ENVIRONMENTAL PRODUCT DECLARATION

Pemko Perimeter Gasketing

The Pemko Perimeter Gasketing consists of an aluminum channel which accepts a PemkoPrene® gasket applied to the jamb and header of an opening, effectively sealing any gap between the door and frame.

ASSA ABLOY

ASSA ABLOY is committed to providing products and services that are environmentally sound throughout the entire production process and the product lifecycle. Our unconditional aim is to make sustainability a central part of our business philosophy and culture, but even more important is the job of integrating sustainability into our business strategy. The employment of EPDs will help architects, designers and LEED-APs select environmentally preferable door openings. The Pemko Perimeter Gasketing EPD provides detailed requirements with which to evaluate the environmental and human health impacts related to producing our door openings. ASSA ABLOY will continue our efforts to protect the environment and health of our customers/end users and will utilize the EPD as one means to document those efforts.

Institut Bauen und Umwelt e.V.

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

ASSA ABLOY

According to EN 15804 and ISO 14025
Dual Recognition by UL Environment and Institut Bauen und Umwelt e.V.

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	ASSA ABLOY
ULE DECLARATION NUMBER	4786545067.116.1
IBU DECLRATION NUMBER	EPD-ASA-20150070-IBA1-EN
DECLARED PRODUCT	Pemko Perimeter Gasketing
REFERENCE PCR	IBU PCR Part B: Locks and fittings , 07.2014

DATE OF ISSUE	April 10, 2015
PERIOD OF VALIDITY	5 years

CONTENTS OF THE DECLARATION	General information Product / Product description LCA calculation rules LCA scenarios and further technical information LCA results References

The PCR review was conducted by:	IBU – Institut Bauen und Umwelt e.V. PCR was approved by the Independent Expert Committee (SRV)
The CEN Norm EN 15804 serves as the core PCR. This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	 Wade Stout
This life cycle assessment was independently verified in accordance with EN 15804 and the reference PCR by:	IBU – Institut Bauen und Umwelt e.V.

Environment

ASSA ABLOY

1. General Information

ASSA ABLOY	Pemko Perimeter Gasketing
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the Declaration** ASSA ABLOY 5535 Distribution Drive Memphis, TN 38141 USA
Declaration number EPD-ASA-20150070-IBA1-EN	**Declared product / Declared unit** The declaration represents 1 foot of Head & Jamb Gasket – Pemko Perimeter Gasketing consisting of the following items: •A306 aluminum retainer •PK47 PemkoPrene® gasket •SP8055 Steel Fastener
This Declaration is based on the Product Category Rules: Locks and fittings , 07.2014 (PCR tested and approved by the independent expert committee (SR))	**Scope:** This declaration and its LCA study are relevant to the Pemko Perimeter Gasketing manufactured from components sourced from international Tier-1 suppliers. The manufacturing occurs in Memphis, Tennessee
Issue date 10.04.2015	
Valid to 09.04.2020	**Verification** The CEN Standard EN 15804 serves as the core PCR Independent verification of the declaration according to ISO 14025 ☐ internally ☒ externally
Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	
Dr.-Ing. Burkhart Lehmannt (Managing Director IBU)	Dr. Wolfram Trinius (Independent verifier appointed by SVR)

2. Product

2.1 Product description

Product name: Pemko Perimeter Gasketing

Product characteristic:

- Pemko Perimeter Gasketing consists of an aluminum channel which accepts a PemkoPrene® gasket designed to be soffit-applied to the jamb and header of an opening effectively sealing any gap between the door and frame.
- The line includes models which can be mounted to either wood or hollow metal doors.
- The line includes models which can be applied in either external or internal applications.
- This line is provided with standard sheet metal fasteners, but special fasteners are available. Examples include self-tapping/self-drilling and security fasteners.
- All Pemko Perimeter Gasketing is available in either single stick lengths (i.e. 36", 84", 96") or as jamb set lengths (i.e. 3684, 4896).
- Standard color for the aluminum is mill finish, but is also available in clear anodized, bright dip gold anodized, dark bronze anodized, gold anodized, satin nickel anodized.

aluminum, or white. The gasket portion, with a mill finish part, comes standard as gray, but black is also available.
- This Pemko Perimeter Gasketing option seals gaps up to 3/8", but within the entire line options exist for a variety of gap dimensions.

2.2 Application
Pemko Perimeter Gaskets consist of a variety of solutions for sealing the gap between a door and the jamb in exterior and interior applications and on hollow metal or wood doors. Common application examples are: Office Buildings, Healthcare Facilities, School/University Buildings, Urban Renewal Projects, Mercantile Buildings, Manufacturing Facilities, Warehouses and Factories, Government Buildings, Hospitality Environments, etc.

2.3 Technical Data
For the declared product, the following technical data in the delivery status must be provided with reference to the test standard.

Technical data

Parameter	Value
Available Finishes:	Mill Finish Aluminum
Available Sizes:	up to 180"
Width:	1-1/8" (28.57 mm)
Height:	1/4" (6.35 mm)
Insert Type:	PemkoPrene®

2.4 Placing on the market / Application rules
The standards that can be applied for Pemko Perimeter Gasketing are:

-UL10b Standard for Fire Tests of Door Assemblies
-UL10c Standard for Positive Pressure Fire Tests of Door Assemblies
-UL1784 Air Leakage Tests of Door Assemblies
-UL 2818 GreenGuard Certification Program for Chemical Emissions for Building Materials, Finishes, and Furnishings
-ASTM E283-04 (2012) Air Leakage Through Exterior Windows, Curtain Walls, and Doors
-ASTM E90-2009 Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
-ANSI/BHMA A156.22 Door Gasketing Systems.

2.5 Delivery status
Pemko Perimeter Gasketing is delivered that is comparable to the full length or longest length ordered.

2.6 Base materials / Ancillary materials
The primary product components and/or materials must be indicated as a percentage mass to enable the user of the EPD to understand the composition of the product in delivery status.
The average composition for Pemko Perimeter Gaskets is as following:

Component	Percentage in mass (%)
Aluminum	81.71
Plastics	15.85
Stainless Steel	2.44
Total	100.0

2.7 Manufacture
The Pemko Perimeter Gaskets utilize an Alcoa 6063-T6 hardened aluminum alloy extruded aluminum channel and an Exxon-Mobile Thermoplastic Elastomer-type gasket (PemkoPrene®). The aluminum channel is cut and punched (with slotted holes for adjustment) per order and then receives the PemkoPrene® gasket before packaging. Manufacturing is done in an ISO14001-2014 certified facility in Memphis, Tennessee.

2.8 Environment and health during manufacturing
ASSA ABLOY is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.
• Pemko's Perimeter Gaskets are third party certified GREENGUARD Gold by UL Environment
• Environmental operations, GHG, energy, water, waste, VOC, surface treatment and H&S are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and Environment Management program effectiveness is evaluated.
• Code of Conduct covers human rights, labor practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
• Any waste metals during machining are separated and recycled. The waste from the water-based painting process is delivered to waste treatment plant.

2.9 Product processing/Installation
Pemko Perimeter Gaskets are distributed through a network of distributors and are installed by general contractors, end users, and homeowners.

2.10 Packaging
Pemko Perimeter Gaskets are packed in a cardboard box with corrugated carton inlays. The packaging is fully recyclable.

80% of carton is made from recycled material.
100% of paper documents are made from recycled material.

Material	Value (%)
Cardboard/paper	100.0
Total	100.0

2.11 Condition of use
Under normal use, Pemko Perimeter Gasketing requires no maintenance or cleaning efforts and should last a minimum of 5 years before requiring replacement, although material has proven to last longer in some applications. To ensure aesthetic appearance only, minimal cleaning may be needed periodically. Cleaning requires a soft rag and a mild soap/warm water mixture to remove any dirt or dust that may have accumulated from general use.

2.12 Environment and health during use
There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

PemkoPrene® has been tested to meet the requirements of UL2818 for low VOC content and has achieved GreenGuard Gold status through testing with UL Environment, a third party certification agency.

2.13 Reference service life

Approved for a minimum of 5 years under normal circumstances, although materials proven to last longer in many applications.

2.14 Extraordinary effects

Fire

Suitable for use in fire and smoke doors (UL10B and UL1C).
Smoke Tested - UL1784 - tested in accordance with UL 1784-2001 - Air Leakage Tests of Door Assemblies, and meet the performance criteria for allowable air leakage as specified in NFPA 105-99 Installation of Smoke Control Door Assemblies. Meets the requirements for category H - Smoke Seals.

Water

Contains no substances that have any impact on water in case of flood.

Mechanical destruction

No danger to the environment can be anticipated during mechanical destruction.

2.15 Re-use phase

The product is possible to re-use during the reference service life and be moved from one door to another. The majority, by weight, of components is Aluminum alloy, plastic, and steel which can be recycled.

The majority, of components is aluminum which can be recycled. The perimeter gasket can be mechanically dissembled to separate the different materials. 100% of the materials used are recyclable.

2.16 Disposal

No disposal is foreseen for the PemkoPrene® nor for the corresponding packaging.

2.17 Further information

For additional information on our products, please visit our website or contact our Customer Service Department
Phone: 1-800-824-3018
Web Address: www.pemko.com

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of Pemko Perimeter Gasket as specified in Part B requirements on the EPD for PCR Windows and doors/IBU PCR Part B/:

Declared unit

Name	Value	Unit
Declared unit	1	Foot (30.48 cm) of perimeter gasket
Conversion factor to 1 kg	26.89	-

3.2 System boundary

Type of the EPD: cradle to grave - with Options
The following life cycle phases were considered:

Production stage:

- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing

Construction stage:

- A4 - Transport from the gate to the site

End-of-life stage:

- C2 – Transport to waste processing
- C3 – Waste processing for recycling and
- C4 – Disposal (landfill)

This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

- D - Declaration of all benefits or recycling potential from End-of-Life and A5.

3.3 Estimates and assumptions

Transport:
For materials and pre-products the actual means of transport and distances, provided by the suppliers, were considered.

EoL:
In the End-of-Life phase a recycling scenario with 100% collection rate was assumed.

3.4 Cut-off criteria

In the assessment, all available data from the production process are considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), thermal energy consumption and electric power consumption - including material and energy flows contributing less than 1% of mass or energy (if available). In case a specific flow contributing less than 1% in mass or energy is not available, worst case assumption proxies are selected to represent the respective environmental impacts.

Impacts relating to the production of machines and facilities required during production are out of the scope of this assessment.

3.5 Background data

For life cycle modeling of the considered products, the GaBi 6 Software System for Life Cycle Engineering, developed by PE INTERNATIONAL AG, is used /GaBi 6 2013/. The GaBi-database contains consistent and

documented datasets which are documented in the online
GaBi-documentation /GaBi 6 2013D/.
To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR PART A/.
PE INTERNATIONAL performed a variety of tests and checks during the entire project to ensure high quality of the completed project. This obviously includes an extensive review of project-specific LCA models as well as the background data used.
The technological background of the collected data reflects the physical reality of the declared products. The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs.
All relevant background datasets are taken from the GaBi 6 software database. The last revision of the used background data has taken place not longer than 10 years ago.

3.7 Period under review

The period under review is 2013/14 (12 month average).

3.8 Allocation

Regarding incineration, the software model for the waste incineration plant (WIP) is adapted according to the material composition and heating value of the combusted material. In this EPD the following specific life cycle inventories for the WIP are considered:
• Waste incineration of plastic
• Waste incineration of paper
• Waste incineration of wood

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Thus, these materials are considered in module D. Specific information on allocation within the background data is given in the GaBi dataset documentation.

3.9 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.

4. LCA: Scenarios and additional technical information

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

Reference service life

Name	Value	Unit
Reference service life	5	a

End of life (C1-C4)

Name	Value	Unit
Collected separately Aluminum, Stainless Steel, Plastics	0.037	kg
Reuse Plastics	0.0059	kg
Recycling Aluminum	0.030	kg
Recycling Stainless Steel	0.00091	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste type (including packaging)	0.037	kg
Recycling Aluminum	71.72	%
Recycling Stainless Steel	2.14	%
Thermal Treatment Plastics	13.91	%
Reuse Paper packaging (from A5)	12.23	%

5. LCA: Results

Results shown below were calculated using CML Methodology.

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 BOUNDARYS
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	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 piece of Gasket PemkoPrene

Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
Global warming potential	[kg CO_2-Eq.]	3.82E-01	8.80E-04	7.34E-03	8.80E-04	0.00E+00	1.47E-02	-2.87E-01
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	9.16E-11	4.21E-15	3.36E-14	4.21E-15	0.00E+00	4.43E-14	1.34E-10
Acidification potential of land and water	[kg SO_2-Eq.]	1.83E-03	4.03E-06	1.67E-06	4.03E-06	0.00E+00	3.75E-06	-1.58E-03
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	1.01E-04	9.20E-07	2.92E-07	9.20E-07	0.00E+00	2.84E-07	-7.33E-05
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	1.36E-04	-1.30E-06	1.19E-07	-1.30E-06	0.00E+00	1.82E-07	-8.60E-05
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	9.00E-07	3.32E-11	1.32E-10	3.32E-11	0.00E+00	9.73E-10	-8.92E-08
Abiotic depletion potential for fossil resources	[MJ]	4.01E+00	1.21E-02	2.06E-03	1.21E-02	0.00E+00	6.23E-03	-2.75E+00

RESULTS OF THE LCA - RESOURCE USE: 1 piece of Gasket PemkoPrene

Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
Renewable primary energy as energy carrier	[MJ]	1.46E+00	-	-	-	-	-	-
Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
Total use of renewable primary energy resources	[MJ]	1.46E+00	4.78E-04	1.92E-04	4.78E-04	0.00E+00	4.56E-04	-1.23E+00
Non renewable primary energy as energy carrier	[MJ]	4.96E+00	-	-	-	-	-	-
Non renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
Total use of non renewable primary energy resources	[MJ]	4.96E+00	1.22E-02	2.41E-03	1.22E-02	0.00E+00	6.92E-03	-3.53E+00
Use of secondary material	[kg]	1.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	[MJ]	0.00E+00	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]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	[m^3]	3.73E-03	3.38E-07	2.14E-05	3.38E-07	0.00E+00	3.60E-05	-3.23E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 piece of Gasket PemkoPrene

Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
Hazardous waste disposed	[kg]	1.29E-04	2.77E-08	1.66E-07	2.77E-08	0.00E+00	4.84E-07	-4.60E-05
Non hazardous waste disposed	[kg]	5.47E-02	1.53E-06	1.84E-04	1.53E-06	0.00E+00	1.37E-03	-4.68E-02
Radioactive waste disposed	[kg]	3.78E-04	1.59E-08	1.41E-07	1.59E-08	0.00E+00	2.76E-07	-3.08E-04
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	0.00E+00	3.65E-02	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 electrical energy	[MJ]	0.00E+00	0.00E+00	9.28E-03	0.00E+00	0.00E+00	2.82E-02	-
Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.62E-02	0.00E+00	0.00E+00	7.73E-02	-

6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. Stated percentages in the whole interpretation are related to the overall life cycle, excluding credits (module D).

Production phase (module A1-A3) contributes between 96 and 100% to total impact assessment. This stage is dominated by upstream emissions associated with steel- and secondary aluminum manufacturing processes. Aluminum accounts with app. 82% to the overall mass of the product, therefore, the impacts are in line with the mass composition of the product

The environmental impacts for the transport (A2) have a negligible impact within this stage.

In the end-of-life phase, there are loads and benefits (module D, negative values) considered. The benefits are considered beyond the system boundaries and are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution).

7. Requisite evidence

Not applicable in this EPD.

8. References

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

IBU PCR Part A
Institut Bauen und Umwelt e.V., Königswinter (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. April 2013
www.bau-umwelt.de

IBU PCR Part B
IBU PCR Part B: PCR Guidance-Texts for Building-Related Products and Services. From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU). Part B: Requirements on the EPD for Locks and fittings.
www.bau-umwelt.com

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

EN 15804
EN 15804:2012+A1:2014: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

DIN EN 1154
DIN EN 1154: Building hardware - Controlled door closing devices - Requirements and test methods (includes amendment A1:2002)

DIN EN ISO 14001
Environmental management systems - Requirements with guidance for use (ISO 14001:2004 + Cor. 1:2009)

ANSI/BHMA A156.22-2013
ANSI/BHMA A156.22-2013: Door Gasketing Systems

ASTM E90
ASTM E90: Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E283
ASTM E283: Air Leakage Through Exterior Windows, Curtain Walls, and Doors

NFPA 105
NFPA 105: Installation of Smoke Control Door Assemblies

UL 10b
UL 10b: Standard for Fire Tests of Door Assemblies

UL 10c
UL 10c: Standard for Positive Pressure Fire Tests of Door Assemblies

UL 1784
UL 1784: Air Leakage Tests of Door Assemblies

UL 2818
UL 2818: GreenGuard Certification Program For Chemical Emissions for Building Materials, Finishes, and Furnishings

9. Annex

Results shown below were calculated using TRACI Methodology.

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 BOUNDARYS
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	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 piece of Gasket PemkoPrene

Parameter	Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	3.82E-01	8.80E-04	7.34E-03	8.80E-04	0.00E+00	1.47E-02	-2.87E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	9.74E-11	4.48E-15	3.57E-14	4.48E-15	0.00E+00	4.72E-14	1.43E-10
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.73E-03	5.26E-06	2.03E-06	5.26E-06	0.00E+00	4.40E-06	-1.48E-03
EP	Eutrophication potential	[kg N-eq.]	1.93E-04	3.72E-07	1.17E-07	3.72E-07	0.00E+00	1.34E-07	-3.53E-05
Smog	Ground-level smog formation potential	[kg O_3-eq.]	1.69E-02	1.08E-04	4.73E-05	1.08E-04	0.00E+00	3.46E-05	-1.29E-02
Resources	Resources	[MJ]	3.98E-01	1.75E-03	2.41E-04	1.75E-03	0.00E+00	6.41E-04	-2.47E-01

RESULTS OF THE LCA - RESOURCE USE: 1 piece of Gasket PemkoPrene

Parameter	Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	1.46E+00	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	1.46E+00	4.78E-04	1.92E-04	4.78E-04	0.00E+00	4.56E-04	-1.23E+00
PENRE	Non renewable primary energy as energy carrier	[MJ]	4.96E+00	-	-	-	-	-	-
PENRM	Non renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non renewable primary energy resources	[MJ]	4.96E+00	1.22E-02	2.41E-03	1.22E-02	0.00E+00	6.92E-03	-3.53E+00
SM	Use of secondary material	[kg]	1.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of non renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	[m^3]	3.73E-03	3.38E-07	2.14E-05	3.38E-07	0.00E+00	3.60E-05	-3.23E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 piece of Gasket PemkoPrene

Parameter	Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	1.29E-04	2.77E-08	1.66E-07	2.77E-08	0.00E+00	4.84E-07	-4.60E-05
NHWD	Non hazardous waste disposed	[kg]	5.47E-02	1.53E-06	1.84E-04	1.53E-06	0.00E+00	1.37E-03	-4.68E-02
RWD	Radioactive waste disposed	[kg]	3.78E-04	1.59E-08	1.41E-07	1.59E-08	0.00E+00	2.76E-07	-3.08E-04
CRU	Components for re-use	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-02	0.00E+00	-
MER	Materials for energy recovery	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	9.28E-03	0.00E+00	0.00E+00	2.82E-02	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.62E-02	0.00E+00	0.00E+00	7.73E-02	-

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