

RIFENG PVC FITTINGS



THE INTERNATIONAL EPD® SYSTEM



ENVIRONMENTAL PRODUCT DECLARATION

Rifeng PVC drainage and conduit fittings

This EPD is representative of a weighted average for PVC drainage and conduit fittings production complied with ISO 14025:2006 and EN15804 2012+A1:2013

Geographical area of application of this EPD : China

Year taken as a reference for the data: 2017. 7. 1–2019. 6. 30

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FOR 50 YEARS



CONTENT

1. ENVIRONMENTAL PRODUCT DECLARATION DETAILS.....	4
2. EPD COMPLIANCE.....	5
3. RIFENG PIPING SYSTEM SOLUTIONS.....	6
4. PRODUCT LIFE CYCLE OVERVIEW.....	9
4.1 LIFE CYCLE OF RIFENG PVC DRAINAGE AND CONDUIT FITTINGS.....	10
4.2 MANUFACTURE STAGE.....	11
4.3 INSTALLATION,USAGE, DISPOSAL.....	12
5. LIFE CYCLE ASSESSMENT METHODOLOGY.....	14
5.1 CORE DATA COLLECTION.....	14
5.2 BACKGROUND DATA.....	15
5.3 CUT OFF CRITERIA.....	15
5.4 ALLOCATION.....	16
5.5 VARIATION.....	16
5.6 PVC FITTINGS ENVIRONMENTAL PERFORMANCE.....	16
5.7 INTERPRETATION OF LCA RESULTS.....	19
6. PRODUCT INFORMATION.....	20
6.1 PRODUCT SPECIFICATION.....	20
6.2 BEST ENVIRONMENTAL PRACTICE PVC.....	23
7. REFERENCES.....	24

1. ENVIRONMENTAL PRODUCT DECLARATION DETAILS

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 2012+A1:2013.

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<p>PCR</p>	<p>Construction Products and Construction Services, Version 2.3 (2018-11-15).</p>
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<p>Accredited /approved by</p>	<p>EPD International AB</p>
<p>Independent external verification of the declaration and data, according to ISO 14025:2006</p>	<p><input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)</p>

The Rifeng PVC drainage and conduit fittings EPD results can also be used to represent Rifeng PVC drainage fittings and conduit fittings products in Whole of Building Life Cycle Assessments. This EPD is complied with its requirement as below.



3. RIFENG PIPING SYSTEM SOLUTIONS



Rifeng Introduction

Rifeng Enterprise Group Co., Ltd., established in 1996, has been committed to developing high-quality and environmental - friendly piping products that cover the plumbing, indoor climate, drainage, electrical and gas fields with product systems ranging from multilayer pipes to PEX, PERT, PP-R, PVC, and brass hardware such as fittings, manifold and valves, under optional sizes from DN 09 to DN160 mm, to provide systematic solutions.

With over 5,000 employees and 6 manufacturing bases in China respectively located in Foshan, Shenyang, Tianjin, Shanxi, Hubei and Sichuan. It is only Foshan base has the business of export. Rifeng is increasingly taking an active role in the plastic piping markets and lays out a wide sales network over 67 countries.

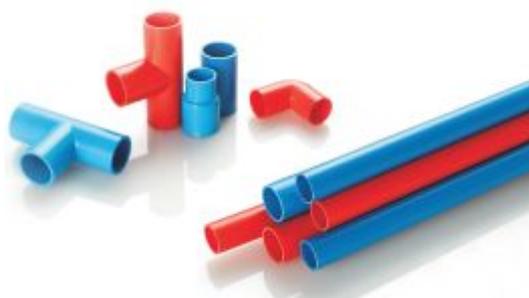
Investments for international talents, accurate testing instruments and advanced hardware equipments are yearly increasing in R&D sector and it founded 2 research institutes, named National Technical Center and CNAS Certification Laboratory. With more technical improvement and product innovation, Rifeng is confident to provide customers with more hygienic and secure piping products all the time.

Rifeng piping system has more than 50 certificates, such as NSF, DVGW, AENOR, WRAS WaterMark, StandardsMark etc. These certificates worldwide underline our technical and quality know-how, and we can provide you with 25 years system warranty backed up by an international insurance company. Rifeng always implement the concept of customer value to satisfy different demands, and continuously provide customers with piping solutions and technical supports.

3. RIFENG PIPING SYSTEM SOLUTIONS

Rifeng PVC Drainage and Conduit Fittings

Rifeng PVC drainage and conduit fittings, which produced from PVC-U are used for non-pressured applications, such as sewerage and drainage applications as well as for electrical conduits. PVC is an ideal material to apply in these applications for its excellent properties like light weight, non-conductive and keep stable in the long term in the corrosion and aggressive conditions. PVC fittings can be used above ground, behind the wall, exposed and buried installations.



Rifeng PVC fittings cover the range from 32mm to 315mm in sewerage and drainage, the fittings are conforming to Australian standard AS/NZS 1260:2017, and have WaterMark product certification. Fittings has been tested and verified by internal and third-body to comply with standard and code.



The colour of these fittings can be decided by the agreement between manufacturer and purchaser, usually be white or grey.

Rifeng PVC fittings cover the range from 16mm to 32mm in electrical conduits. These fittings are conforming to European Standard, outstanding designed and easy installation are recognized among the consumers as well. Three colours, that are white, blue and red, can be chosen.

PVC-U is PVC Unplasticised and contains no phthalates or other plasticisers, is a kind of PVC polymer generated from vinyl chloride monomer by chemical process. The fittings characteristics are shown in Table 1 and the content declaration in Table 2.

3. RIFENG PIPING SYSTEM SOLUTIONS

Table 1 Product characteristics of PVC drainage and conduit fittings

Product names	PVC fittings covered in this EPD are: Rifeng PVC fittings for drainage Rifeng PVC fittings for electrical conduits application see table 9 for individual product codes
UN CPC Code	36320 - Tubes, pipes and hoses, and fittings therefore, of plastics
Density	1350~1550kg/m ³ (ISO 1183-1:2019)
Vicat softening temperature	≥79°C (ISO 306:2013)
Tensile Strength	≥40Mpa(ISO 527- 1: 2012)
Falling weight impact test TIR	≤10%(ASTM D2444-17)
Longitudinal shrinkage	≤5%(ISO 2505:2005)
Nominal diameter	32~315mm for drainage fittings and 16~50mm for conduit fittings

Table 2 - Content Declaration

Material	Percentage Content(%)	CAS No.
PVC resin	84.7	9002-86-2
Calcium carbonate	5.1	471-34-1
Calciumbased stabilizer	4.7	Confidential(nothing hazardous)
Titanium white	1.7	13463-67-7
Lubricant	1.7	monoglyceride(nothing hazardous)
Pigments	0.008	Confidential(nothing hazardous)
methyl methacrylate	0.013	80-62-6
Total	100%	

Rifeng PVC drainage fittings and conduit fittings do not contain any substances as such or in concentration exceeding legal limits, which can adversely affect human health and the environment in any stages of its entire life cycle.

4. PRODUCT LIFE CYCLE OVERVIEW

General

The life cycle of a building product is divided into three process modules according to EN 15804 2012+A1:2013 and ISO 14025:2006, the Product Category Rules for Type III environment product declaration of construction products of International EPD Program. Table 3 shows the scope and system boundary of Rifeng PVC fittings assessment. The scope is “cradle to gate” as defined by EN 15804 2012+A1:2013.

This EPD intent is to cover all environmental impacts of significant concern over the product life cycle based on “cradle to gate” scope. Modules C1-C4 were deemed not relevant (of negligible impact) due to the fact that the pipes are left in the ground at end of life with negligible potential environmental impact. Other than module A1~A3, all other use stage modules were also deemed not relevant.

Table 3- System boundary and scope of assessment

Product stage			Construction stage		Use stage							End of life stage			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
material supply	Transport	Manufacturing	Transport	Installation	Material emissions	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	Deconstruction/Demolition	Transport	Waste processing	Disposal
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X = module include in EPD

MND= module not declared (does not indicate zero impact result)

4. PRODUCT LIFE CYCLE OVERVIEW

4.1 LIFE CYCLE OF RIFENG PVC DRAINAGE AND CONDUIT FITTINGS

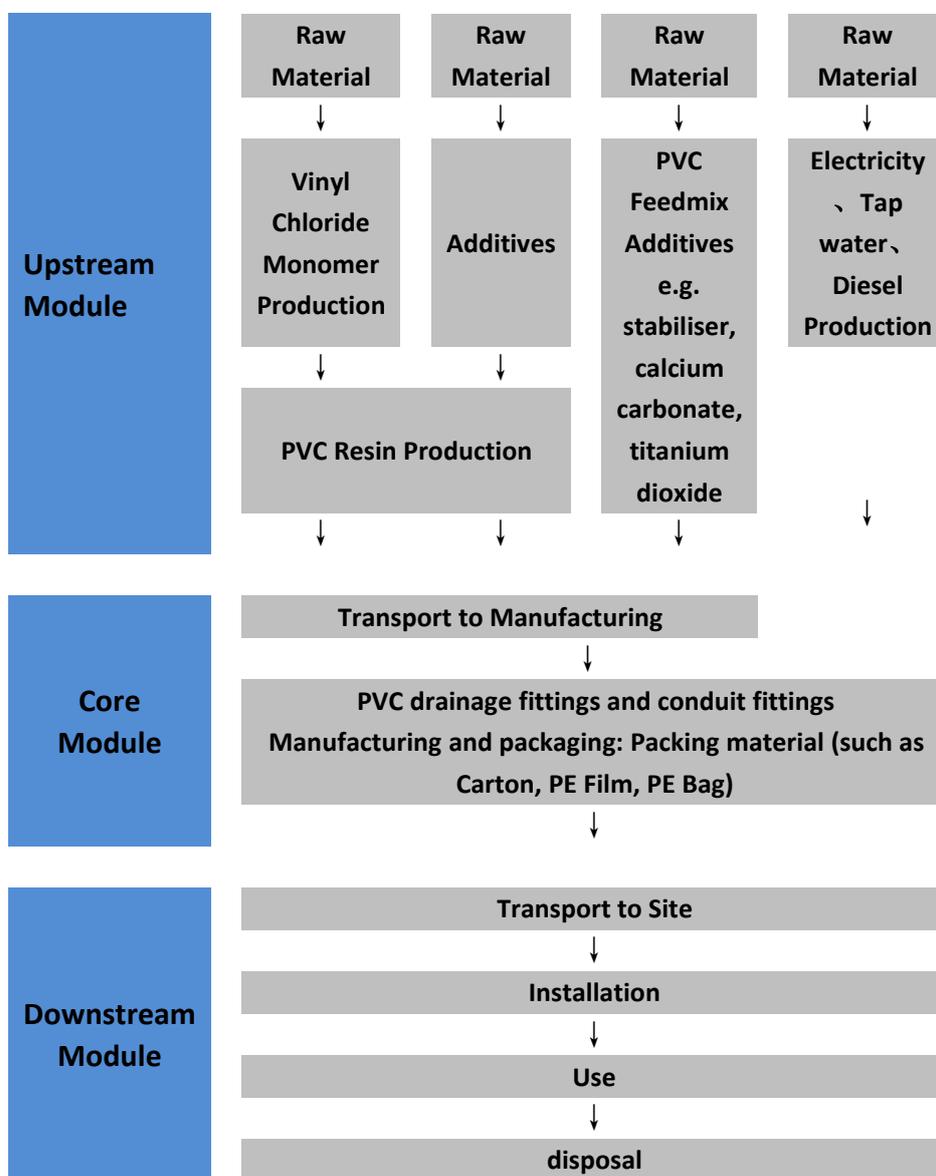


Figure 1 - life cycle diagram of PVC drainage and conduit fittings production

System boundary in this EPD involves the upstream module and core module referring to A1~A3 stage in table 3. Downstream module (A4~A5,B1~B7,C1~C4) is out of the scope of study.

4. PRODUCT LIFE CYCLE OVERVIEW

4.2 MANUFACTURE STAGE

RIFENG

PVC

FITTINGS

Manufacture

Rifeng PVC drainage and conduit fittings are manufactured primarily from PVC resin and additives, such as titanium dioxide, calcium carbonate, pigment, calcium based stabilizer and lubricants. As the main ingredient of PVC fittings, the PVC resin is manufactured from vinyl chloride monomer produced in China.



The materials are purchased from Chinese suppliers and transported to factory by truck. All the materials are mixed prior to mould injection then cooled to form the fitting structure.

The scrap, from production or the defective products, is fed back to the production as per internal requirement. The fittings are subjected to internal inspection and packaged with carton box and PET strapping. (Foshan base location of the map: F1-F14 No.1 Rifeng Road, Foshan, Guangdong, CHINA)

The results of this EPD are representative of the weighted average PVC fittings production. It is based on 1kg product output to calculate the impact on environment in the phases of material supply, transport , manufacturing and packaging

4. PRODUCT LIFE CYCLE OVERVIEW

In the A2 stage(Transport), the transport distances and means of transportation, as below.

- ✓ The raw material transportation is a truck, and the total transportation distance is 2.31E+00 km/per 1 kg of manufactured product.
- ✓ The packaging materials are transported as trucks with a total transport distance of 5.01E-03 km/per 1 kg of manufactured product.

In the manufacturing stage, there will be defective scrapping of the products, but these pipes can be recycled and reused through the crushing technology, and then can be put into remanufacturing.

4.3 INSTALLATION,USAGE, DISPOSAL

Rifeng PVC drainage and conduit fittings manufactured in Foshan facility will be transported a long distance to abroad.

Rifeng PVC fittings for drainage application are mostly installed along exterior wall of the building for the purpose of rainwater discharge and it is also installed inside the building for the domestic water discharge. Rifeng PVC conduit for residential electrical application is installed along on the ceiling, at the corner or in wall cavities.

4. PRODUCT LIFE CYCLE OVERVIEW



Both kind of PVC products are mainly open installed. The installation could be done without extra tools. PVC fittings usually connect with PVC pipe by solvent cement.

Maintenance of the pipe systems is not required and not planned. The failure rate is also extremely low and is considered to be not relevant in this EPD. In case of pipe damaging, repair is simple cutting out the damaged section and replaced by the new ones. PVC plastics fitting have a very long serve life and the all the PVC fittings are still in their first lifetime. PVC plastic is readily recyclable. All the pre-consumer PVC fittings waste is recycled at manufacturing factory while post-consumer PVC fittings waste is collected by authorized agency then put into recycling. In recent years, authorized agencies are on the rise in China. This chapter is considered to be inconsequential(not relevant) in this EPD,so it is out of study.

Based on the provisions of 「 CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES PRODUCT CATEGORY RULES Chapter 7 GENERAL SYSTEM BOUNDARIES Table 2 」 , this announcement is "cradle-to-gate EPD", so Product Stage(A1 Raw material supply 、 A2 Transport and A3 Manufacturing are Mandatory modules, but the remaining A4 ~ B7 are selective disclosure. Therefore, this EPD only discloses the necessary items for disclosure.

Chapter 4.3 is for reference only. They are not relevant in this EPD, so they are out of the study scope.

5. LIFE CYCLE ASSESSMENT METHODOLOGY

General

This section includes the main details of the LCA study as well as assumptions and methods of the assessment. A summary of the key life cycle assessment parameters is given in Table 4.

Table 4 - Details of LCA Study

Declared unit	1 kg of manufactured fitting
Geographical coverage	China
LCA scope	Cradle to gate

Life cycle thinking is a core concept in sustainable consumption and production for policy and business. Upstream and downstream consequences of decisions must be taken into account to help avoid the shifting of burdens from one type of environmental impact to another, from one political region to another, or from one stage to another in a product's life cycle from the cradle to the grave.

LCA is the compilation of the inputs, outputs and environmental impacts of a product system throughout its life cycle. It is a technique that enables industries to identify the resource flows and environmental impacts (such as greenhouse gas emissions, water and energy use) associated with the provision of products and services.

According to EN 15804 2012+A1:2013, EPDs of construction products may not be comparable if they do not comply with this standard, and EPDs might not be comparable, particularly if different functional units are used.

5.1 CORE DATA COLLECTION

Life cycle data has been sourced from material quantity data and production process data from:

- RIFENG reporting systems and staff
- RIFENG mix suppliers

Core manufacturing data was collected directly from RIFENG manufacturing sites.

- ✓ Electricity consumption was allocated to pipe via mass of pipe produced.
- ✓ Tap Water consumption was allocated to pipe via mass of pipe produced.
- ✓ Diesel consumption was allocated to pipe via mass of pipe produced.

5. LIFE CYCLE ASSESSMENT METHODOLOGY

5.2 BACKGROUND DATA

Generic background data was sourced for raw materials in the upstream module, and transport and manufacturing in the core module.

The LCA analysis method is adapted to Simapro 8.2.3 CML V3.02 (release by CML in April 2013 version 4.2) , and use the ecoinvent v3.0 database. For the EPD database, we used the 「 Electricity, low voltage {CN}| market for | Alloc Def, S;1.17 KgCO₂e/kWh 」 .This general value means that when using 1 kWh electric power in China, there would be 1.17 Kg CO₂e generating and we can see the different used energy sources as below:

Non-renewable energy	
Energy, gross calorific value, in biomass	0.83%
Energy, gross calorific value, in biomass, primary forest	0.00%
Oil, crude	1.47%
Gas, mine, off-gas, process, coal mining/m ³	0.52%
Coal, brown	0.09%
Coal, hard	90.58%
Gas, natural/m ³	1.12%
Renewable energy	
Energy, kinetic (in wind), converted	0.13%
Energy, solar, converted	0.00%
Energy, geothermal, converted	0.00%
Energy, potential (in hydropower reservoir), converted	5.27%

Emission factor for calculate carbon emissions from electricity use. Almost all background data used for calculation of results are not older than 10 years. Exceptions (reference year not older than 2000) have only a minor impact on the overall results and can be considered representative for the period under review.

5.3 CUT OFF CRITERIA

Environmental impacts relating to personnel, infrastructure, and production equipment not directly consumed in the process are excluded from the system boundary. All other reported data were incorporated and modelled using the best available life cycle inventory data.

5.4 ALLOCATION

Allocation was carried out in accordance with the PCR, section 7.7. No allocation between co-products in the core module as there were no co-products created during manufacturing.

5.5 VARIATION

The project report does not have tested a variation between different manufacturing locations, because RIFENG just has one site to produce RIFENG PVC drainage fittings and conduit fittings product supplied to the market.

5.6 PVC FITTINGS ENVIRONMENTAL PERFORMANCE

The potential environmental impacts used in this EPD are explained in Table 5 and the results for RIFENG PVC drainage fittings and conduit fittings are shown in Table 6. The use of energy and fresh water resources is shown in Table 7. The use of secondary material and secondary material used as energy resources is listed as 'INA' (indicator not assessed). Table 8 shows the generation of waste throughout the product life cycle.

5. LIFE CYCLE ASSESSMENT METHODOLOGY

Table 5 - Environmental indicators used in the EPD

Environmental Indicator		Unit	Description
ADPE (kgSb eq)	Abiotic Depletion Potential – Elements minerals	Kg antimony equivalents	The extraction of non-living and nonrenewable elements and minerals. These resources are essential in our everyday lives and many are currently being extracted at an unsustainable rate.
ADPF (MJ)	Abiotic Depletion Potential – Fossil Fuels	MJ net calorific value	The extraction of non-living and nonrenewable fossil fuels. These resources are essential in our everyday lives and many are currently being extracted at an unsustainable rate.
GWP (kgCO ₂ eq)	Global Warming Potential	kg carbon dioxide equivalents	Increase in the Earth's average temperature, mostly through the release of greenhouse gases. A common outcome of this is an increase in natural disasters and sea level rise.
ODP (kgCFC11 eq)	Ozone Depletion Potential	kg CFC-11 equivalents	The decline in ozone in the Earth's stratosphere. The depletion of the ozone layer increases the amount of UVB that reaches the Earth's surface. UVB is generally accepted to be a contributing factor to skin cancer, cataracts and decreased crop yields.
POCP (kgC ₂ H ₄ eq)	Photochemical Ozone Creation Potential	kg ethylene equivalents	Ozone in the troposphere is a constituent of smog that is caused by a reaction between sunlight, nitrogen oxide and volatile organic compounds (VOCs). This is a known cause for respiratory health problems and damage to vegetation.
AP (kgSO ₂ eq)	Acidification Potential	kg sulphur dioxide equivalents	A process whereby pollutants are converted into acidic substances which degrade the natural environment. Common outcomes of this are acidified lakes and rivers, toxic metal leaching, forest damage and destruction of buildings.
EP (kgPO ₄ 3- eq)	Eutrophication Potential	Kg phosphate equivalents	An increase in the levels of nutrients released to the environment. A common outcome of this is high biological productivity that can lead to oxygen depletion, as well as significant impacts on water quality, affecting all forms of aquatic and plant life.

Life cycle impact assessment methods used: Simapro 8.2.3 CML V3.02 (release by CML in April 2013 version 4.2)

5. LIFE CYCLE ASSESSMENT METHODOLOGY

Table 6 - Potential environmental impacts per 1 kg of manufactured PVC Fitting and conduit

	A1	A2	A3
ADPE (kgSb eq)	8.66E-07	7.97E-10	7.47E-07
ADPF (MJ)	5.40E+01	6.96E-03	1.08E+01
GWP (kgCO2 eq)	2.41E+00	4.05E-04	1.29E+00
ODP (kgCFC11 eq)	5.56E-08	8.01E-11	9.72E-09
POCP (kgC2H4 eq)	4.34E-04	6.86E-08	4.84E-04
AP (kgSO2 eq)	8.06E-03	1.22E-06	1.27E-02
EP (kgPO4 3- eq)	1.88E-03	2.75E-07	1.14E-03
ADPE = Abiotic Resource Depletion Potential – Elements, ADPF = Abiotic Resource Depletion Potential – Fossil Fuel, GWP = Global Warming Potential, ODP = Ozone Depletion Potential, POCP = Photochemical Oxidant Formation Potential, AP = Acidification Potential, EP = Eutrophication Potential			

Table 7 - Use of resources per 1 kg of manufactured PVC Fitting and conduit

	A1	A2	A3
PERE (MJ)	1.11E+00	5.09E-05	9.22E-01
PERM (MJ)	0.00E+00	0.00E+00	0.00E+00
PERT (MJ)	1.11E+00	5.09E-05	9.22E-01
PENRE (MJ)	6.24E+01	6.73E-03	4.05E+00
PENRM (MJ)	0.00E+00	0.00E+00	0.00E+00
PENRT (MJ)	6.24E+01	6.73E-03	4.05E+00
SM (kg)	INA	INA	INA
RSF (MJ)	INA	INA	INA
NRSF (MJ)	INA	INA	INA
FW (m3)	1.50E+00	2.81E-04	2.64E-03
PERE = Use of renewable primary energy excluding 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 raw materials, PENRM = Use of non-renewable primary energy resources used as raw materials, PENRT = Total use of non-renewable primary energy resources, SM = Use of secondary material, RSF = Use of renewable secondary fuels, NRSF = Use of non-renewable secondary fuels, FW = Use of net fresh water, INA = Indicator not accessed due to a limitation of the LCA tools and databases used to calculate the required resource flows. INA does not imply zero impact.			

5. LIFE CYCLE ASSESSMENT METHODOLOGY

Table 8 - Generation of waste per 1 kg of manufactured PVC drainage fittings and conduit fittings

	A1	A2	A3
HWD (kg)	4.13E-02	4.59E-03	0.00E+00
NHWD (kg)	9.64E-02	1.07E-02	1.08E-02
RWD (kg)	0.00E+00	0.00E+00	0.00E+00
HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed			

5.7 INTERPRETATION OF LCA RESULTS

The majority of environmental impact lies within the raw material supplied to RIFENG manufacturing site – comparatively little impact is caused by the PVC Fittings manufactured at RIFENG site.

From the input materials, PVC resin is responsible for the majority of all environmental impacts and use of resources, although additives were still found to have a significant impact.

- ✓ PVC resin :
 - ✧ Approximately 93.99% of the environmental impact indicators of Abiotic depletion (fossil fuels).
 - ✧ Approximately 90.00% of the environmental impact indicators of Global warming (GWP100a).

From the manufacturing stage, Electricity is responsible for the majority of all environmental impacts (more than 98%).

6. PRODUCT INFORMATION

6.1 PRODUCT SPECIFICATION

The product model declared by this EPD includes a total of products. After LCIA analysis, the difference does not exceed $\pm 10\%$ of the range (Because the functional units are set to be per kilogram of this type of product, so all of the following products are included in the inventory). Therefore, the LCA results announced by this EPD can be applied to the following products.

Table 9- the specification of Rifeng PVC drainage and conduit fittings.

Application	Product code	Diameter (mm)	Nominal dimension DN,(mm)
Drainage application	F30	Equal straight union	40;50;75;110;160;200;250;315
		Simple expansion joint	50;75;110;160;200
		Helix expansion joint	50;75;110;160;200
		Equal elbow(45°)	40;50;75;110;160;200
		Equal elbow with cleanout(45°)	50;75;110;160;200
		Equal elbow	40;50;75;110;160;200
		Equal elbow with cleanout	50;75;110;160;200
		Vertical pipe cleanout	50;75;110;160;200
		Equal tee	40;50;75;110;160;200
		Unequal tee	50;75;110;160;200
		Equal Y-branch tee(45°)	40;50;75;110;160;200
		Unequal Y-branch tee(45°)	50;75;110;160;200
		Bottle tee	50;75;110
		Unequal Y-branch cross(45°)	50;75;110;160
		Flat equal cross	50;75;110;160
		Equal Y-branch cross(45°)	40;50;75;110;160
		Equal cross	50;75;110
		H- pipe	75;110
		Leak-proof ring	50;75;110;160
		Trap with cleanout	50;75;110
P-Trap with cleanout	50;75;110		

6. PRODUCT INFORMATION

(Tabel 9 continue)

Drainage application	F30	P-Trap	50;75;110
		S-Trap with cleanout	50;75;110
		S-Trap	50;75;110
		Trap	50;75;110
		Lengthen P-Trap	50;75;110
		Lengthen P-Trap with cleanout	50;75;110
		Equal elbow (135°)	50;75;110
		Equal elbow with cleanout (135°)	50;75;110
		Reducing coupling	50;75;110;160;200
		Decentered reducing coupling	50;75;110;160
		Reducing bush	40;50;75;110;160;200
		Built-in straight connector	50;75;110;160
		Simple floor drain	50;75;110
		Multipurpose water seal floor drain	50;75;110
		Square water seal floor drain	50;75;110
		Round water seal floor drain	50;75;110
		Lateral floor drain	50;75;110
		Washer floor drain	50;75;110
		Square ran bucket	75;110;160
		Ventilate cap	50;75;110;160
Cleanout	50;75;110;160;200		
Energy dissipation vertical pipe	50;75;110;160		
Check hole nut	50;75;110;160;200		

6. PRODUCT INFORMATION

(Tabel 9 continue)

Drainage application	F31	Low-noise cleanout	75;110;160
		Low-noise tee	75;110;160
		Low-noise unequal tee	75;110;160
		Low-noise cross	50;75;110;160
		Low-noise unequal cross	75;110;160
		Helix noise reducer	75;110;160
		Low-noise equal	75;110;160
		Reducing elbow	75;110;160;200
		Clamp	40;50;75;110;160;200
Conduit application	F20	Equal straight union	16;20;25;32;40;50
		Reducing coupling	16;20;25;32;40;50
		Elbow	16;20;25;32;40;50
		Arc elbow	16;20;25;32;40;50
		Tee	16;20;25;32;40;50
		Equal joint	16;20;25;32;40;50
		Reducing joint	16;20;25;32;40;50
		Cavity Tee	16;20;25;32;40;50
		Cap	16;20;25;32;40;50

6.PRODUCT INFORMATION

(Tabel 9 continue)

Conduit application	F20	Round-cavity single	16;20;25;32;40;50
		Round-cavity coupling	16;20;25;32;40;50
		Round-cavity elbow	16;20;25;32;40;50
		Round-cavity tee	16;20;25;32;40;50
		Round-cavity cross	16;20;25;32;40;50
		Mono-switch box	16;20;25;32;40;50
		Di- switch box	16;20;25;32;40;50
		Tri-switch box	16;20;25;32;40;50
		Buckled switch box	16;20;25;32;40;50
		Octagonal switch box	16;20;25;32;40;50
		Switch box lid	16;20;25;32;40;50
		Clamp	16;20;25;32;40;50

6.2 BEST ENVIRONMENTAL PRACTICE PVC

According to GBCA new reviewed guidance issued on November 2013, Green Star PVC Credit, the use of Rifeng PVC fittings for drain application have been assessed and comply with the requirements of Best Practice Guidelines for PVC in the Built Environment. As a means of demonstrating Best Environmental Practice PVC (BEP PVC), Rifeng was subjected to an extensive audit process by independent third party certifier, Approval Mark. On Wednesday 10th July 2019, Rifeng was issued with BEP PVC Certificate.

For the full overview of the environmental benefits and product features of Rifeng PVC piping systems please refer to Rifeng website: www.rifeng.com

7. REFERENCES

1. Simapro 8.2.3 CML V3.02 (release by CML in April 2013 version 4.2)
2. PRODUCT CATEGORY RULES, Construction Products and Construction Services, Version 2.3,2018-11-15
3. EN 15804:2012+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
4. ISO 21930:2017 Environmental declaration of building products
5. ISO 14025:2006 Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures
6. ISO 14040:2006 Environmental management -- Life cycle assessment -- Principles and framework
7. ISO 14044:2006 Environmental management -- Life cycle assessment -- Requirements and guidelines
8. AS/NZS 1260:2017 PVC-U pipes and fittings for drain, waste and vent applications
9. EN 61386-21:2004 conduit systems for cable management- part 21: particular requirements-rigid conduit systems
10. ISO1183-1:2019 Plastics -methods for determining the density of non-cellular plastics
11. ISO 527-1:2012 Plastics - Determination of tensile properties -- Part 1: General
12. ISO 306:2013 Plastics -- Thermoplastic materials -- Determination of Vicat softening temperature (VST)
13. ISO 2505:2005 Thermoplastics pipes -- Longitudinal reversion -- Test method and parameters
14. ASTM D2444-17 Standard Practice for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)

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