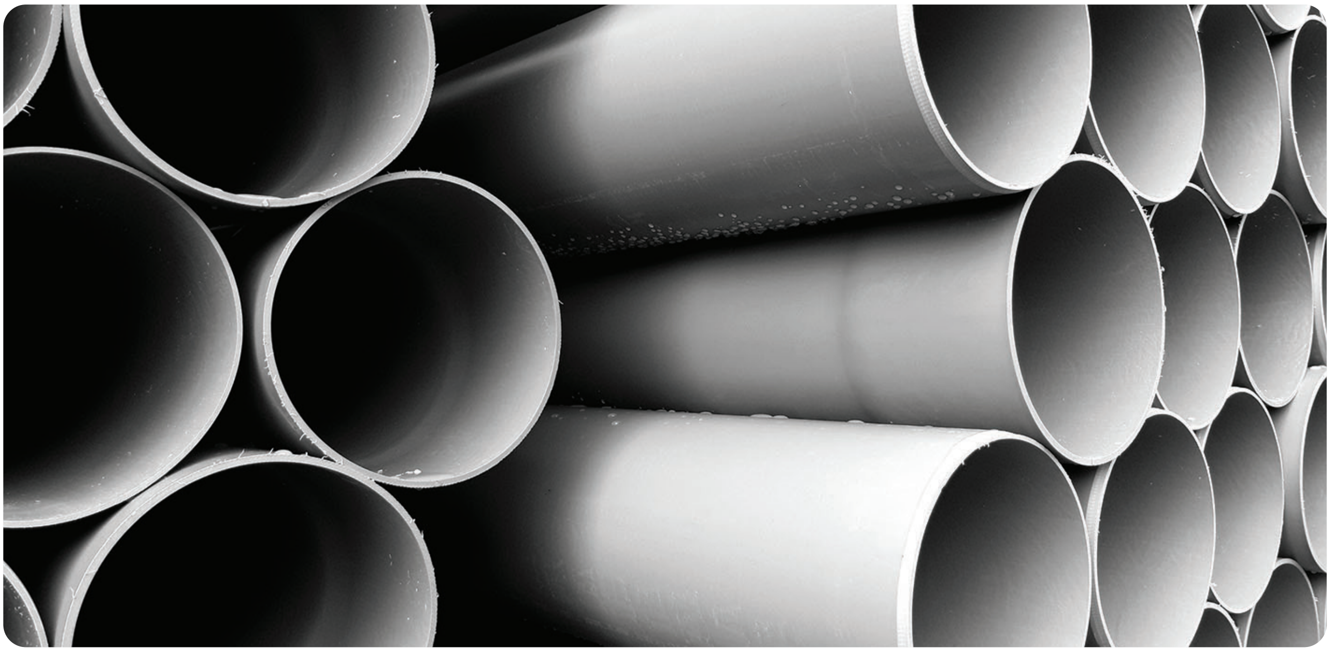
8. additional environmental information

FITT recognises the importance of incorporating environmental sustainability into our business strategies. Environmental issues are now the subject of greater community awareness.
FITT has long been mindful of these issues, demonstrated by our achievements in minimising waste, postindustrial and post-consumer recycling, minimising energy use on production as well as minimising embodied energy in our products.

8.1 / GUIDANCE FOR PVC PIPES RECYCLING
Due to PVC pipes being installed inside residential buildings, they supposed to last as long as the house in which they are placed. However, PVC removed for other reasons (e.g. new construction) has a high recyclability and can be mechanically recycled back into a new pipe product performing the same structural function as one made only from virgin material. Due to the long life of rigid PVC products and low volume in waste streams, there is also no current limitation for the amount of recycled PVC that can be utilised.



fitt batipro

8.2 / THE PRODUCTION PLANT AND TRIGENERATION

FITT Batipro system is produced in the Fara Vicentino and Lugo di Vicenza facilities, powered by a trigeneration plant. Trigeneration is a process that allows the production of electricity and heat from the same energy source. Through absorption refrigerators, it also allows to use heat to obtain refrigerated water for conditioning and industrial process purposes.
The trigeneration plant can adjust the production of hot and cold water and electricity on the basis of production needs. It also makes it possible to eliminate any natural losses normally incurred during the transport of energy, therefore improving energy efficiency and reducing carbon dioxide emissions.

8.3 / END OF LIFE

PVC pipes are generally installed inside residential buildings. We have assumed a 50-year life of the products, so we expect them to last as long as the house in which they are placed. PVC is 100% recyclable and can be reintroduced in the production cycle of other PVC pipes.

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9. references

CEN. (2019). EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction works. Brussels: European Committee for Standardization (CEN).

European Commission. (2018). Model for Life Cycle Assessment (LCA) of buildings.

European Commission. (2018). Product Environmental Footprint Category Rules Guidance 6.3. European Commission.

FITT S.p.A. (2023). Studio di Life Cycle Assessment di FITT M1 e FITT Batipro.

Hajibabaei, M., Nazif, S., & Sereshgi, F. T. (2018). Life cycle assessment of pipes and piping process in drinking water distribution networks to reduce environmental impact. Sustainable Cities and Society.

ISO. (2020). ISO 14040:2006/Amd 1:2020 Environmental management - Life cycle assessment - Principles and frameword.

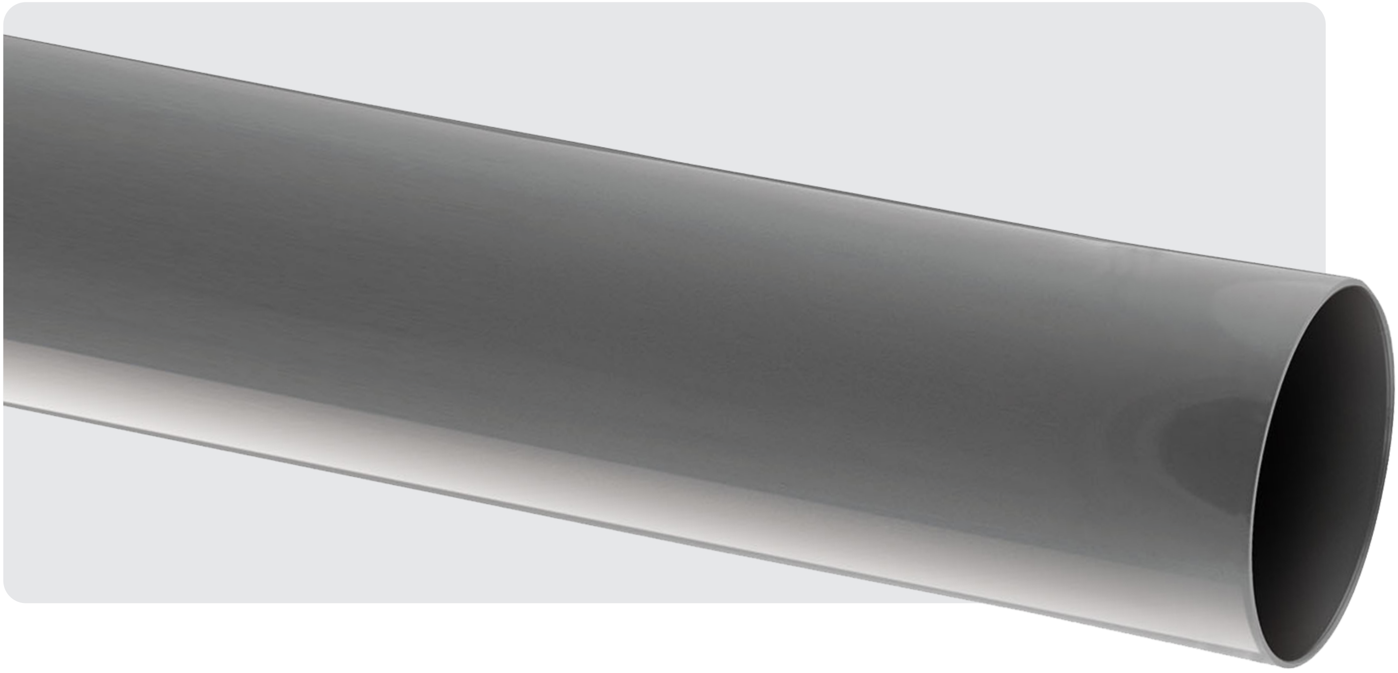
ISO. (2020). ISO 14044:2006/Amd 2:2020 Environmental management - Life cycle assessment - Requirements and guidelines.

Product Environmental Footprint Category Rules (PEFCRs) for thermal insulation. (2019). European Commission.

TEPPFA. (2018). EPD - Polyvinyl chloride (PVC-U) pipe system for soil and waste removal in the building. Brussels, Belgium.

PCR 2019:14 (version 1.2.5). Product Category Rules for Construction products

EPD International (2021): General Programme Instructions for the International EPD® System. Version 4.0, dated 2021-03-29.



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notes

FITT BUILDING SOLUTIONS
This is the business area of the FITT Group that designs, manufactures and develops pipes and hoses, profiles, fittings and accessories for the construction industry, dedicated to the flow of fluids and the installation of cables, for various applications, such as rainwater and sanitary water drainage.

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