PRODUCT DEVELOPMENT & MANAGEMENT

RELEASE NEW PRODUCTS

FROM	:	**PRODUCT DEVELOPMENT & MANAGEMENT**
DATE	:	24/06/2015
SUBJECT	:	EPD – Environmental Product Declaration

Dear,

We would like to inform you about our EPD – Environmental Product Declaration of our profiles for Ege plant.

Environmental Product Declarations are a necessity in order to be able to become supplier to green buildings and to be compatible with the new norms. Since sustainability of buildings depend mainly on the materials used, it is a very important issue for buildings that construction materials are classified through an adequate system. Environmental product declaration (EPD) provides transparent and clear information with comprehensive details.

Deceuninck EPD that declares environmental performance of a products through the implementation of LCA is prepared according to ISO 14025 standards and approved by the independent German IBU EPD program.

Appendix: EPD certification

Best regards,

Product Development & Management

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

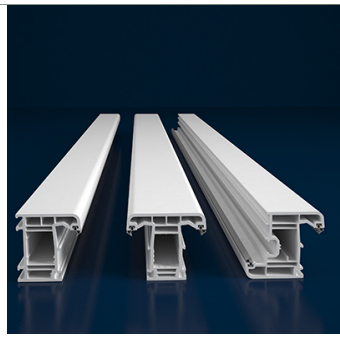
Owner of the Declaration	EGE PROFİL Tic. ve San. A.Ş.
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EPT-20150011-CAA1-EN
Issue date	28.04.2015
Valid to	27.04.2020

PVC Profiles

EGEPEN Deceuninck

Institut Bauen und Umwelt e.V.

www.bau-umwelt.com / https://epd-online.com



General Information

PVC Profiles

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number
EPD-EPT-20150011-CAA1-EN

This Declaration is based on the Product Category Rules:
Windows and doors, 11.2014
(PCR tested and approved by the SVR)

Issue date
28.04.2015

Valid to
27.04.2020

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Dr. Burkhart Lehmann
(Managing Director IBU)

EGEPEN DECEUNINCK

Owner of the Declaration
EGE PROFİL Tic. ve San. A.Ş.
Atatürk Organize Sanayi
Bölgesi 10003 Sokak No:5
35620 Çiğli – İzmir / TURKEY

Declared product / Declared unit
PVC profile / 1kg

Scope:
This Life Cycle Assessment study is carried out for PVC profiles produced in the manufacturing plant of EGE PROFİL located in İzmir, Turkey. This EPD is prepared as an average EPD for white and laminated PVC profiles manufactured in this plant. The data used in this study is collected from the manufacturing facility and refers to the year 2013. The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Verification

The CEN Norm /EN 15804/ serves as the core PCR
Independent verification of the declaration according to /ISO 14025/
☐ internally ☒ externally

Vito D'Incognito
(Independent verifier appointed by SVR)

Product

Product description
Unplasticised polyvinylchloride (PVC-U) profiles are used for the fabrication of windows and doors. PVC-U windows and doors profiles can provide different functionalities (heat and sound insulation) to match a wide range of domestic and commercial applications. The surface of the profiles can vary in design: white or laminated with a PVC film.

Manufacturing of PVC profile starts with a dry blend compound, which is a mixture of PVC resin with additives, titanium dioxide and fillers. After blending, the PVC compound is transferred to extrusion process. The dry mixture is extruded. At the final stage the profiles are cut according to specifications and then laminated if need. Lamination is mechanical process in which a special foil available in different colors. Seals are attached to the window profiles during extrusion or lamination. After quality control, the final products are packed with protective foil, nylon bag, tape, label and dispatched.

This declaration is not related to a specific product. It is based on average thickness and shape of PVC-U profiles. However, the general dimensions of the PVC-U produced by EGEPEN DECEUNINCK can be given as height(H): 70, width(W): 64 and length(L): 6000 mm respectively.

Application
PVC-U window and door profiles are used in the construction industry for the fabrication of windows and doors to be used in the outer shell of buildings for lighting, ventilation and protection from the elements.

Technical Data
Our production plant has a Quality Management System according to /ISO 9001/, Environmental Management System in accordance with /ISO 14001/ and Occupational Health and Safety Management in accordance with /OHSAS 18001/.

PVC Profiles are examined according to EN 13501-1:2007 for Classification of Reaction to Fire and has gone through an health inspection with the QH 17011101 coded criteria and received the certificate the evaluation committee of QH (SagKal) the Association of Quality in Health.

PVC-U window and door profiles satisfy all requirements of standard /EN 12608/ and /TS 5358/.

Base materials / Ancillary materials
The base materials of declared products are 80-85% PVC-U and 15-20% other additives. All the end products are lead free.

Name	Value	Unit
PVC-U	80-85	%
Other additives	15-20	%

Reference service life
In this study the Reference Life value is not taken into consideration during the calculations, since the system boundary of this EPD is cradle-to-gate.

LCA: Calculation rules

Declared Unit
According to the "PCR Guidance-Texts for Building-Related Products and Services Part B: Requirements on the EPD for windows and doors" version 1.5, 15.10.2013, the functional unit for this product category is defined as 1 kg of PVC profiles. As a result of this, the life cycle assessment results are presented for 1 kg of the analyzed product group.

Declared unit

Name	Value	Unit
Declared unit	1	kg
Gross density	1.44	g/cm^3

System boundary
Type of the EPD is cradle-to-gate.

The system boundaries of this life cycle assessment study is considered as cradle-to-gate, since all the modules except A1-A3 product stage are not declared within the scope of this study.

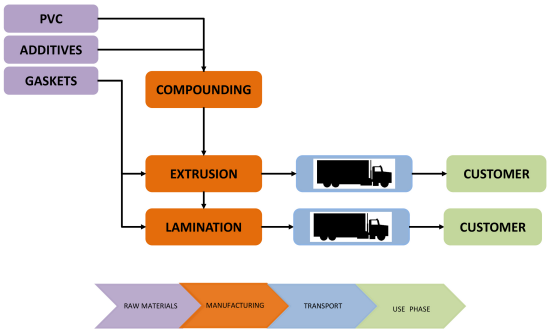


Figure 1: Process Flow of PVC Profile Production

Background Database
In LCA modelling Ecoinvent 3.0 Database and Industry Data 2.0 within SimaPro software are used for the collected inventory data from the plant referring to 2013.

Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account.

LCA: Scenarios and additional technical information

As stated in the system boundary chapter above, only A1, A2 and A3 modules are declared within the scope of this study.
Therefore, there are no scenarios provided below regarding the other modules B1-B7, A4, A5, C1-C4 and D.
Closed-loop recycling was applied in the modelling of this study. This plant utilizes recycled waste compound internally.

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: PVC profile / 1kg

Parameter	Unit	A1	A2	A3
Global warming potential	[kg CO_2-Eq.]	2.13E+0	1.08E+0	4.39E-1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.33E-7	7.87E-8	5.11E-9
Acidification potential of land and water	[kg SO_2-Eq.]	8.02E-3	4.45E-3	2.80E-3
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	1.51E-3	1.09E-3	1.59E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	5.14E-4	1.56E-4	1.11E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.73E-6	3.41E-6	9.41E-8
Abiotic depletion potential for fossil resources	[MJ]	4.48E+1	1.65E+1	6.45E+0

RESULTS OF THE LCA - RESOURCE USE: PVC profile / 1kg

Parameter	Unit	A1	A2	A3
Renewable primary energy as energy carrier	[MJ]	3.45E-3	0.00E+0	0.00E+0
Renewable primary energy resources as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	3.45E-3	0.00E+0	0.00E+0
Non-renewable primary energy as energy carrier	[MJ]	5.70E+1	1.80E+1	5.73E+0
Non-renewable primary energy as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	5.70E+1	1.80E+1	5.73E+0
Use of secondary material	[kg]	-	-	-
Use of renewable secondary fuels	[MJ]	-	-	-
Use of non-renewable secondary fuels	[MJ]	-	-	-
Use of net fresh water	[m^3]	1.89E-4	3.86E-4	2.50E-5

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: PVC profile / 1kg

Parameter	Unit	A1	A2	A3
Hazardous waste disposed	[kg]	-	-	5.13E-4
Non-hazardous waste disposed	[kg]	-	-	9.65E-3
Radioactive waste disposed	[kg]	-	-	-
Components for re-use	[kg]	-	-	-
Materials for recycling	[kg]	-	-	-
Materials for energy recovery	[kg]	-	-	-
Exported electrical energy	[MJ]	-	-	-
Exported thermal energy	[MJ]	-	-	-

References

PCR Part B
Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part B: Requirements on the EPD for Windows and doors. October 2013
www.bau-umwelt.de

EN 13501-1: 2007+A1:2009
Fire classification of construction products and building elements-Part1: Classification using data from reaction to fire tests

ISO 14040-44
DIN EN ISO 14040:2006: Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)

EN 12608 / TS 5358
EN 12608:2003: Unplasticised polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods

Regulation (EU) No 305/2011 of the European Parliament and of the Council

SimaPro
SimaPro LCA Package, Pré Consultants, the Netherlands
www.pre-sustainability.com

Ecoinvent
Ecoinvent Centre www.ecoinvent.org

Industry data 2.0
This library of SimaPro contains data as collected by industry associations, such as Plastics Europe.

ISO 9001
DIN EN ISO 9001:2008: Quality management systems - Requirements (ISO 9001:2008);

ISO 14001
EN ISO 14001:2004: Environmental management systems - Requirements (EN ISO 14001:2004 + AC:2009)

OHSAS 18001
OHSAS 18001:2007: Occupational Health and Safety Management Systems

PCR, Part A
Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of *Institut Bauen und Umwelt (IBU),* Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. 2013/04
www.bau-umwelt.de

Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V., Berlin(pub.): Generation of Environmental Product Declarations (EPDs);

General principles
for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013/04
www.bau-umwelt.de

ISO 14025
DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804
EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

Publisher
Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@bau-umwelt.com
Web **www.bau-umwelt.com**

Programme holder
Institut Bauen und Umwelt e.V.
Panoramastr 1
10178 Berlin
Germany

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 – 3087748 - 29
Mail info@bau-umwelt.com
Web **www.bau-umwelt.com**

Author of the Life Cycle Assessment
Altensis Ins. Enerji San. Ve Tic. Ltd. Sti.
Kayisdagi Caddesi Baris Sok. Meriç
Plaza 2
34750 ISTANBUL
Turkey

Tel +90 216 410 61 35
Fax +90 216 410 61 53
Mail info@altensis.com
Web **www.altensis.com**

Owner of the Declaration
EGE PROFIL Tic. ve San. A.S.
Atatürk Organize Sanayi Bölgesi
10003 Sokak 5
35620 IZMIR
Turkey

Tel +90 232 398 98 98
Fax +90 232 398 99 83
Mail egepen@deceuninck.com
Web **www.egepen.com.tr**