Environmental Product Declaration - EPD
in accordance with ISO 14025:2006,
EN 15804:2012+A2:2019/AC

In-situ formed sprayed rigid polyurethane (PUR) foam products closed cell structure EXY 34

EXY 34® HFO
spray system

EPD registration number:	3015-EPD-030069726
Publication date:	2025-11-10
Valid until:	2030-11-10
Version:	1.0

General Information

Program Information

Program:	**„Národní program environmentálního značení“ – ČR (NPEZ)**
Address:	Ministerstvo životního prostředí České republiky Vršovická 1442/65 Praha 10, 100 10 Ministry of the Environment of the Czech Republic
Website:	https://www.ekoznacka.cz/kontakt/; https://www.ekoznacka.cz/databaze-epd-v-cr/
E-mail:	info@mzp.cz

Responsibilities for PCR, LCA, and independent third-party verification
Product Category Rules (PCR)
EN 15804:2012+A2:2019/AC:2021 Sustainability of buildings – Environmental product declaration - Basic rules for the product category of construction products (as basic PCR)
Life Cycle Assessment (LCA)
LCA prepared by: Barbora Vlasatá, Jan Pešta, UCEEB CTU, uceeb.cz
Third-party verification
Independent third-party verification of ISO 14025:2006 declarations and data by: ☒ EPD verification by an accredited certification body Third-party verification: Third-party verification: Technický a zkušební ústav stavební Praha, s.p. is an approved certification body accountable for the third-party verification. 190 00 Praha 9, Prosecká 811/76a, CZ The certification body is accredited by: Českým institutem pro akreditaci, o.p.s., Osvědčení č. 456/2024 Verifier: Ing. Lenka Vrbová TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p. Akreditovaný ZÚS Certifikační orgán č. 3015
The procedure for tracking data during the validity of the EPD includes third-party verifiers: ☐ yes ☒ no

The owner of the EPC has sole ownership and responsibility for the EPC. EPDs within the same product category but registered in different EPD programs or not complying with EN 15804 may not be comparable. To be comparable, two EPDs must be based on the same PCR (including the same version number) or be based on fully comparable PCRs or versions thereof; it must cover products with the same functions, technical parameters and use (e.g. identical declared/functional units); Have equivalent system boundaries and data descriptions. apply equivalent requirements for data quality, data collection methods and allocation methods; apply identical rules for restrictions and impact assessment methods (including the same version of characterisation factors); have an equivalent content statement and be valid at the time of comparison. For more information on comparability, see EN 15804 and ISO 14025.

Company Information

Producer:	HONTER Company s.r.o
EPD Owner:	Na strži 2102/61a, Krč 140 00 Praha 4 IČ: 24719609 DIČ: CZ24719609
Production plant:	HONTER Company s.r.o Na Křtaltě 42, 789 01 Zábřeh, Czech Republic
Contacts:	Jan Černý Phone: +420 776 458 458 E-mail: jcerny@honter.cz Web: www.honter.cz

HONTER Company s.r.o.

HONTER® Corporation was founded in the USA in 2005. Thanks to increased global demand, the company expanded into Europe in 2009 and the Czech company HONTER® Company was established. In 2021, a fully automated production line was established in Zábřeh na Moravě (Czech Republic), where a wide range of polyurethane systems are developed and produced under controlled conditions. The Czech facility focuses on the formulation and production of polyol components for in-situ applied two-component spray polyurethane foam systems with varying reaction times, densities, and adhesive properties, in accordance with EN 14315-1. These systems are primarily used for thermal and acoustic insulation in building applications

Product information

This EPD refers to in-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY 34.

According to the definition in EN ISO 9229, polyurethane foam is a rigid porous plastic insulation material. A sprayed rigid polyurethane foam system is a system consisting of components (an isocyanate component and a polyol component) which, when sprayed, produce a rigid polyurethane foam characterized by the specific characteristics of the foam produced. The isocyanate component is a liquid isocyanate product which is one of the components of the hard foam system. The polyol component is a liquid polyhydroxylated product containing blowing agent, catalysts and other additives. The mixing ratio, i.e., the manufacturer-specified proportion of the components of the sprayed hard foam system that produces hard polyurethane foam when sprayed, is important in production. It is important to know the exact water content of the polyol because water reacts with the isocyanate group to form CO_2. CO_2 regulates the degree of expansion of foam.

The product is used for insulation of walls, ceilings, roofs, suspended ceilings, floors, etc.

The advantage of the systems is quick application, and insulation of hard-to-reach places without mechanical anchoring.

The quantity of foam system components produced in an intermittent manner in one period is a production batch (lot).

The systems can be classified according to the closed cell content according to the ISO 4590 test method and classified into classes CC1-CC4 according to Cl. 4.2.6 of EN 14315-1.

EXY 34 is a sprayed rigid polyurethane foam with a predominantly closed-cell structure and is blown with Solstice LBA liquid blowing agent /HFO-1233zd(E)/. Solstice LBA is a halogenated olefin and was developed as a blowing agent for polymer foams.

Basic technical information for each product is given in the technical data sheet of the product.

All technical documents are available on the websites of the company honter.eu .

The thermal conductivity and in-situ density of the applied foam depend on the installation conditions and the behavior of the spraying process. Variations in these parameters are inherent to on-site application and do not represent different commercial product grades. As a result, the number of products required per functional unit may vary. The value used in this EPD represents an average quantity based on typical installation practice.

The declared thermal conductivity value ranges from 0.025 to 0.027 W/m·K depending on the installed thickness, within the thickness range of 30 to 200 mm.

The core free-rise density of the product is in the range of 33 to 38 kg/m³.

The functional unit is defined as 1 m² of installed EXY 34 insulation with a nominal thickness of 100 mm. According to the declared thermal conductivity **λ_D = 0.026 W/m·K** for this thickness range, this corresponds to a design thermal resistance of approximately **R = 3.85 m²·K/W**. Based on typical in-situ densities of 33–38 kg/m³, the average amount of product required per functional unit is about **3.5 kg**.

Basic raw materials, additives and packaging

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Polyol	0,23	0	0
Isocyanate	0,55	0	0
Additional inputs	0,22	0	0
TOTAL	1	0	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Barell Fe	0,03	0	0
Packaging strapping tape PET	0	0	0
TOTAL	0	0	0

Substances on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not included in the product in the declared levels.

UN CPC 54650 - Insulation services

LCA Information

Declared Unit:	1 kg of In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY
Reference year:	2024
Reference Life (RSL):	The declared reference service life (RSL) is 50 years. The declared reference period corresponds to the expected service life of building structures.
LCA SW and database used:	Ecoinvent 3.11 (Process allocation model EN15804+A2), Sphera SW ver. 2025.2, Characterisation Factors Reference Package EF 3.1 *(https://eplca.jrc.ec.europa.eu/LCDN/developerEF.html)*
Inputs and outputs not included:	Inputs and outputs not included do not exceed 1 % of the total results
Allocation:	As a general allocation rule, allocation on mass of 1 kg of the product was chosen. The generation of waste depends on the weight of the product. Inputs in common (drinking water and processing water) and outputs in common (waste generated) are allocated to the specific product, i.e. to declared unit of the product.
System boundary:	EPD is based on system boundary called “cradle to gate with options” according to EN 15 804+A2, where stages A1-A3, C1-C4 and module D are declared.
Infrastructure and capital:	The infrastructure is part of the database processes used for upstream and downstream. For module A3 (Core), infrastructure and capital were not considered.

Production Stage (A1-A3)

The production of products is divided into 3 modules: A1 – supply of raw materials, A2 – transport and A3 – production.

The results of modules A1, A2 and A3 have been aggregated into a single data, in accordance with EN 15804+A2.

A1, supply of raw materials

Module A1 covers the production of materials for and it also includes energy carriers. These processes are not under the operational control of HONTER Company s.r.o., and all of them are generic processes modelled based data collection about consumed quantity.

A2, transport to manufacturer

Module A2 covers the transport of materials to the site of production HONTER Company s.r.o. factory Zábřeh. Generic database processes with site-specific parameters for distance were used.

A3, manufacturing

Module A3 covers on-site operated processes dealing with treatment of waste including also transport of waste and packaging of the final products. These processes are under the operational control of HONTER Company s.r.o., and generic database processes with site-specific consumption parameters were used. Treatment and or disposal of waste generated from the manufacturing processes is also included in this module.

Electricity:

The production of 1 kg of product in the A3 phase consumes 0.39kWh of electricity. Carbon footprint of electricity (2024): 0.58 kgCO_{2e}/kWh (The Czech residual mix includes 45,04 % fossil fuels, 38,09 % nuclear energy, 16,87 % renewables).

Construction phase, A4 - A5

Modules A4 and A5 are not included because there is no specific data available determining where and how the final product is transported, nor is there any information regarding the product installation phases. For this reason, it was not possible to reliably assess the environmental impacts associated with these modules.

Phase of use (does not include potential savings), B1 - B7

The modules B6 and B7 are not also considered because it is not possible to clearly determine the final use of the products. The products have various application possibilities, and their specific use depends on specific requirements during the use phase, which can vary significantly. For this reason, it was not possible to reliably quantify the environmental impacts associated with Module B.

End of Life Phase C1 - C4

End of Life is divided into the following modules:

Demolition – C1

Module C1 - considers the operation of demolition machinery used to remove used products from the construction site. This phase therefore includes energy consumption and related emissions arising from the mechanical dismantling and separation of materials during the end of the product's life.

Waste transport – C2

Module C2 - waste transport - based on assumption is set at 50 km to the recycling plant and at 30 km to the disposal. Average truck with a load capacity of 16-32 t, diesel, consumption 38 l /100 km.

Waste Treatment – C3

Module C3 - Based on the manufacturer's experience to date, the study assumes that 95% of the product is recycled at the end of its life, while the remaining 5% is sent to landfill. This distribution reflects the realistic possibilities for material disposal in upcoming practice and is considered in the assessment of the end-of-life impacts of the product. At this stage, recycling of used PUR insulation is being considered.

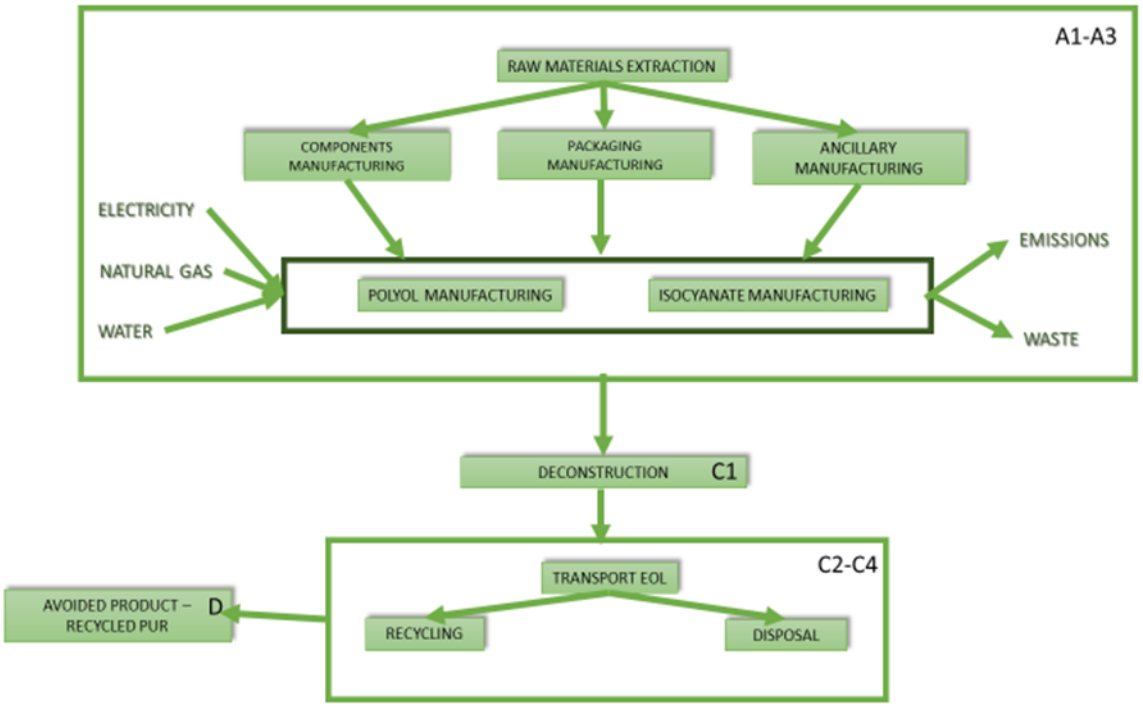
Disposal – C4

Module C4 - Disposal of the non-recyclable portion of the waste was considered as a process of landfilling inert material. Landfilling of 5% of the original product was assumed for final disposal.

Reuse, recovery and recycling potential, D

Module D in the LCA study relates to the potential environmental benefits of materials at the end of a product's life, specifically from recycling and reuse. In the case of PUR insulation, recycling is considered, with Module D defined as 95% of the waste material being reused, thereby reducing the need for primary raw materials and contributing to a closed material cycle. This module therefore quantifies the positive impacts of PUR insulation recycling on the life cycle of the building material.

Product Life Cycle Diagram



LCA Results

	Module	module	Used module	Geography	Specific data	Product Variability	Location Variability
A1 - A3 Product stage	Raw material supply	A1	D	CZ, EU	≥ 90%	-	-
	Transport	A2	D	EU		-	-
	Manufacturing	A3	D	EU		-	-
A4 - A5 Construction process	Transport from the gate to the site	A4	ND	-	-	-	-
	Assembly	A5	ND	-	-	-	-
B1 - B7 Use stage	Use	B1	ND	-	-	-	-
	Maintenance	B2	ND	-	-	-	-

	Repair	B3	ND	-	-	-	-
	Replacement	B4	ND	-	-	-	-
	Refurbishment	B5	ND	-	-	-	-
	Operational water use	B6	ND	-	-	-	-
	Operational energy use	B7	ND	-	-	-	-
C1 - C4 End of life stage	De-construction	C1	D	GLO	-	-	-
	Transport	C2	D	EU	-	-	-
	Waste processing	C3	D	GLO	-	-	-
	Disposal	C4	D	CZ	-	-	-
D Benefits and loads beyond the system boundaries	Reuse- Recycling - Recovery Potential	D	D	CZ	-	-	-

Core environmental impact indicators of 1 kg In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY

Note: It is not recommended to use the results of modules A1-A3 without considering the results of module C.

The LCIA method based on the EF 3.1 set of factors was used for characterization, considering the requirements of the EN 15804+A2 standard.

Core enivronmental impact indicators	Unit	A1-A3	C1	C2	C3	C4	D
Climate change-fossil	kg CO2 eq	3,31E+00	8,88E-05	9,15E-03	5,33E-01	6,81E-03	-7,79E-01
Climate change-biogenic	kg CO2 eq	1,96E-02	1,80E-08	6,36E-06	4,54E-05	3,01E-02	-7,08E-05
Climate change-land use and land use change	kg CO2 eq	2,29E-03	9,09E-09	3,08E-06	1,58E-05	0,00E+00	-9,69E-06
Climate change-total	kg CO2 eq	3,34E+00	8,88E-05	9,16E-03	5,33E-01	3,69E-02	-7,79E-01
Ozone depletion	kg CFC11 eq	5,10E-08	1,32E-12	1,99E-10	4,08E-10	0,00E+00	-7,85E-10
Acidification	mol H+ eq	1,49E-02	7,94E-07	1,96E-05	4,59E-03	3,15E-06	-1,26E-03
Eutrophication aquatic freshwater	kg P eq	4,66E-04	2,86E-09	6,35E-07	3,68E-06	4,07E-06	-3,91E-06
Eutrophication aquatic marine	kg N eq	4,13E-03	3,70E-07	4,80E-06	1,45E-02	1,20E-04	-1,51E-02
Eutrophication terrestrial	mol N eq	2,11E-02	4,04E-06	5,11E-05	3,01E-02	3,65E-07	-6,95E-03
Photochemical ozone formation	kg NMVOC eq	9,60E-03	1,21E-06	3,12E-05	6,50E-03	1,19E-05	-1,76E-03
Depletion of abiotic resources-minerals and metals	kg Sb eq	1,23E-05	3,17E-11	3,14E-08	6,88E-08	0,00E+00	-7,91E-08
Depletion of abiotic resources-fossil fuels	MJ	8,08E+01	1,15E-03	1,30E-01	3,59E-01	0,00E+00	-5,25E-01
Water use	m3 depriv.	9,95E-01	3,51E-06	7,06E-04	1,63E-02	0,00E+00	-4,02E-02

The estimated impact results are relative data only, not indicating the endpoints of impact categories, threshold exceedances, safety margins or risks.

** The results of this environmental impact indicator should be used with caution because the uncertainty of these results is high or because there is limited experience with the indicator.*

Additional environmental impact indicators of 1 kg In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY

Additional environmental impact indicators	Unit	A1-A3	C1	C2	C3	C4	D
Particulate matter	**disease inc.**	1,11E-07	2,24E-11	5,45E-10	2,72E-07	2,35E-12	-3,85E-09
Ionising radiation	**kBq U-235 eq**	2,33E-01	4,93E-07	1,57E-04	6,01E-04	0,00E+00	-4,76E-04
Ecotoxicity, freshwater	**CTUe**	7,25E+01	6,12E-05	1,73E-02	6,04E+00	2,75E-01	-3,19E+00
Human toxicity, cancer	**CTUh**	3,80E-09	9,58E-15	1,63E-12	2,78E-09	1,16E-12	-4,75E-10

Human toxicity, non-cancer	**CTUh**	3,77E-08	1,46E-13	7,10E-11	1,02E-08	9,28E-11	-3,42E-09
Land use	**Pt**	4,22E+00	7,59E-05	7,80E-02	5,76E-01	2,54E-02	-4,87E-01

The estimated impact results are only relative data that does not indicate the endpoints of impact categories, threshold exceedances, safety margins and/or risks.

** Disclaimer: The results of this environmental impact indicator should be used with caution because the uncertainties of these results are high or because there is limited experience with the indicator.*

*** Disclaimer: This impact category deals in particular with the potential impact of low dose ionising radiation on human health in the nuclear fuel cycle. It does not consider the effects due to possible nuclear accidents, occupational exposure or as a result of the disposal of radioactive waste in underground facilities. This indicator also does not measure potential ionizing radiation from soil, radon and some building materials.*

Parameters describing resource use of 1 kg In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY

Parameters describing resource use	Unit	A1+A3	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value	3,68E+00	7,29E-06	2,15E-03	1,03E-02	0,00E+00	-9,54E-03
Use of renewable primary energy resources used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	3,68E+00	7,29E-06	2,15E-03	1,03E-02	0,00E+00	-9,54E-03
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw materials	MJ, net calorific value	8,08E+01	1,15E-03	1,30E-01	3,59E-01	0,00E+00	-5,25E-01
Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	8,08E+01	1,15E-03	1,30E-01	3,59E-01	0,00E+00	-5,25E-01
Use of secondary material	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m3	2,32E-02	8,16E-08	1,64E-05	3,79E-04	0,00E+00	-9,35E-04

Other environmental information describing waste categories of 1 kg In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY

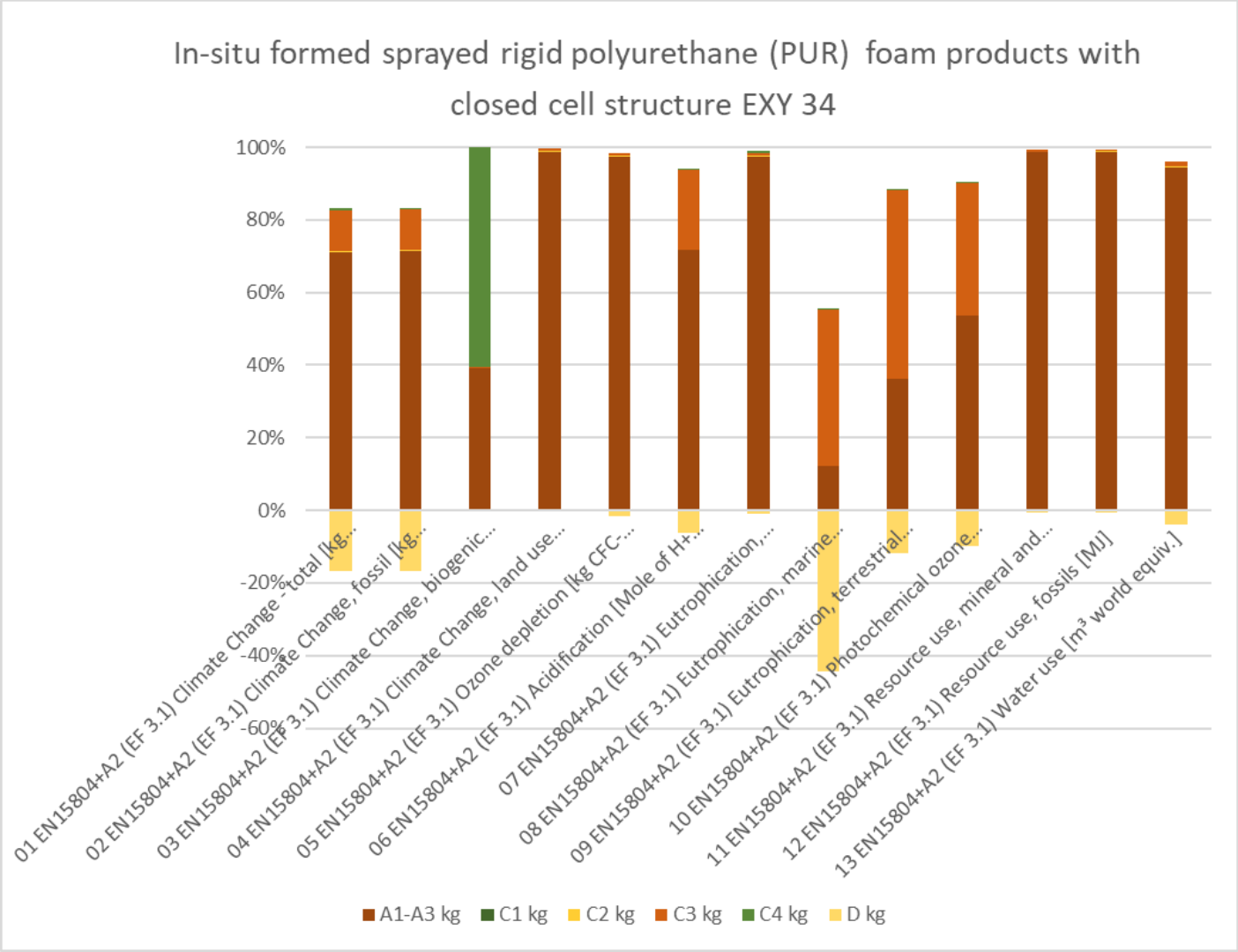
Other environmental information describing waste categories	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	5,73E-02	1,02E-06	1,33E-04	4,19E-03	0,00E+00	-1,01E-02
Non-hazardous waste disposed	kg	1,56E+00	7,59E-06	1,43E-03	8,23E-01	5,00E-02	-9,77E-01
Radioactive waste disposed/stored	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Environmental information describing output flows of 1 kg In-situ formed sprayed rigid polyurethane (PUR) foam products with closed cell structure EXY

Environmental information describing output flows	Unit	A1-A3	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
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,95E+00	0,00E+00	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
Exported energy electricity	MJ per energy carrier	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy thermal	MJ per energy carrier	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Life cycle Interpretation

The following graph shows the contribution of each stage of the product life cycle to the overall impact in each impact category



Additional environmental information

Honter Company s.r.o. has incorporated environmental considerations into its production processes since the establishment of its manufacturing site. The facility was designed with a focus on energy-efficient operation, responsible handling of chemical substances and minimization of waste. The production line allows precise dosing of raw materials, reducing the generation of off-spec material and unnecessary consumption of resources.

Certifications

The thermal insulating products for buildings – In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products in accordance with EN 14315-1 are certified by Honter Company s.r.o. through Notified Body No. 1020, the Technical and Test Institute for Construction Prague (TZÚS).

Honter Company, s.r.o. is the holder of the ISO 9001 certification. ISO 9001 is an internationally recognized quality management standard issued by the International Organization for Standardization (ISO). It defines requirements for a quality management system focused on consistent processes, customer satisfaction, continuous improvement and effective control of company operations. Having this certificate demonstrates that the company meets high standards in managing and improving its internal processes.


Certificate No.: 2403154638

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Certificate

Quality Management System

HONTER Company s.r.o.

Identification No.: 24719609
Na strži 2102/61a
140 00 Praha
Site: Na Křtaji 42, 789 01 Zábřeh

has been examined and found in conformity with requirements of the standard

ISO 9001:2015

for the following range of activities:

Product development, production and supply of polyurethane components and products based on technical specifications.

Date of the initial certification:	08. 03. 2024
Date of the current certification cycle:	08. 03. 2024
This certificate is valid until:	07. 03. 2027

Ing. Radek Nedvěd
Head of Certification Body
In Prague on 15 March 2024

S 3210

The product was tested for emissions of volatile organic compounds (VOCs) according to a set of standards EN ISO 16000 (parts 3, 6, 10 and 11) in the accredited testing laboratory of TZÚS Praha, s. p.,

branch of the Testing Institute of Light Industry (ZÚLP) České Budějovice. The results demonstrated very low VOC emissions corresponding to the requirements for construction products for indoor use.

The manufacturer is responsible solely for the conformity of the product with its declared characteristics at the time of placing it on the market. The manufacturer does not assume any responsibility for the execution of the application, which is under the full responsibility of the applicator. The use of the product must follow technical documentation, safety data sheets and applicable legislation. Improper or non-compliant application lies entirely outside the manufacturer's responsibility. Detailed *Instructions for use* are available to ensure correct and safe application of the product.

References

1. EN 15804+A1, Sustainability of Buildings - Environmental Product Declaration - Basic Rules for the Product Category of Construction Products
2. ISO 14025 Ecolabels and Declarations - Type III Environmental Statements - Principles and Procedures
3. ISO 14040 Environmental Management - Life Cycle Assessment - Principles and Outline
4. ISO 14044 Environmental Management - Life Cycle Assessment - Requirements and Guidelines