ENVIRONMENTAL FOOTPRINT VERIFICATION OPINION

SHINJIN FASTENERS CO., LTD.

87-2, Yongwon 4-gil, Seongnam-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea

Intertek Korea has verified the product carbon footprint of SHINJIN FASTENERS CO., LTD.'s STUDS, HEX HEAD CAP SCREWS, and HEXAGON SOCKET HEAD CAP SCREWS products manufactured at the Cheonan Plant and confirms the following result:

- HEXAGON SOCKET HEAD CAP SCREWS : 3.38 kg CO_2eq/kg
- HEX HEAD CAP SCREWS : 3.31 kg CO_2eq/kg
- STUDS : 6.56 kg CO_2eq/kg

Reporting period : January 2024 ~ December 2024

This verification was conducted in accordance with ISO 14064-3:2019 and in compliance with the requirements of ISO 14044:2006, ISO 14067:2018, ISO 14065:2020, ISO 14066:2023, and the applicable PCR.

For further details, please refer to SHINJIN FASTENERS's LCA Report (V2.0, issued 20251126), the verification opinion, and Appendix.

Verification Opinion Number:
ITRKSKLCAV05175

Verification Opinion Issue Date
04 DEC 2025

JACK KIM
General Manager

Intertek Testing Services Korea Ltd.
– 7, Achasan-ro 5-gil, Seongdong-gu
Seoul, Korea (04793)

Introduction

SHINJIN FASTENERS CO., LTD. (Cheonan Plant) requested independent verification of “Carbon footprint and category-specific environmental impact emissions for the HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREW, and STUDS products” from Intertek Testing Services Korea Ltd.
Intertek Testing Services Korea Ltd. conducted a third-party result verification of the HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREWS, and STUDS products of SHINJIN FASTENERS CO., LTD.
This verification is based on the scope, purpose, and standards of application agreed upon on November 24, 2025.

Objective

The purpose of this verification is to determine whether the information, data, and results included in the product environmental footprint conducted by SHINJIN FASTENERS CO., LTD. are appropriate based on objective evidence. This verification provides SHINJIN FASTENERS CO., LTD. with a third-party assurance that the claims are reliable and of sufficient quality in accordance with the ISO 14067:2018, ISO 14044:2006 standards, and the applicable PCR.

Standards and Scope

This document is a verification statement on the environmental footprint emissions from products and production reported at Cheonan Plant from January 2024 to December 2024.

● Verification standards

- ISO 14044: 2006

- ISO 14067:2018

- ISO 14065:2013

- PCR 2019:14 Construction Products (EN 15804:A2), Version 1.3.4

The scope of the verification included assessment of the accuracy and reliability of the carbon footprint and impact category-specific emissions of the HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREWS, and STUDS products produced by SHINJIN FASTENERS CO., LTD.

● Target product (Functional unit): HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREWS, STUDS (1 kg)

● Product description: Manufactured from high-strength alloy steel, these products provide excellent tensile strength and corrosion resistance, offering reliable fastening performance across various applications such as industrial machinery, plant facilities, piping, and structural components.

● Head office: 87-2, Yongwon 4-gil, Seongnam-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea

● Production site: 87-2, Yongwon 4-gil, Seongnam-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea

● System boundary: Cradle-to-Grave

(■ Raw materials ■ Manufacturing ■ Use ■ Distribution ■ Disposal)

● Standards/PCR: PCR 2019:14 Construction products (EN 15804:A2)

● Assumptions and limitations: Refer to the LCA report

● Emissions by impact category: Refer to Appendix

Level of assurance and materiality

● Level of assurance: Limited assurance

This verification was conducted at a limited level of assurance using the verification procedures of Intertek Testing Services Korea Ltd.

Note: In limited assurance verification, the scope of evidence collection is less than that of a reasonable assurance verification. Limited assurance verification focuses on collected data rather than directly verifying raw data at the workplace. As a result, limited assurance verification has a significantly lower level of assurance than reasonable assurance verification.

● Materiality threshold: ± 5% for the total sum

This verification is considered materially misleading if the value of the error more than 5% of the total inventory emissions for the subject matter of the verification.

Note: Materiality means that individual or aggregate errors, omissions, or misstatements can impact your carbon footprint and inform your decision-making. Materiality is therefore used to identify information that, if omitted or incorrectly stated, could result in an overall incorrect estimate of the footprint and ensure that such material inconsistencies are absent or minimized.

Methods of verification

Intertek Testing Services Korea Ltd. The following activities were conducted as part of evidence collection:

• We conducted an on-site inspection of the business site and reviewed the management process for Life Cycle Inventory Analysis (LCI)-related data and records.

• Past data and records for Life Cycle Inventory Analysis (LCI) were verified at the data collection level.

• To ensure that there were no significant errors, omissions, or misstatements in the Life Cycle Impact Assessment (LCIA), we reviewed SHINJIN FASTENERS CO., LTD.'s data management system, including internal verification, and assessed the effectiveness of data processing procedures, guidelines, and systems. We also interviewed key personnel responsible for compiling, editing, and calculating the LCIA.

• We confirmed that secondary data was referenced from reliable or credible sources.

• We confirmed that the LCIA calculation procedures, including data collection, application of cut-off criteria, allocation, and life cycle impact assessment analysis, complied with the requirements of ISO 14044:2006 and ISO 14067:2018.

Qualification and Independence

Intertek Testing Services Korea Ltd. implements and maintains a comprehensive management system that satisfies the accreditation requirements of IS0 14065:2020 and ISO/IEC 17029:2019. Additionally, we comply with the Code of Ethics for Certified Public Accountants of the International Ethics Standards Board for Accountants (IESBA).

Intertek Testing Services Korea, Ltd. ensures that appropriately qualified verification examiners are selected based on qualifications, training, and experience. The results of all verification and certification assessments are reviewed internally by management to ensure that the approach applied is rigorous and transparent.

Intertek Testing Services Korea Ltd. has conducted this verification audit solely for HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREWS, and STUDS, and therefore it does not compromise independence or impartiality.

Conclusions

As a result of the verification based on Intertek Testing Services Korea Ltd.'s approach, the carbon footprint of SHINJIN FASTENERS CO., LTD.'s HEXAGON SOCKET HEAD CAP SCREWS, HEX HEAD CAP SCREWS, and STUDS products was presented fairly and factually in all material respects and in accordance with the applied standards, and no errors, omissions, or false facts were identified within the assurance level.

No significant errors have been detected in the calculation of emissions during the verification process, and the related activity data and supporting evidence have been appropriately managed to ensure accurate calculation. Therefore, the verification team presents a final 'appropriate' opinion.

This opinion is based on verification at a limited assurance level and was derived based on the verification team's professional judgment.

Intertek Testing Services Korea Ltd. does not assume any obligation or responsibility to any other person or organization. SHINJIN FASTENERS CO., LTD. is responsible for collecting, compiling, and presenting analysis of all data and information related to carbon footprint emissions and maintaining effective internal controls. If this verification opinion is disclosed, it must be disclosed in complete form.

The organization receiving this verification opinion shall comply with the requirements established by the operating agency (Korea Institute of Industrial Technology, KITECH) regarding the marking and promotional use of the verification.

This verification opinion is valid only for the scope of application, verification purpose, explanation, and standards specified in the verification opinion.

Reviewer	Junghan Bae
Lead verifier	Heechan Kang
Verifier	Hyuna Choi

DATE : 2025. 12. 04

Intertek Testing Services Korea Ltd.
- 7, Achasan-ro 5-gil, Seongdong-gu, Seoul, 04793, Korea

Intertek Testing Services Korea Ltd. has been approved as a carbon footprint verification agency by the Korea Institute of Industrial Technology (KITECH) (Approval No.: KITECH-CFP/ISO-006).

Appendix

[HEXAGON SOCKET HEAD CAP SCREWS]

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
Core (EF3.1) | Global Warming Potential - biogenic (GWP-biogenic)	kg CO2 eq.	-1.55.E-01	5.21.E-02	-1.86.E-05	5.84.E-06	6.09.E-02	-4.22.E-02
Core (EF3.1) | Global Warming Potential - fossil fuels (GWP-fossil)	kg CO2 eq.	2.11.E+00	8.42.E-01	3.37.E-01	1.84.E-02	1.07.E-01	3.42.E+00
Core (EF3.1) | Global Warming Potential - land use and land use change (GWP-luluc)	kg CO2 eq.	1.84.E-03	4.98.E-04	1.75.E-04	8.23.E-06	8.49.E-06	2.53.E-03
Core (EF3.1) | Global Warming Potential - total (GWP-total)	**kg CO2 eq.**	**1.96.E+00**	**8.94.E-01**	**3.37.E-01**	**1.84.E-02**	**1.67.E-01**	**3.38.E+00**
Core | Abiotic depletion potential - fossil resources (ADPF)	MJ	2.35.E+01	1.45.E+01	4.24.E+00	2.54.E-01	8.48.E-01	4.33.E+01
Core | Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.44.E-05	5.58.E-07	5.04.E-07	6.18.E-08	3.21.E-08	1.55.E-05
Core | Acidification potential, Accumulated Exceedance (AP)	mol H+ eq.	9.05.E-03	2.73.E-03	8.10.E-03	6.27.E-05	5.89.E-04	2.05.E-02
Core | Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	1.29.E-08	1.21.E-08	4.66.E-09	2.33.E-10	9.73.E-10	3.08.E-08
Core | Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	1.51.E-04	5.14.E-05	1.90.E-06	2.28.E-07	2.77.E-07	2.05.E-04
Core | Eutrophication potential - marine (EP-marine)	kg N eq.	2.00.E-03	7.79.E-04	2.03.E-03	1.95.E-05	2.73.E-04	5.11.E-03
Core | Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	2.09.E-02	8.77.E-03	2.26.E-02	2.16.E-04	2.99.E-03	5.55.E-02
Core | Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	7.22.E-03	2.59.E-03	6.22.E-03	8.50.E-05	8.90.E-04	1.70.E-02
Core | Water (user) deprivation potential (WDP)	m3 World eq.	8.31.E-01	1.69.E-01	1.45.E-02	1.35.E-03	8.11.E-03	1.02.E+00
Optional (EF3.1) | Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	1.56.E+01	1.35.E+00	4.08.E-01	4.68.E-02	1.97.E-01	1.76.E+01
Optional (EF3.1) | Potential Comparative Toxic Unit for humans - non-cancer effects (HTP-nc)	CTUh	5.56.E-08	3.62.E-09	1.39.E-09	1.58.E-10	5.85.E-10	6.14.E-08
Optional | Potential Comparative Toxic Unit for humans - cancer effects (HTP-c)	CTUh	3.03.E-09	2.38.E-10	6.83.E-11	3.09.E-12	2.54.E-11	3.37.E-09
Optional | Potential Human exposure efficiency relative to U235 (IRP)	kBq U235 eq.	2.67.E-02	8.76.E-02	8.59.E-04	7.97.E-05	1.52.E-04	1.15.E-01
Optional | Potential incidence of disease due to PM emissions (PM)	Disease Incidence	2.09.E-07	1.03.E-08	1.32.E-08	1.42.E-09	1.63.E-08	2.50.E-07
Optional | Potential Soil quality index (SQP)	Dimensionless	1.63.E+01	1.20.E+00	8.01.E-01	1.49.E-01	7.25.E-02	1.85.E+01
Output | Components for re-use (CRU)	kg	-	-	-	-	-	-

Appendix

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
Output | Exported electrical energy (EEE)	MJ	-	-	-	-	-	-
Output | Exported thermal energy (EET)	MJ	-	-	-	-	-	-
Output | Materials for energy recovery (MER)	kg	-	-	-	-	-	-
Output | Materials for recycling (MFR)	kg	-	-	-	-	-	-
PCR 2019:14 (EF3.1) | Global warming potential except emissions and uptake of biogenic carbon (GWP-GHG)	kg CO2 eq.	2.13.E+00	8.42.E-01	3.37.E-01	1.84.E-02	1.07.E-01	3.43.E+00
Resource | Total use of non renewable primary energy resources (PENRT)	MJ	2.35.E+01	1.45.E+01	4.24.E+00	2.54.E-01	8.48.E-01	4.34.E+01
Resource | Total use of renewable primary energy resources (PERT)	MJ	3.64.E+00	2.50.E-01	3.83.E-02	3.53.E-03	6.07.E-03	3.94.E+00
Resource | Use of net fresh water (FW)	m3	2.53.E-03	3.98.E-03	3.44.E-04	3.41.E-05	1.43.E-04	7.03.E-03
Resource | Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2.35.E+01	1.45.E+01	4.24.E+00	2.54.E-01	8.48.E-01	4.34.E+01
Resource | Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	-	-	-	-	-	-
Resource | Use of non renewable secondary fuels (NRSF)	MJ	-	-	-	-	-	-
Resource | Use of renewable primary energy resources used as energy carrier (PERE)	MJ	3.64.E+00	2.50.E-01	3.83.E-02	3.53.E-03	6.07.E-03	3.94.E+00
Resource | Use of renewable primary energy resources used as raw materials (PERM)	MJ	-	-	-	-	-	-
Resource | Use of renewable secondary fuels (RSF)	MJ	-	-	-	-	-	-
Resource | Use of secondary materials (SM)	kg	-	-	-	-	-	-
Waste | Hazardous waste disposed (HWD)	kg	6.50.E-01	3.57.E-02	5.15.E-03	4.32.E-04	4.09.E-03	6.96.E-01
Waste | Non hazardous waste disposed (NHWD)	kg	9.17.E+00	1.65.E-01	3.41.E-02	2.46.E-03	1.11.E-01	9.48.E+00
Waste | Radioactive waste disposed (RWD)	kg	1.66.E-05	6.27.E-05	5.35.E-07	5.02.E-08	9.58.E-08	8.00.E-05

Appendix

[HEX HEAD CAP SCREWS]

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
Core (EF3.1) | Global Warming Potential - biogenic (GWP-biogenic)	kg CO2 eq.	-4.30.E-02	1.99.E-02	-7.55.E-06	5.26.E-06	1.09.E-02	-1.21.E-02
Core (EF3.1) | Global Warming Potential - fossil fuels (GWP-fossil)	kg CO2 eq.	2.19.E+00	7.80.E-01	2.62.E-01	1.66.E-02	7.08.E-02	3.32.E+00
Core (EF3.1) | Global Warming Potential - land use and land use change (GWP-luluc)	kg CO2 eq.	1.41.E-03	4.72.E-04	1.35.E-04	7.42.E-06	6.81.E-06	2.03.E-03
Core (EF3.1) | Global Warming Potential - total (GWP-total)	**kg CO2 eq.**	**2.14.E+00**	**8.01.E-01**	**2.62.E-01**	**1.66.E-02**	**8.18.E-02**	**3.31.E+00**
Core | Abiotic depletion potential - fossil resources (ADPF)	MJ	2.29.E+01	1.43.E+01	3.31.E+00	2.29.E-01	8.26.E-01	4.16.E+01
Core | Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.67.E-05	5.25.E-07	4.26.E-07	5.58.E-08	2.48.E-08	1.78.E-05
Core | Acidification potential, Accumulated Exceedance (AP)	mol H+ eq.	9.28.E-03	2.64.E-03	5.91.E-03	5.66.E-05	5.68.E-04	1.85.E-02
Core | Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	1.04.E-08	1.23.E-08	3.60.E-09	2.10.E-10	9.42.E-10	2.75.E-08
Core | Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	1.37.E-04	4.87.E-05	1.60.E-06	2.06.E-07	2.31.E-07	1.88.E-04
Core | Eutrophication potential - marine (EP-marine)	kg N eq.	1.97.E-03	7.50.E-04	1.49.E-03	1.76.E-05	2.64.E-04	4.48.E-03
Core | Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	2.14.E-02	8.45.E-03	1.65.E-02	1.95.E-04	2.89.E-03	4.94.E-02
Core | Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	7.17.E-03	2.54.E-03	4.58.E-03	7.66.E-05	8.64.E-04	1.52.E-02
Core | Water (user) deprivation potential (WDP)	m3 World eq.	7.84.E-01	1.58.E-01	1.19.E-02	1.22.E-03	3.19.E-03	9.58.E-01
Optional (EF3.1) | Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	1.57.E+01	1.24.E+00	3.42.E-01	4.22.E-02	7.18.E-02	1.74.E+01
Optional (EF3.1) | Potential Comparative Toxic Unit for humans - non-cancer effects (HTP-nc)	CTUh	4.44.E-08	3.23.E-09	1.16.E-09	1.42.E-10	1.88.E-10	4.91.E-08
Optional | Potential Comparative Toxic Unit for humans - cancer effects (HTP-c)	CTUh	3.01.E-09	2.55.E-10	5.24.E-11	2.79.E-12	9.83.E-12	3.33.E-09
Optional | Potential Human exposure efficiency relative to U235 (IRP)	kBq U235 eq.	2.39.E-02	8.30.E-02	7.00.E-04	7.19.E-05	1.39.E-04	1.08.E-01
Optional | Potential incidence of disease due to PM emissions (PM)	Disease Incidence	2.17.E-07	1.04.E-08	1.10.E-08	1.28.E-09	1.61.E-08	2.56.E-07
Optional | Potential Soil quality index (SQP)	Dimensionless	9.75.E+00	1.15.E+00	7.29.E-01	1.35.E-01	5.77.E-02	1.18.E+01
Output | Components for re-use (CRU)	kg	-	-	-	-	-	-

Appendix

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
Output | Exported electrical energy (EEE)	MJ	-	-	-	-	-	-
Output | Exported thermal energy (EET)	MJ	-	-	-	-	-	-
Output | Materials for energy recovery (MER)	kg	-	-	-	-	-	-
Output | Materials for recycling (MFR)	kg	-	-	-	-	-	-
PCR 2019:14 (EF3.1) | Global warming potential except emissions and uptake of biogenic carbon (GWP-GHG)	kg CO2 eq.	2.19.E+00	7.81.E-01	2.62.E-01	1.66.E-02	7.08.E-02	3.32.E+00
Resource | Total use of non renewable primary energy resources (PENRT)	MJ	2.29.E+01	1.43.E+01	3.31.E+00	2.29.E-01	8.26.E-01	4.16.E+01
Resource | Total use of renewable primary energy resources (PERT)	MJ	2.64.E+00	2.38.E-01	3.12.E-02	3.18.E-03	5.33.E-03	2.92.E+00
Resource | Use of net fresh water (FW)	m3	6.19.E-03	3.75.E-03	2.83.E-04	3.07.E-05	6.89.E-05	1.03.E-02
Resource | Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2.29.E+01	1.43.E+01	3.31.E+00	2.29.E-01	8.26.E-01	4.16.E+01
Resource | Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	-	-	-	-	-	-
Resource | Use of non renewable secondary fuels (NRSF)	MJ	-	-	-	-	-	-
Resource | Use of renewable primary energy resources used as energy carrier (PERE)	MJ	2.64.E+00	2.38.E-01	3.12.E-02	3.18.E-03	5.33.E-03	2.92.E+00
Resource | Use of renewable primary energy resources used as raw materials (PERM)	MJ	-	-	-	-	-	-
Resource | Use of renewable secondary fuels (RSF)	MJ	-	-	-	-	-	-
Resource | Use of secondary materials (SM)	kg	-	-	-	-	-	-
Waste | Hazardous waste disposed (HWD)	kg	7.42.E-01	3.24.E-02	4.15.E-03	3.89.E-04	1.34.E-03	7.81.E-01
Waste | Non hazardous waste disposed (NHWD)	kg	6.74.E+00	1.07.E-01	2.71.E-02	2.22.E-03	2.43.E-02	6.90.E+00
Waste | Radioactive waste disposed (RWD)	kg	1.48.E-05	5.94.E-05	4.37.E-07	4.53.E-08	8.76.E-08	7.47.E-05

Appendix

[STUDS]

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
Core (EF3.1) | Global Warming Potential - biogenic (GWP-biogenic)	kg CO2 eq.	3.34.E-02	2.01.E-02	-2.85.E-05	5.45.E-06	2.76.E-02	8.11.E-02
Core (EF3.1) | Global Warming Potential - fossil fuels (GWP-fossil)	kg CO2 eq.	5.60.E+00	3.13.E-01	4.52.E-01	1.72.E-02	8.27.E-02	6.47.E+00
Core (EF3.1) | Global Warming Potential - land use and land use change (GWP-luluc)	kg CO2 eq.	6.47.E-03	1.24.E-04	2.35.E-04	7.69.E-06	7.37.E-06	6.84.E-03
Core (EF3.1) | Global Warming Potential - total (GWP-total)	**kg CO2 eq.**	**5.64.E+00**	**3.34.E-01**	**4.52.E-01**	**1.72.E-02**	**1.10.E-01**	**6.56.E+00**
Core | Abiotic depletion potential - fossil resources (ADPF)	MJ	6.60.E+01	3.35.E+00	5.67.E+00	2.38.E-01	8.33.E-01	7.61.E+01
Core | Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.45.E-04	1.31.E-07	6.58.E-07	5.78.E-08	2.72.E-08	1.46.E-04
Core | Acidification potential, Accumulated Exceedance (AP)	mol H+ eq.	3.13.E-02	6.74.E-04	1.11.E-02	5.86.E-05	5.75.E-04	4.37.E-02
Core | Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	4.29.E-08	2.54.E-09	6.25.E-09	2.18.E-10	9.52.E-10	5.28.E-08
Core | Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	4.04.E-04	1.30.E-05	2.48.E-06	2.13.E-07	2.46.E-07	4.20.E-04
Core | Eutrophication potential - marine (EP-marine)	kg N eq.	5.51.E-03	1.98.E-04	2.77.E-03	1.82.E-05	2.67.E-04	8.77.E-03
Core | Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	6.11.E-02	2.23.E-03	3.08.E-02	2.02.E-04	2.92.E-03	9.72.E-02
Core | Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	1.98.E-02	6.31.E-04	8.48.E-03	7.94.E-05	8.73.E-04	2.99.E-02
Core | Water (user) deprivation potential (WDP)	m3 World eq.	2.44.E+00	4.31.E-02	1.92.E-02	1.27.E-03	4.83.E-03	2.51.E+00
Optional (EF3.1) | Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	7.09.E+01	3.37.E-01	5.34.E-01	4.38.E-02	1.14.E-01	7.19.E+01
Optional (EF3.1) | Potential Comparative Toxic Unit for humans - non-cancer effects (HTP-nc)	CTUh	1.12.E-07	9.61.E-10	1.82.E-09	1.48.E-10	3.21.E-10	1.15.E-07
Optional | Potential Comparative Toxic Unit for humans - cancer effects (HTP-c)	CTUh	7.34.E-09	3.61.E-11	9.19.E-11	2.89.E-12	1.50.E-11	7.48.E-09
Optional | Potential Human exposure efficiency relative to U235 (IRP)	kBq U235 eq.	1.43.E-01	2.21.E-02	1.13.E-03	7.45.E-05	1.43.E-04	1.67.E-01
Optional | Potential incidence of disease due to PM emissions (PM)	Disease Incidence	4.84.E-07	2.92.E-09	1.73.E-08	1.32.E-09	1.62.E-08	5.22.E-07
Optional | Potential Soil quality index (SQP)	Dimensionless	3.22.E+01	2.97.E-01	1.02.E+00	1.40.E-01	6.26.E-02	3.37.E+01
Output | Components for re-use (CRU)	kg	-	-	-	-	-	-
Output | Exported electrical energy (EEE)	MJ	-	-	-	-	-	-
Output | Exported thermal energy (EET)	MJ	-	-	-	-	-	-
Output | Materials for energy recovery (MER)	kg	-	-	-	-	-	-
Output | Materials for recycling (MFR)	kg	-	-	-	-	-	-

Appendix

Indicator*	Unit	A1-A2	A3	A4	C2	C3-C4	합계
PCR 2019:14 (EF3.1) | Global warming potential except emissions and uptake of biogenic carbon (GWP-GHG)	kg CO2 eq.	5.62.E+00	3.14.E-01	4.52.E-01	1.72.E-02	8.27.E-02	6.49.E+00
Resource | Total use of non renewable primary energy resources (PENRT)	MJ	6.60.E+01	3.35.E+00	5.67.E+00	2.38.E-01	8.33.E-01	7.61.E+01
Resource | Total use of renewable primary energy resources (PERT)	MJ	1.63.E+01	6.23.E-02	5.06.E-02	3.30.E-03	5.57.E-03	1.64.E+01
Resource | Use of net fresh water (FW)	m3	5.61.E-02	1.01.E-03	4.53.E-04	3.19.E-05	9.38.E-05	5.77.E-02
Resource | Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	6.60.E+01	3.35.E+00	5.67.E+00	2.38.E-01	8.33.E-01	7.61.E+01
Resource | Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	-	-	-	-	-	-
Resource | Use of non renewable secondary fuels (NRSF)	MJ	-	-	-	-	-	-
Resource | Use of renewable primary energy resources used as energy carrier (PERE)	MJ	1.63.E+01	6.23.E-02	5.06.E-02	3.30.E-03	5.57.E-03	1.64.E+01
Resource | Use of renewable primary energy resources used as raw materials (PERM)	MJ	-	-	-	-	-	-
Resource | Use of renewable secondary fuels (RSF)	MJ	-	-	-	-	-	-
Resource | Use of secondary materials (SM)	kg	-	-	-	-	-	-
Waste | Hazardous waste disposed (HWD)	kg	5.11.E+00	9.36.E-03	6.83.E-03	4.03.E-04	2.26.E-03	5.13.E+00
Waste | Non hazardous waste disposed (NHWD)	kg	5.31.E+00	5.25.E-02	4.55.E-02	2.30.E-03	5.32.E-02	5.47.E+00
Waste | Radioactive waste disposed (RWD)	kg	9.06.E-05	1.58.E-05	7.06.E-07	4.69.E-08	9.04.E-08	1.07.E-04