

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 21930:2017 & ISO 14025

SEALANT-4588T-SEGS
Shin-Etsu Chemical Co., Ltd.



EPD HUB, HUB-7914
Published on 22.10.2026, last updated on 22.10.2026, valid until 21.10.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1

Created with One Click LCA

一般情報 - GENERAL INFORMATION

メーカー

MANUFACTURER

メーカー名 Manufacturer	Shin-Etsu Chemical Co., Ltd.
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This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD 規格、スコープ、認証機関

EPD STANDARDS, SCOPE AND VERIFICATION

プログラムオペレータ Program operator	EPD Hub, hub@epdhub.com
参照規格 Reference standard	ISO 21930:2017 and ISO 14025
PCR PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
製品カテゴリ Sector	Construction product
EPD カテゴリ Category of EPD	Third party verified EPD
親 EPD 番号 Parent EPD number	-
EPD のスコープ Scope of the EPD	Cradle to gate
EPD 申請者 EPD author	Kentaro Ogura
EPD 検証 EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD 検証者 EPD verifier	Afzal khan Peerukhan as an authorized verifier for EPD Hub

製品 - PRODUCT

製品名 Product name	SEALANT-4588T-SEGS
追加ラベル Additional labels	-
参照製品 Product reference	-
原材料の原産地 Place(s) of raw material origin	Thailand
製造地 Place of production	2 Moo 2 Asia Industrial Estate, Tambol Banchang, Amphur Banchang, Rayong 21130, Thailand
設置場所および使用場所 Place(s) of installation and use	Japan, Thailand
データ取得期間 Data acquisition period	2024/04-2025/03
EPD 平均化 Averaging in EPD	No grouping
A1-A3 の GWP-fossil 変動率 Variation in GWP-fossil for A1-A3 (%)	-
国際標準商品識別コード International standard commodity identification code	-
ノルウェー建築製品データベース Norwegian Building Product Database (NOBB)	-
A1-A3 特定データ(%) A1-A3 Specific data (%)	7.04

環境影響データ概要 - ENVIRONMENTAL DATA SUMMARY

宣言単位 Declared unit	1kg of Sealant
宣言単位あたりの質量 Declared unit mass	1 kg
梱包材の質量 Mass of packaging	0.16361kg
GWP-CML, A1-A3 (kgCO2e) GWP-CML, A1-A3 (kgCO2e)	11.0
二次材料の投入(%) Secondary material, inputs (%)	1.64
エネルギー使用量計, A1-A3 (kWh) Total energy use, A1-A3 (kWh)	34.9
水使用量計、A1-A3 (m3) Net fresh water use, A1-A3 (m3)	0.07

製品とメーカー
- PRODUCT AND MANUFACTURER

メーカーの概要 - ABOUT THE MANUFACTURER

Shin-Etsu Chemical Co., Ltd. is one of Japan's leading comprehensive chemical manufacturers, founded in 1926. Its core businesses include silicones, polyvinyl chloride (PVC)-related chemicals, and high-purity silicon wafers for semiconductors. The company operates manufacturing and sales bases worldwide and is particularly recognized for its strong market share and technological capabilities in semiconductor silicon wafers and silicone products.
It supplies materials and functional chemical products to a wide range of industries, including construction, electronics, healthcare, industrial machinery, and automotive sectors, with a strong emphasis on product quality and stable supply. The company is also committed to reducing environmental impact, ensuring occupational health and safety, and advancing sustainability initiatives, while maintaining a strong focus on corporate governance and regulatory compliance.

製品説明 - PRODUCT DESCRIPTION

SEALANT-4588T-SEGS is an environmentally friendly silicone sealant for construction applications. By combining low-carbon-footprint raw materials with carbon credit methods, zero CO2 emissions in the manufacturing process have been achieved. The product contributes to the reduction of CO2 emissions classified as Scope 3 during building construction activities.
This product is a one-component silicone sealant that cures at room temperature by reacting with moisture in the air. A low-solubility antifungal agent is contained to maintain mold resistance properties over time. Accordingly, the product is particularly suitable for bonding, sealing, and repairing in areas susceptible to mold growth.

Further information can be found at:
https://www.shinetsu.co.jp/jp/

主な原材料構成 - PRODUCT RAW MATERIAL MAIN COMPOSITION

原材料カテゴリ Raw material category	量、質量 - % Amount, mass- %	原材料の原産地 Country of origin of raw materials
金属 Metals	0.2	Thailand
鉱物 Minerals	33.5	Thailand,Japan
化石原料 Fossil materials	66.3	Thailand
生物由来原料 Bio-based raw materials	-	-

生物起源 CO2 含有量 - BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

製品の生物起源 CO2 含有量、kg C Biogenic carbon content in product, kg C	0.000028
梱包材の生物起源 CO2 含有量、kg C Biogenic carbon content in packing materials, kg C	0.007416

機能単位と耐用年数 - FUNCTIONAL UNIT AND SERVICE LIFE

宣言単位 Declared unit	1kg of Sealant
宣言単位あたりの質量 Mass per declared unit	1 kg
機能単位 Functional unit	-
参照耐用年数 Reference service life	-

化学物質、REACH 高懸念物質 - SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

製品のライフサイクル
- PRODUCT LIFE-CYCLE

システム境界 - SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

製造と梱包 - MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

This product mainly consists of a silicone polymer (a polydimethylsiloxane-based high-molecular-weight polymer), together with crosslinking agents that react with moisture to promote curing, fillers that provide volume and mechanical strength, plasticizers and viscosity modifiers to improve application properties, and optional additives such as anti-discoloration agents and pigments.
The main manufacturing processes consist of mixing and filtration. The finished product is filled into polypropylene cartridges, packaged in cardboard boxes, and shipped.
Electricity consumption during manufacturing and the treatment of waste generated during production are also included in the assessment.

輸送と据付 - TRANSPORT AND INSTALLATION (A4-A5)

This EPD excludes the A4-A5 stage. Therefore, packaging wastes are considered in the end-of-life stage.

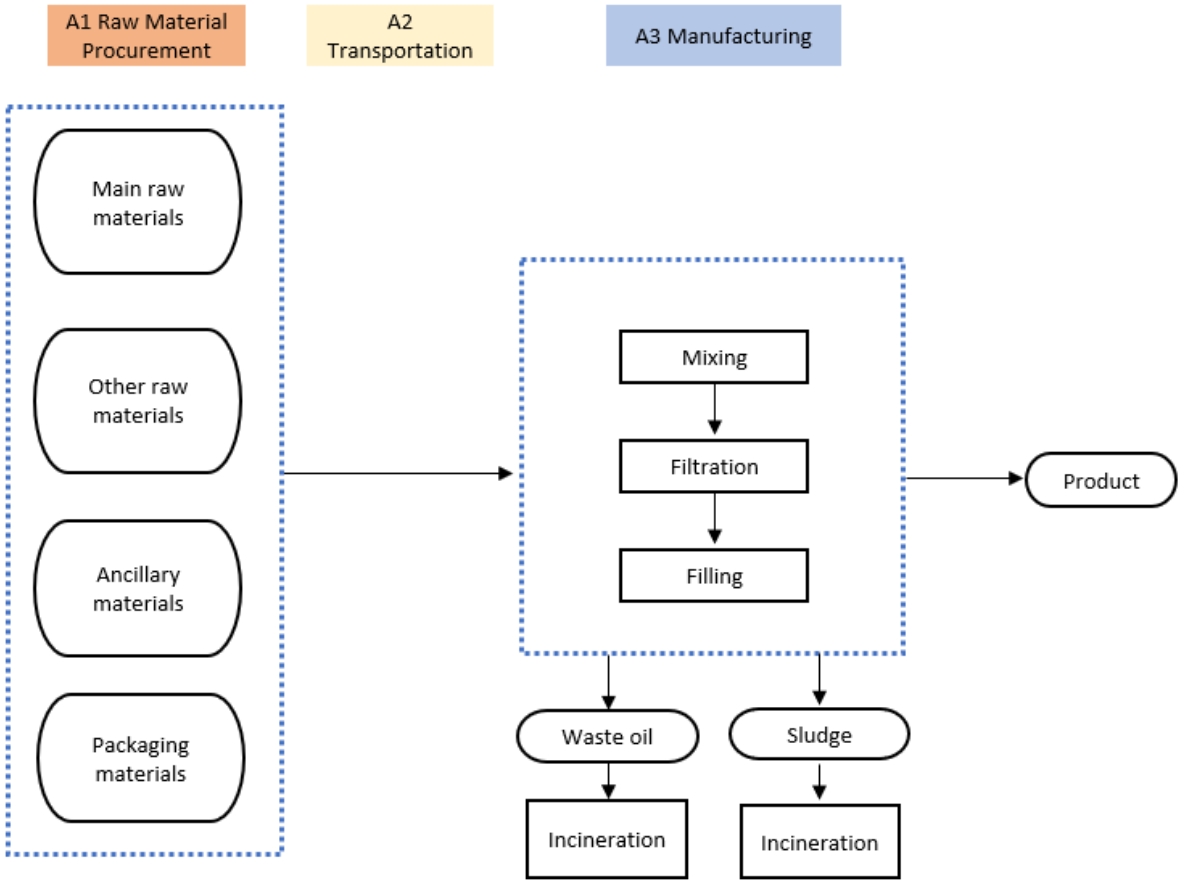
製品使用とメンテナンス - PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD excludes the use stage.

製品の廃棄・リサイクル段階 - PRODUCT END OF LIFE (C1-C4, D)

This EPD excludes the end of life stage.
This is the cradle to gate EPD in accordance with requirements defined in ISO 21930:2017.

製造プロセス
- MANUFACTURING PROCESS



ライフサイクルアセスメント
- LIFE-CYCLE ASSESSMENT

カットオフ基準 - CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

データの検証- VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

配分、推定 - ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

データタイプ - Data type	配分 - Allocation
原材料 - Raw materials	Physical Properties
梱包材 - Packaging materials	Physical Properties
補助材料 - Ancillary materials	Physical Properties
製造エネルギーと廃棄物 - Manufacturing energy and waste	Physical Properties

製品と製造拠点の平均化 - PRODUCT & MANUFACTURING SITES AVERAGING

平均化の種類 - Type of averaging	No grouping
平均化方法 - Averaging method	Not applicable
A1-A3 における GWP-fossil の変動率 - Variation in GWP-fossil for A1-A3 (%)	-

This EPD is product and factory specific and does not contain average calculations.

LCA ソフトウェアと参考文献 - LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent v3.11 and One Click LCA databases were used as sources of environmental data. Allocation used in Ecoinvent 3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

環境影響データ - ENVIRONMENTAL IMPACT DATA

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

環境影響 - ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	9.07E+00	1.06E-02	1.90E+00	1.10E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ozone depletion Pot.	kg CFC_{-11}e	9.50E-04	1.14E-10	6.66E-08	9.50E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acidification	kg SO_2e	2.87E-02	7.50E-05	5.14E-03	3.39E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Eutrophication	kg PO_4^3e	5.98E-01	9.78E-06	5.08E-01	1.11E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP (“smog”)	kg C_2H_4e	3.07E-03	4.33E-06	3.76E-04	3.45E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-elements	kg Sbe	4.05E-05	2.88E-08	2.97E-06	4.35E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil	MJ	9.74E+01	1.39E-01	2.97E+01	1.27E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

天然資源の利用 - USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1.79E+01	1.85E-03	1.64E+00	1.95E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Renew. PER as material	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total use of renew. PER	MJ	1.79E+01	1.85E-03	1.64E+00	1.95E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Non-re. PER as energy	MJ	8.60E+01	1.41E-01	1.98E+01	1.06E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Non-re. PER as material	MJ	1.91E+01	0.00E+00	1.09E+01	3.00E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total use of non-re. PER	MJ	1.05E+02	1.41E-01	3.07E+01	1.36E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Secondary materials	kg	1.64E-02	6.22E-05	3.30E-03	1.98E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Renew. secondary fuels	MJ	2.54E-04	5.83E-07	5.95E-04	8.50E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Use of net fresh water	m^3	6.15E-02	1.65E-05	1.21E-02	7.36E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

8) PER = Primary energy resources.

廃棄・リサイクル段階 — 廃棄 - END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6.14E-01	2.89E-04	7.98E-02	6.94E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Non-hazardous waste	kg	1.29E+01	5.43E-03	4.10E+00	1.70E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Radioactive waste	kg	1.01E-04	2.53E-08	1.49E-05	1.15E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

廃棄・リサイクル段階 — 出力フロー - END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Materials for recycling	kg	0.00E+00	0.00E+00	2.64E-02	2.64E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Materials for energy rec	kg	0.00E+00	0.00E+00	2.00E-02	2.00E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Exported energy –	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

環境影響 - ENVIRONMENTAL IMPACTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Radioactive waste, high	kg	2.81E-05	7.55E-09	4.33E-06	3.24E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Radioactive waste, int/low	kg	7.25E-05	1.78E-08	1.19E-05	8.44E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

シナリオドキュメント- SCENARIO DOCUMENTATION

データソース - DATA SOURCES

製造エネルギーシナリオドキュメント- Manufacturing energy scenario documentation

1. Steam production, in chemical industry, World, Ecoinvent, 0.35 kgCO2e/kg
2. Electricity, consumption mix w/o renewables, Thailand , 2023, Thailand, One Click LCA, 0.81 kgCO2e/kWh

検証報告
- THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Afzal khan Peerukhan as an authorized verifier for EPD Hub Limited
22.10.2026



VERIFIED ISO 14025