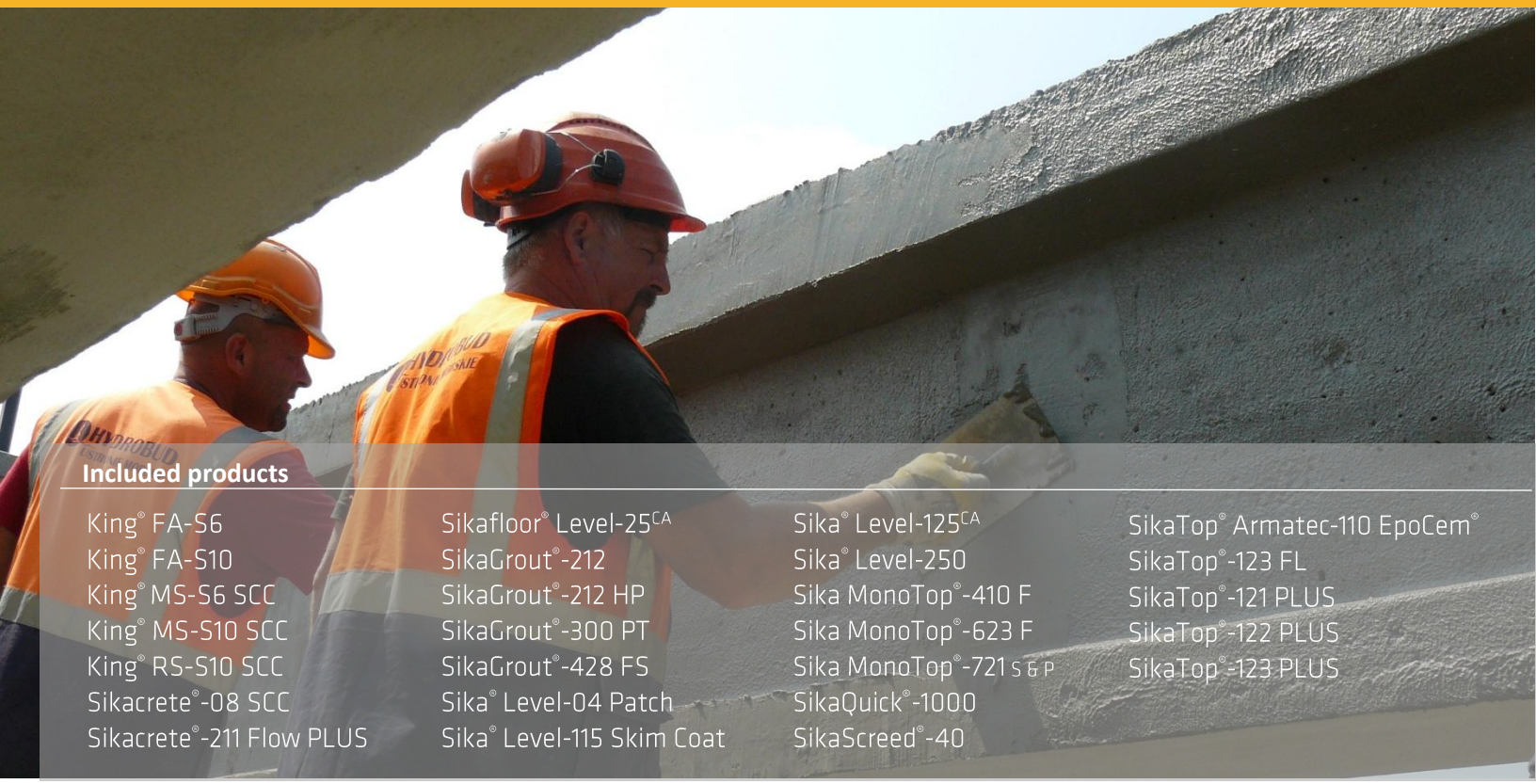
# SIKA CEMENTITIOUS SOLUTIONS FOR CONCRETE REPAIR AND MAINTENANCE

BUILDING TRUST
CONSTRUIRE LA CONFIANCE

## ENVIRONMENTAL PRODUCT DECLARATION



**Included products**

- King® FA-S6
- King® FA-S10
- King® MS-S6 SCC
- King® MS-S10 SCC
- King® RS-S10 SCC
- Sikacrete®-08 SCC
- Sikacrete®-211 Flow PLUS
- Sikafloor® Level-25CA
- SikaGrout®-212
- SikaGrout®-212 HP
- SikaGrout®-300 PT
- SikaGrout®-428 FS
- Sika® Level-04 Patch
- Sika® Level-115 Skim Coat
- Sika® Level-125CA
- Sika® Level-250
- Sika MonoTop®-410 F
- Sika MonoTop®-623 F
- Sika MonoTop®-721 S & P
- SikaQuick®-1000
- SikaScreed®-40
- SikaTop® Armatec-110 EpoCem®
- SikaTop®-123 FL
- SikaTop®-121 PLUS
- SikaTop®-122 PLUS
- SikaTop®-123 PLUS

The development of this type III environmental product declaration (EPD) for Sika cementitious solutions for concrete repair and maintenance manufactured in Canada was commissioned by Sika Canada. It was developed in compliance with CAN/CSA-ISO 14025 and core standard ISO 21930:2017 by Groupe AGÉCO and has been verified by the Athena Sustainable Materials Institute. These components are not part of a specific flooring or wall system (see the Sika Resinous & Cementitious Flooring Systems and the Sika Architectural and Protective Wall Coatings EPDs) and are used alone for a specific goal.

This EPD includes life cycle assessment (LCA) results for the production stage only (cradle-to-gate).

For more information about Sika Canada, please go to www.sika.ca

Issue date: July 10, 2025

CSA Group™ Environmental Product Declaration
CSA Group Registered Based on ISO 14025 and Other Requirements
For more information visit csaregistries.ca/epd
4080-0150
July 2025-July 2030

This product-specific type III environmental product declaration (EPD) for Sika cementitious solutions for concrete repair and maintenance is in accordance with ISO 14025:2006 and core standard ISO 21930:2017. EPDs within the same product category but from different programs may not be comparable. Moreover, EPDs of construction products may not be comparable if they do not comply with ISO 21930. Any EPD comparison must be performed in conformance with ISO 21930 guidelines. Care should be taken when comparing results since differences in certain assumptions, data quality and datasets are unavoidable, even when using the same product category rules (PCR). EPDs are comparable only if they comply with this document, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works. This declaration shall solely be used in a Business to Business (B2B) capacity.

| | |
|---|---|
| Program operator | CSA Group<br>178 Rexdale Blvd, Toronto, ON, Canada M9W 1R3 \| www.csagroup.org |
| Program Operator General Program Instructions | CSA Group general program instructions for Type III environmental product declarations. CSA-SDP-5.1:25 |
| Product | Sika cementitious solutions for concrete repair and maintenance<br>The complete list of products is presented in section 2.1 |
| EPD registration number | 4080-0150 |
| EPD recipient organization | Sika Canada<br>601 avenue Delmar, Pointe-Claire (Quebec) H9R 4A9 \| www.sika.ca |
| Reference PCR | ISO 21930:2017 used as core product category rule |
| EPD Scope | Cradle-to-gate |
| Date of issue (approval) | July 10, 2025 |
| Period of validity | July 10, 2025 - July 9, 2030 |

| | |
|---|---|
| The LCA and EPD were prepared by | Groupe AGÉCO \| www.groupeageco.ca \| ageco@groupeageco.ca |
| This EPD and related data were independently verified by an external verifier, Lindita Bushi, according to CAN/CSA-ISO 14025:2006 and core standard ISO 21930:2017. | __ Internal x External<br>*Lindita Bushi*<br>Lindita Bushi, Ph.D.<br>Athena Sustainable Materials Institute<br>280 Albert St., Suite 404, Ottawa, Ontario, Canada K1P 5G8<br>lindita.bushi@athenasmi.org \| www.athenasmi.org |

| | |
|---|---|
| Declaration product and declared unit | 1 kg of cementitious solutions for concrete repair and maintenance |
| Manufacturing locations | Boisbriand, Quebec, Canada<br>Brantford, Ontario, Canada<br>Edmonton, Alberta, Canada<br>Surrey, British Columbia, Canada |
| EPD type | Product-specific |
| Markets of applicability | Canada |
| LCA Software/database used | Simapro 9.6 with ecoinvent 3.10 |

# Environmental Product Declaration Summary Sheet

## Sika Canada | Sika Cementitious Solutions for Concrete Repair and Maintenance

This is a summary of the product-specific type III environmental product declaration (EPD) describing the environmental performance of cementitious solutions for concrete repair and maintenance manufactured by Sika Canada.

BUILDING TRUST
CONSTRUIRE LA CONFIANCE

| EPD commissioner and owner | Period of validity | Program operator and registration number | Product Category Rule | LCA and EPD consultants |
|---|---|---|---|---|
| Sika Canada | July 10, 2025 - July 9, 2030 | CSA Group 4080-0150 | ISO 21930:2017 used as core product category rule | Groupe AGÉCO |

### What is a Life Cycle Assessment (LCA)?

LCA is a science-based and internationally recognized tool to evaluate the relative potential environmental impacts of products and services throughout their life cycle, beginning with raw material extraction and including all aspects of transportation, production, use, and end-of-life treatment. The method is defined by the International Organization for Standardization (ISO) 14040 and 14044 standards. For EPD development, Product Category Rules (PCR) give additional guidelines on how to conduct the LCA of the product.

### Why an EPD?

Sika Canada is seeking to provide the industry, decision makers, influencers, and the public with more transparency, in terms of its sustainability efforts and environmental performance of its products, relying on a rigorous and recognized communication tool, the EPD. By selecting products with an EPD, building projects can earn credits towards the Leadership in Energy and Environmental Design (LEED) rating system certification. In LEED v4, v4.1 and v5, points are awarded in the Materials and Resources category.

### Product description

Cementitious products such as concrete repair products for horizontal, vertical and overhead applications, underlayment/screeds, anti-corrosion protection, anchoring and post-tension grouts.

### Declared unit

One kilogram (1 kg) of cementitious component.

### Scope and system boundary

Cradle-to-gate: production stage (A1-A3).

### Components included in the EPD

King® FA-S6 • King® FA-S10 • King® MS-S6 SCC
King® MS-S10 SCC • King® RS-S10 SCC
Sikacrete®-08 SCC • Sikacrete®-211 Flow PLUS
Sikafloor® Level-25$^{CA}$ • SikaGrout®-212
SikaGrout®-212 HP • SikaGrout®-300 PT
SikaGrout®-428 FS • Sika® Level-04 Patch
Sika® Level-115 Skim Coat • Sika® Level-125$^{CA}$
Sika® Level-250 • Sika MonoTop®-410 F
Sika MonoTop®-623 F • Sika MonoTop®-721 Sack & Patch
SikaQuick®-1000 • SikaScreed®-40 •
SikaTop® Armatec-110 EpoCem® • SikaTop®-123 FL SikaTop®-121 PLUS • SikaTop®-122 PLUS
SikaTop®-123 PLUS



## Potential environmental impacts

The potential environmental impacts of **1 kg of cementitious components** are summarized below for each solution assessed and for the main environmental indicators (based on the requirements of the PCR which refers to ISO 21930:2017 on this matter). Refer to the body of the EPD for more detailed results. Results on resource use, waste generated, and output flows are presented in the full EPD.

### Cradle-to-gate (A1-A3) results for 1 kg of cementitious components
(complete results are available in the full EPD)

| Components | Global warming (kg $CO_2$ eq.) | Ozone depletion (kg CFC-11 eq.) | Eutrophication (kg N eq.) | Acidification (kg $SO_2$ eq.) | Smog (kg $O_3$ eq.) |
|---|---|---|---|---|---|
| King® FA-S6 | 3.16E-01 | 2.54E-09 | 5.12E-04 | 1.03E-03 | 1.72E-02 |
| King® FA-S10 | 3.21E-01 | 2.82E-09 | 4.80E-04 | 1.05E-03 | 1.71E-02 |
| King® MS-S6 SCC | 3.07E-01 | 2.86E-09 | 4.18E-04 | 8.71E-04 | 1.63E-02 |
| King® MS-S10 SCC | 3.21E-01 | 3.03E-09 | 3.82E-04 | 8.95E-04 | 1.66E-02 |
| King® RS-S10 SCC | 3.48E-01 | 4.75E-09 | 5.39E-04 | 1.05E-03 | 1.83E-02 |
| Sikacrete®-08 SCC | 3.74E-01 | 3.53E-09 | 5.87E-04 | 1.15E-03 | 1.91E-02 |
| Sikacrete®-211 Flow PLUS | 2.83E-01 | 2.12E-09 | 3.42E-04 | 7.21E-04 | 1.46E-02 |
| Sikafloor® Level-25CA | 4.13E-01 | 5.17E-09 | 7.52E-04 | 1.31E-03 | 1.95E-02 |
| SikaGrout®-212 | 4.48E-01 | 2.56E-09 | 5.50E-04 | 1.25E-03 | 2.40E-02 |
| SikaGrout®-212 HP | 4.54E-01 | 2.78E-09 | 5.54E-04 | 1.25E-03 | 2.40E-02 |
| SikaGrout®-300 PT | 7.88E-01 | 5.11E-09 | 8.61E-04 | 1.97E-03 | 3.91E-02 |
| SikaGrout®-428 FS | 4.90E-01 | 4.44E-09 | 8.47E-04 | 1.58E-03 | 2.51E-02 |
| Sika® Level-04 Patch | 5.43E-01 | 7.27E-09 | 8.75E-04 | 1.54E-03 | 2.63E-02 |
| Sika® Level-115 Skim Coat | 1.29E+00 | 2.43E-08 | 2.48E-03 | 3.94E-03 | 5.66E-02 |
| Sika® Level-125CA | 3.01E-01 | 3.45E-09 | 4.38E-04 | 7.52E-04 | 1.35E-02 |
| Sika® Level-250 | 3.69E-01 | 4.27E-09 | 5.88E-04 | 9.30E-04 | 1.66E-02 |
| Sika MonoTop®-410 F | 4.61E-01 | 6.10E-09 | 8.28E-04 | 1.46E-03 | 2.31E-02 |
| Sika MonoTop®-623 F | 6.80E-01 | 8.97E-09 | 1.26E-03 | 2.35E-03 | 3.40E-02 |
| Sika MonoTop®-721 Sack & Patch | 3.66E-01 | 3.57E-09 | 6.79E-04 | 1.19E-03 | 1.90E-02 |
| SikaQuick®-1000 | 3.73E-01 | 2.74E-09 | 4.30E-04 | 8.65E-04 | 1.71E-02 |
| SikaScreed®-40 | 2.77E-01 | 2.07E-09 | 4.53E-04 | 8.55E-04 | 1.58E-02 |
| SikaTop® Armatec-110 EpoCem | 4.62E-01 | 4.92E-09 | 6.94E-04 | 1.41E-03 | 2.26E-02 |
| SikaTop®-123 FL | 5.41E-01 | 5.04E-09 | 1.00E-03 | 1.84E-03 | 2.77E-02 |
| SikaTop®-121 PLUS | 7.56E-01 | 6.11E-09 | 1.93E-03 | 2.64E-03 | 4.07E-02 |
| SikaTop®-122 PLUS | 4.20E-01 | 3.01E-09 | 6.21E-04 | 1.31E-03 | 2.25E-02 |
| SikaTop®-123 PLUS | 6.36E-01 | 5.68E-09 | 1.06E-03 | 2.11E-03 | 3.23E-02 |

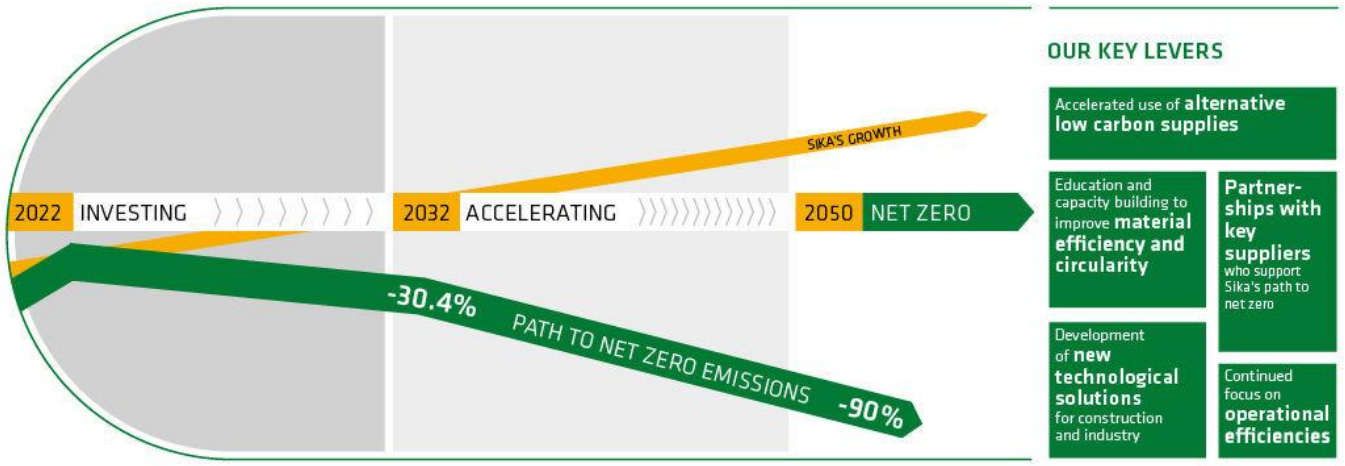
## Additional environmental information

This section provides additional relevant environmental information about the manufacturer and the cementitious components that were not derived from the LCA.

### Sika's commitment to sustainability

Providing long lasting and high-performance solutions to the benefit of our customers, Sika is committed to pioneering sustainable solutions that are safer, have the lowest impact on resources and address global environmental challenges. Therefore, Sika assumes the responsibility to provide sustainable solutions to improve material, water and energy efficiency in construction and transportation. Sika strives to create more value for all its stakeholders with its products, systems and solutions along the whole value chain and throughout the entire life span of its products. In 2023, Sika launched its new strategy for the upcoming five years. **Strategy 2028** lays out ambitious financial targets and non-financial objectives, marking a continued commitment to excellence and expansion. The strategy is based on four key pillars: Market Penetration, Innovation & Sustainability, Acquisitions, People & Culture. It is aligned with eight megatrends that are transforming the industry and driving Sika's continuous success.

Sika is committed to reach **net-zero** no later than 2050. Sika commits to report annually on its progress towards meeting these targets (see figure below). Sika also acknowledges that the latest climate science may change and is committed to reviewing all active targets every 5 years to ensure consistency with the latest Science Based Targets Initiative (SBTi) criteria.




On the perspective of reducing the environmental impacts of their products, some components studied in the present document present a biobased carbon content, measured in accordance with ASTM D6866-24.

SPM | Sustainability Portfolio Management

Sika is the 1st company within the specialty chemicals and building materials sector to develop and implement the **Sustainability Portfolio Management (SPM)** Concept based on the World Business Council of Sustainable Development framework. The SPM evaluates solutions based on 12 sustainability and 6 performance categories. SPM is used to classify, and market sustainable solutions.



### Volatile organic compound (VOC) content

Individual products in this EPD contain between 0 and ≤ 10 grams of VOC per litre. The VOC content was measured according to EPA 24 or ASTM D2369 standard methods. For low-VOC products (e.g., cement-based products), VOC contents were calculated by Sika Canada's ISO 9001 laboratory. All products were compliant with national standards and LEED requirements at the time of the study.

Sika Canada discloses the VOC content of its products on publicly available safety datasheets. Sika Canada submits annual reports to the National Pollutant Release Inventory (NPRI) for all its sites. To date, no exceedances of regulatory thresholds have been recorded, particularly regarding VOCs listed in Section 4 of the NPRI Reporting Guide. Additionally, to ensure rigorous monitoring of our air emissions, Sika Canada collaborates annually with a consultant to conduct a detailed pollutant inventory, including VOCs, at the following sites: Sika Boisbriand, Sika Brantford and Sika Cambridge. This proactive approach reflects Sika Canada's commitment to environmental compliance and transparency.



### Waste packaging management

Sika Canada encourages its customers to responsibly dispose of used packaging. Most of them are recyclable. To make recycling easier, it is recommended to separate used packaging according to their material (paper, plastic and metal). Ask information to local municipalities about recycling programs for industrial coating packaging.

For more information: www.sika.ca

# 1. Description of Sika Canada

Sika Canada Inc., a wholly owned subsidiary of Sika AG, is active in the field of specialty chemicals supplying the building and civil engineering sectors with a complete range of high-quality solutions for new construction, concrete repair and protection, and structural reinforcement with products such as specialty mortars/grouts/concrete; sealants and adhesives; waterproofing solutions; structural strengthening systems; concrete admixtures and additives; industrial and commercial flooring systems; protective and decorative coatings; as well as roofing systems. Sika Canada is also present on the home improvement market with a specific range of products specifically developed for homeowners. The industrial product division serves the manufacturing sector, including industries such as automotive (car, bus, trucks, commercial body manufacturers, AEM, AGR, etc.), shipbuilding, rail, building components/envelopes and alternative-energy sectors, by providing high-performance sealing and bonding solutions and other specialty materials.

Visit Sika Canada's website for more information at www.sika.ca

# 2. Description of product

## 2.1. Definition and product classification

This EPD developed with ISO 21930:2017 used as core PCR covers 26 cementitious products. Cementitious solutions encompass a range of cast-in-place and self-compacting concrete mixes, high performance grouts (for structural grouting and post-tensioning applications), screeds, underlayments and surface reprofiling compounds, anti-corrosion protection solutions and concrete repair mortars (for horizontal and vertical applications).

**UN CPC product code:** 375

| Cementitious solutions for concrete repair and maintenance | | | |
|---|---|---|---|
| King® FA-S6 | Sikafloor® Level-25CA | Sika® Level-125CA | SikaScreed®-40 |
| King® FA-S10 | SikaGrout®-212 | Sika® Level-250 | SikaTop® Armatec-110 EpoCem® |
| King® MS-S6 SCC | SikaGrout®-212 HP | Sika MonoTop®-410 F | SikaTop®-123 FL |
| King® MS-S10 SCC | SikaGrout®-300 PT | Sika MonoTop®-623 F | SikaTop®-121 PLUS |
| King® RS-S10 SCC | SikaGrout®-428 FS | Sika MonoTop®-721 Sack & Patch | SikaTop®-122 PLUS |
| Sikacrete®-08 SCC | Sika® Level-04 Patch | SikaQuick®-1000 | SikaTop®-123 PLUS |
| Sikacrete®-211 Flow PLUS | Sika® Level-115 Skim Coat | | |

More information on these systems is available on Sika Canada's website: https://can.sika.com/en/solutions-and-products.html

Figure 1: Examples of applications of cementitious components on-site

## 2.2.Material content

The material composition of each component as disclosed in SDS (Safety Data Sheets) is provided in Table 1. The complete component formulations were used to calculate the LCA results.

Table 1: Composition of cementitious components included in this EPD

| Coatings | Hazardous Ingredients[1] | CAS No. | Concentration (%w/w) |
|---|---|---|---|
| King® FA-S6 | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| King® FA-S10 | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| King® MS-S6 SCC | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| King® MS-S10 SCC | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| | Calcium oxide | 1305-78-8 | >= 1 - < 5 |
| King® RS-S10 SCC | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Calcium sulfoaluminate cement | 960375-09-1 | >= 10 - < 30 |
| Sikacrete®-08 SCC | Quartz ($SiO_2$) | 140808-60-7 | >= 30 - < 40 |
| | Portland cement | 65997-15-1 | >= 20 - < 30 |
| | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 0.1 - < 1 |
| Sikacrete®-211 Flow PLUS | Quartz ($SiO_2$) | 140808-60-7 | >= 60 - < 70 |
| | Portland cement | 65997-15-1 | >= 20 - < 30 |
| Sikafloor® Level-25[CA] | Quartz ($SiO_2$) | 140808-60-7 | >= 20 - < 30 |
| | Portland cement | 65997-15-1 | >= 10 - < 20 |
| | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 0.1 - < 1 |
| SikaGrout®-212 | Quartz ($SiO_2$) | 140808-60-7 | >= 45 - < 70 |
| | Portland cement | 65997-15-1 | >= 30 - < 60 |
| SikaGrout®-212 HP | Quartz ($SiO_2$) | 140808-60-7 | >= 30 - < 40 |
| | Portland cement | 65997-15-1 | >= 30 - < 40 |
| | Calcium oxide | 1305-78-8 | >= 1 - < 2 |
| | Quartz (SiO2) <5µm | 140808-60-7 | >= 0.1 - < 1 |
| SikaGrout®-300 PT | Portland cement | 65997-15-1 | >= 60 - < 70 |
| | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 0.1 - < 1 |
| SikaGrout®-428 FS | Quartz ($SiO_2$) | 14808-60-7 | >= 30 - < 60 |
| | Portland cement | 65997-15-1 | >= 30 - < 60 |
| Sika® Level-04 Patch | Portland cement | 65997-15-1 | >= 10 - < 30 |
| | Quartz ($SiO_2$) >5µm | 14808-60-7 | >= 0.1 - < 1 |
| Sika® Level-115 Skim Coat | Quartz ($SiO_2$) | 14808-60-7 | >= 10 - < 30 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| Sika® Level-125[CA] | Quartz ($SiO_2$) | 140808-60-7 | >= 10 - < 20 |
| | Portland cement | 65997-15-1 | >= 5 - < 10 |
| | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 2 - < 5 |

[1] Resinous components are usually sold in two or three separate parts that are mixed on site prior to application. When this is the case, the part in which the ingredient is contained is indicated with a letter.

| Coatings | Hazardous Ingredients[1] | CAS No. | Concentration (%w/w) |
|---|---|---|---|
| Sika® Level-250 | Quartz ($SiO_2$) | 14808-60-7 | >= 30 - < 60 |
| | Portland cement | 65997-15-1 | >= 5 - < 10 |
| | Lithium carbonate | 554-13-2 | >= 1 - < 5 |
| Sika MonoTop®-410 F | Quartz ($SiO_2$) | 14808-60-7 | >= 30 - < 60 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| | Slags | 65996-69-2 | >= 5 - < 10 |
| Sika MonoTop®-623 F | Portland cement | 65997-15-1 | >= 30 - < 60 |
| | Quartz ($SiO_2$) | 140808-60-7 | >= 10 - < 30 |
| | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 0.1 - < 1 |
| Sika MonoTop®-721 Sack & Patch | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| | Calcium dihydroxide | 1305-62-0 | >= 1 - < 5 |
| | Calcium magnesium tetrahydroxide | 39445-23-3 | >= 1 - < 5 |
| | Calcium magnesium dihydroxide oxide | 58398-71-3 | >= 1 - < 5 |
| SikaQuick®-1000 | Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 30 - < 40 |
| | Quartz ($SiO_2$) | 140808-60-7 | >= 30 - < 40 |
| | Portland cement | 65997-15-1 | >= 10 - < 20 |
| SikaScreed®-40 | Quartz ($SiO_2$) | 14808-60-7 | >= 60 - < 80 |
| | Portland cement | 65997-15-1 | >= 10 - < 30 |
| SikaTop® Armatec-110 EpoCem® | (Part A) bisphenol-F-(epichlorhydrin) epoxy resin | 9003-36-5 | >= 50 - < 60 |
| | (Part A) bisphenol-A-(epichlorhydrin) epoxy resin | 25068-38-6 | >= 5 - < 10 |
| | (Part A) 2,3-epoxypropyl o-tolyl ether | 2210-79-9 | >= 2 - < 5 |
| | (Part B) Isophoronediamine | 2855-13-2 | >= 2 - < 5 |
| | (Part B) Dicyclohexylamine | 101-83-7 | >= 1 - < 2 |
| | (Part C) Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 50 - < 60 |
| | (Part C) Portland cement | 65997-15-1 | >= 30 - < 40 |
| | (Part C) Quartz ($SiO_2$) | 140808-60-7 | >= 2 - < 5 |
| | (Part C) Sodium nitrite | 7632-00-0 | >= 1 - < 2 |
| SikaTop®-121 PLUS | (Part A) 2,2-dimethyl-1,3-propanediol | 126-30-7 | >= 5 - < 10 |
| | (Part A) 2-dimethylaminoethanol | 108-01-0 | >= 0 - < 1 |
| | (Part B) Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 50 - < 60 |
| | (Part B) Portland cement | 65997-15-1 | >= 30 - < 40 |
| | (Part B) Quartz ($SiO_2$) | 140808-60-7 | >= 5 - < 10 |
| | (Part B) Calcium hydroxide | 1305-62-0 | >= 1 - < 2 |
| SikaTop®-122 PLUS | (Part A) 2,2-dimethyl-1,3-propanediol | 126-30-7 | >= 5 - < 10 |
| | (Part A) 2-dimethylaminoethanol | 108-01-0 | >= 0 - < 1 |
| | (Part B) Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 30 - < 60 |
| | (Part B) Portland cement | 65997-15-1 | >= 30 - < 60 |
| | (Part B) Quartz ($SiO_2$) | 140808-60-7 | >= 15 - < 40 |
| | (Part B) Calcium aluminate cement | 65997-16-2 | >= 1 - < 2 |
| SikaTop®-123 FL | (Part B) Quartz ($SiO_2$) | 14808-60-7 | >= 10 - < 30 |
| | (Part B) Portland cement | 65997-15-1 | >= 10 - < 30 |
| | (Part B) Flue dust, portland cement | 68475-76-3 | >= 1 - < 5 |
| SikaTop®-123 PLUS | (Part A) 2,2-dimethyl-1,3-propanediol | 126-30-7 | >= 5 - < 10 |
| | (Part A) 2-dimethylaminoethanol | 108-01-0 | >= 0 - < 1 |
| | (Part B) Portland cement | 65997-15-1 | >= 15 - < 40 |
| | (Part B) Quartz ($SiO_2$) <5µm | 140808-60-7 | >= 10 - < 30 |
| | (Part B) Quartz ($SiO_2$) | 140808-60-7 | >= 0.1 - < 1 |

# 3. Scope of EPD

## 3.1. Declared unit

A declared unit is used in lieu of a functional unit in accordance with the PCR since the precise function of some products cannot be defined. The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that have a higher impact, at least in some impact categories.

The declared unit is defined as follows:

One kilogram (1 kg) of cementitious component

Since this is cradle-to-gate EPD, which does not consider the use stage, no service lives are reported.

## 3.2.System boundaries

This cradle-to-gate LCA includes modules related to the production stage as shown in Table 2 and described in this section. Modules not declared are considered not relevant for the covered systems. Figure 2 on page 13 shows the cradle-to-gate processes for the manufacturing of cementitious components included in this EPD.

Table 2: Life cycle stages included or not considered in the system boundaries

| Production stage | | | Construction stage | | Use stage | | | | | | | End-of-life stage | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Raw materials | Transport | Manufacturing | Transport | Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| x | x | x | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND |

*Legend:*
*X: considered in the system boundaries* *MND: Module not declared*

### A1 – Raw material supply

Products are composed of components made of many different ingredients (intermediate materials), such as cement and sand for cementitious components. These ingredients are manufactured in many parts of Canada as

well as in the United States. This module includes the production of the ingredients needed for the mixing at the Sika plants, including raw material extraction and transformation, and energy production.

### A2 – Transport to manufacturing plants

Materials are transported from suppliers to the Sika manufacturing plants by truck. This module includes transport-related air emissions as well as fuel, vehicles, and infrastructure production.

### A3 – Manufacturing

The manufacturing of cementitious components involves mainly powders. Powder ingredients are shipped to the Sika plant and stored until their use. Then, materials are mixed with a powder mixer according to a specific formulation. The result goes under quality control, is packed in kraft paper, polyethylene or polypropylene bags, and stored until shipping.

Natural gas and electricity are the main sources of energy used at the manufacturing plants. Electricity is used in various processes and natural gas is used for heating. Solid waste (e.g., powders) is generated at the mixer and is primarily sent to landfills. Powder 'waste' is recycled internally.

This module also includes the production and transport of primary packaging for the final products. Sika products are sold in a variety of packaging as described in Table 3.

Table 3: Packaging description

| Packaging type | End-of-life treatment | Mass (in kg per declared unit, average) | Source | Biogenic carbon content* (kg C) |
|---|---|---|---|---|
| Paper bag (contains 22.7 kg) | Landfill | 0.008 | Estimated† | 0.05 |
| Paper bag (contains 25 kg) | Landfill | 0.004 | Estimated | 0.05 |
| Paper bag (contains 15 kg) | Landfill | 0.004 | Estimated† | 0.042 |
| Paper bag (contains 30 kg) | Landfill | 0.004 | Estimated | 0.05 |
| PE canister (4 l) | Landfill | 0.04 | Estimated | 0 |
| PE sleeve | Landfill | 0.02 | Estimated | 0 |
| PP Flexible Intermediate Bulk Container (600 L) | Landfill | 0.002 | Sika | 0 |
| PP Flexible Intermediate Bulk Container (900 L) | Landfill | 0.002 | Sika | 0 |

** Source: ecoinvent 3.10 (default 50 % C-content assumption)*

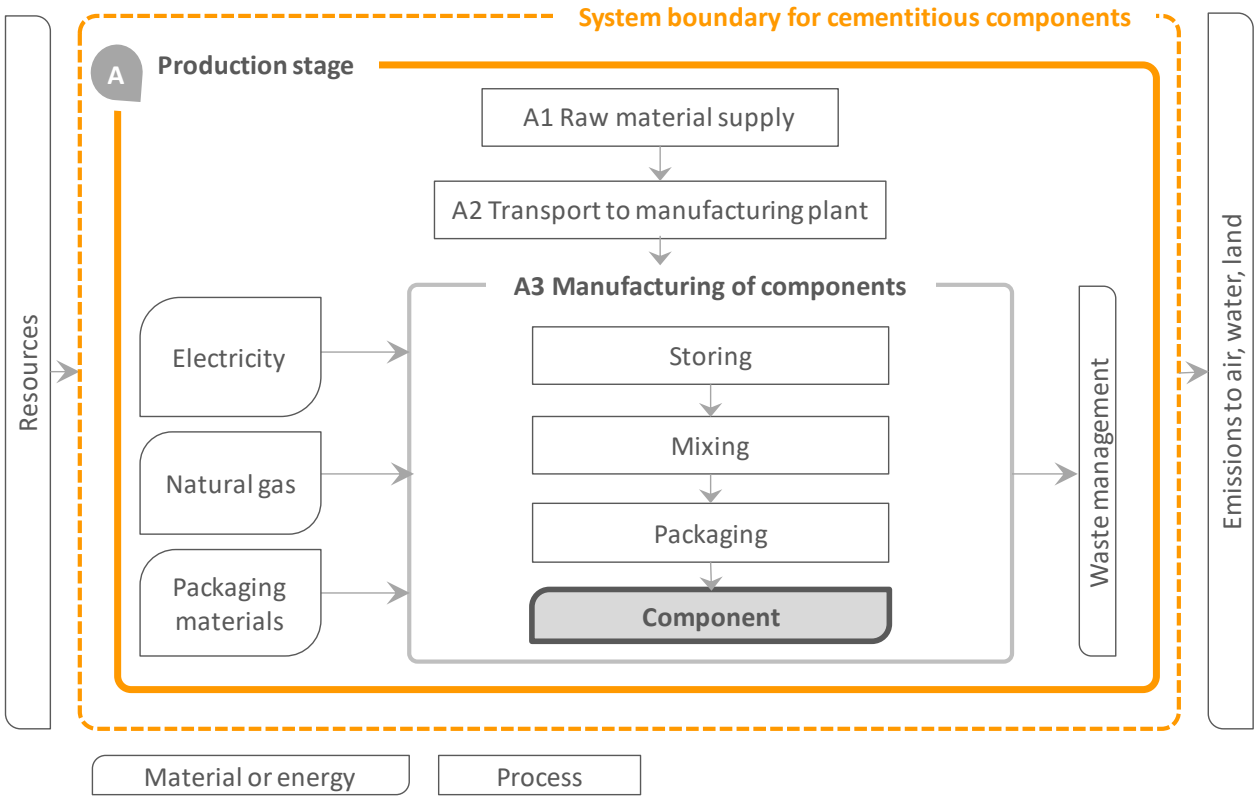



Figure 2: Process flow for all life cycle modules considered

## 3.3. Geographical and temporal boundaries

The geographical boundaries are representative of current equipment and processes associated with cementitious component manufacturing in Canada. Since the data were collected for the year 2023, they are considered temporally representative (i.e., less than 5 years old). A weighted average of production volume at each location is utilized for calculation purposes. All data were modelled using the ecoinvent 3.10 database released in 2023 (ecoinvent, 2023), which meets the PCR requirements.

# 4. Potential environmental impacts assessment

This cradle-to-gate life cycle assessment has been conducted according to ISO 14040 and 14044 standards as well as ISO 21930:2017 used as core product category rule. Potential environmental impacts were calculated according to ISO 21930:2017 which is based on TRACI 2.1. The description of these indicators reported is provided in the glossary (section 6.2).

## 4.1. Assumptions

When specific data was not available, generic data which fulfilled the minimum criteria of the PCR were used. The ecoinvent database v3.10 recycled content allocation served as the main source of secondary data. It should be noted that most, though not all, of the data within ecoinvent is of European origin and developed to represent European industrial conditions and processes. Therefore, in some cases, these modules were further adapted in order to enhance their representativeness of the products and contexts being examined. However, in the recent updates of the ecoinvent database, a lot of efforts have been put into creating market groups for regions,

countries and products. Other assumptions included in this LCA were related to raw material modelling, transportation and specific formulation data for a single brand-new product, Level-04 Patch. This product was not commercially available by the time of the calculations made for this EPD, the exact formulation was not yet finalized by Sika so estimates were used for ingredient quantities.

## 4.2. Criteria for the exclusion of inputs and outputs

All product components and production processes were included in the study when the necessary information was readily available or when a reasonable estimate could be made. Input and output flows may have been excluded if they represented less than 1% of the cumulative mass input, renewable primary energy or nonrenewable primary energy of a unit process and its environmental contribution to the total impacts was estimated to be less than 1%. Also, it is estimated that at least 95% of total flows in terms of mass and energy have been included in the system boundaries to capture at least 95% of the environmental relevance. All materials characterized as hazardous or toxic by the Globally Harmonized System (GHS) were included. It should be noted that the following items were excluded:

- Personnel impacts
- Research and development activities
- Business travel
- Any secondary packaging
- All point-of-sale infrastructure

## 4.3. Data quality

### Data sources

Specific data were collected from Sika Canada for operations occurring in 2023 (less than 5 years old). Generic data collected for the upstream processes were representative of the Canadian context and technologies used.

The LCA model was developed with the SimaPro 9.6 software using ecoinvent 3.10 database, which was released in 2023 (less than 2 years). Since most of the data within ecoinvent is of European origin and produced to represent European industrial conditions and processes, several data were adapted to enhance their representativeness of the products and contexts being examined.

### Data quality

The overall data quality ratings show that the data used were of good quality. This data quality assessment confirms the high reliability, representativeness (technological, geographical and time-related), completeness, and consistency of the information and data used for this study.

## 4.4. Allocation

### Allocation of multi-output processes

When unavoidable, allocation was done by mass, or other physical relationship. Economic value allocation was not used.

### Allocation at Sika's manufacturing plant

Sika's plants produce many different products, including several that are not part of the scope of this study. Product ingredients were available for each product and did not need to be allocated. However, general inputs such

as electricity, natural gas, and water were allocated based on the production volume in tonnes. Percentages were calculated by the manufacturers through data collection.

No burdens are allocated across the system boundary with secondary material, secondary fuel or recovered energy flows arising from waste.

### Allocation for end-of-life processes

As stated in the PCR, a recycled content approach (i.e., cut-off approach) was applied when a product is recycled. The impacts associated with the recycling process are thus attributed to the products using these materials.

### ecoinvent processes with allocation

Many of the processes in the ecoinvent database also provide multiple functions, and allocation is required to provide inventory data per function (or per process). This study accepts the allocation method used by ecoinvent for those processes. The ecoinvent system model used was "Allocation, cut-off". It should be noted that the allocation methods used in ecoinvent for background processes (i.e., processes representing the complete supply chain of a good or service used in the life cycle of a cementitious component) may be inconsistent with the approach used to model the foreground system (i.e., to model the manufacturing of a cementitious component with data collected in the literature and from manufacturers). While this allocation is appropriate for foreground processes, continuation of this methodology into the background datasets would add complexity without substantially improving the quality of the study.

## 4.5. Life cycle impact assessment - results

Table 4 presents the results for 1 kg of cementitious components over the production stage (A1 to A3).

Table 4: Results for 1 kg of cementitious components over the production stage (A1 to A3)

| Indicators | Units | King® FA-S6 | King® FA-S10 | King® MS-S6 SCC | King® MS-S10 SCC | King® RS-S10 SCC | Sikacrete® - 08 SCC | Sikacrete® - 211 Flow PLUS |
|---|---|---|---|---|---|---|---|---|
| Environmental indicators | | | | | | | | |
| Global warming potential | kg $CO_2$ eq. | 3.16E-01 | 3.21E-01 | 3.07E-01 | 3.21E-01 | 3.48E-01 | 3.74E-01 | 2.83E-01 |
| Ozone depletion potential | kg CFC-11 eq. | 2.54E-09 | 2.82E-09 | 2.86E-09 | 3.03E-09 | 4.75E-09 | 3.53E-09 | 2.12E-09 |
| Eutrophication potential | kg N eq. | 5.12E-04 | 4.80E-04 | 4.18E-04 | 3.82E-04 | 5.39E-04 | 5.87E-04 | 3.42E-04 |
| Acidification potential | kg $SO_2$ eq. | 1.03E-03 | 1.05E-03 | 8.71E-04 | 8.95E-04 | 1.05E-03 | 1.15E-03 | 7.21E-04 |
| Smog formation potential | kg $O_3$ eq. | 1.72E-02 | 1.71E-02 | 1.63E-02 | 1.66E-02 | 1.83E-02 | 1.91E-02 | 1.46E-02 |
| Resource use | | | | | | | | |
| Depletion of abiotic resources (fossil) | MJ | 2.17E+00 | 2.38E+00 | 2.47E+00 | 2.63E+00 | 3.46E+00 | 2.80E+00 | 2.05E+00 |
| Renewable primary energy | MJ | 2.26E-01 | 1.22E-01 | 2.04E-01 | 9.90E-02 | 2.37E-01 | 2.38E-01 | 1.77E-01 |
| Renewable primary materials | MJ | 7.40E-02 | 0.00E+00 | 7.34E-02 | 0.00E+00 | 7.69E-02 | 7.18E-02 | 7.18E-02 |
| Non-renewable primary energy | MJ | 2.40E+00 | 2.52E+00 | 2.44E+00 | 2.55E+00 | 3.04E+00 | 2.90E+00 | 2.22E+00 |
| Non-renewable primary materials | MJ | 9.00E-03 | 1.26E-01 | 2.76E-01 | 3.33E-01 | 7.68E-01 | 2.16E-01 | 2.10E-02 |
| Secondary materials | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 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 |
| 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 |
| Fresh water | $m^3$ | 1.78E-03 | 1.80E-03 | 1.25E-03 | 1.26E-03 | 1.78E-03 | 2.31E-03 | 1.30E-03 |
| Recovered energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Waste and output flows | | | | | | | | |
| Hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Non-hazardous waste disposed | kg | 7.37E-02 | 7.37E-02 | 7.37E-02 | 7.37E-02 | 7.37E-02 | 1.65E-02 | 1.44E-02 |
| High-level radioactive waste disposed | $m^3$ | 7.34E-11 | 7.88E-11 | 5.92E-11 | 6.30E-11 | 8.17E-11 | 9.13E-11 | 4.44E-11 |
| Intermediate and low-level radioactive waste disposed | $m^3$ | 3.47E-10 | 3.74E-10 | 2.70E-10 | 2.93E-10 | 3.92E-10 | 4.39E-10 | 1.92E-10 |
| Biogenic carbon | | | | | | | | |
| Biogenic carbon content in product | kg C | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Biogenic carbon content in packaging | kg C | 1.81E-03 | 0.00E+00 | 1.79E-03 | 0.00E+00 | 1.88E-03 | 1.75E-03 | 1.75E-03 |

| Indicators | Units | King® FA-S6 | King® FA-S10 | King® MS-S6 SCC | King® MS-S10 SCC | King® RS-S10 SCC | Sikacrete® -08 SCC | Sikacrete® -211 Flow PLUS |
|---|---|---|---|---|---|---|---|---|
| Output flows | | | | | | | | |
| Components for reuse | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 7.37E-02 | 7.37E-02 | 7.37E-02 | 7.37E-02 | 7.37E-02 | 1.56E-02 | 8.81E-03 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ per energy carrier | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 4 (cont'd): Results for 1 kg of cementitious components over the production stage (A1 to A3)

| Indicators | Units | Sikafloor® Level-25[CA] | SikaGrout®-212 | SikaGrout®-212 HP | SikaGrout®-300 PT | SikaGrout®-428 FS | Sika® Level-04 Patch | Sika® Level-115 Skim Coat |
|---|---|---|---|---|---|---|---|---|
| Environmental indicators | | | | | | | | |
| Global warming potential | kg $CO_2$ eq. | 4.13E-01 | 4.48E-01 | 4.54E-01 | 7.88E-01 | 4.90E-01 | 5.43E-01 | 1.29E+00 |
| Ozone depletion potential | kg CFC-11 eq. | 5.17E-09 | 2.56E-09 | 2.78E-09 | 5.11E-09 | 4.44E-09 | 7.27E-09 | 2.43E-08 |
| Eutrophication potential | kg N eq. | 7.52E-04 | 5.50E-04 | 5.54E-04 | 8.61E-04 | 8.47E-04 | 8.75E-04 | 2.48E-03 |
| Acidification potential | kg $SO_2$ eq. | 1.31E-03 | 1.25E-03 | 1.25E-03 | 1.97E-03 | 1.58E-03 | 1.54E-03 | 3.94E-03 |
| Smog formation potential | kg $O_3$ eq. | 1.95E-02 | 2.40E-02 | 2.40E-02 | 3.91E-02 | 2.51E-02 | 2.63E-02 | 5.66E-02 |
| Resource use | | | | | | | | |
| Depletion of abiotic resources (fossil) | MJ | 3.91E+00 | 2.57E+00 | 2.74E+00 | 4.90E+00 | 3.48E+00 | 6.61E+00 | 1.86E+01 |
| Renewable primary energy | MJ | 2.80E-01 | 2.36E-01 | 2.35E-01 | 3.23E-01 | 3.86E-01 | 3.10E-01 | 6.44E-01 |
| Renewable primary materials | MJ | 7.18E-02 | 7.18E-02 | 7.18E-02 | 7.18E-02 | 1.38E-01 | 7.18E-02 | 0.00E+00 |
| Non-renewable primary energy | MJ | 3.72E+00 | 2.79E+00 | 2.96E+00 | 5.00E+00 | 3.75E+00 | 5.28E+00 | 1.41E+01 |
| Non-renewable primary materials | MJ | 6.56E-01 | 3.03E-02 | 4.15E-02 | 3.78E-01 | 1.24E-01 | 2.00E+00 | 6.59E+00 |
| Secondary materials | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 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 |
| 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 |
| Fresh water | $m^3$ | 2.93E-03 | 1.55E-03 | 1.56E-03 | 1.66E-03 | 2.78E-03 | 2.14E-03 | 7.12E-03 |
| Recovered energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Waste flows | | | | | | | | |
| Hazardous waste disposed | kg | 0.00E+00 | 4.44E-05 | 3.84E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Non-hazardous waste disposed | kg | 1.65E-02 | 1.22E-02 | 1.25E-02 | 1.65E-02 | 1.65E-02 | 1.65E-02 | 1.65E-02 |
| High-level radioactive waste disposed | $m^3$ | 1.34E-10 | 7.02E-11 | 7.19E-11 | 1.27E-10 | 1.24E-10 | 1.51E-10 | 5.19E-10 |
| Intermediate and low-level radioactive waste disposed | $m^3$ | 7.16E-10 | 3.02E-10 | 3.12E-10 | 5.58E-10 | 5.86E-10 | 7.15E-10 | 2.76E-09 |
| Biogenic carbon | | | | | | | | |
| Biogenic carbon content in product | kg C | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Biogenic carbon content in packaging | kg C | 1.75E-03 | 1.75E-03 | 1.75E-03 | 1.75E-03 | 3.36E-03 | 1.75E-03 | 1.06E-02 |

| Indicators | Units | Sikafloor® Level-25[CA] | SikaGrout®-212 | SikaGrout®-212 HP | SikaGrout®-300 PT | SikaGrout®-428 FS | Sika® Level-04 Patch | Sika® Level-115 Skim Coat |
|---|---|---|---|---|---|---|---|---|
| Output flows | | | | | | | | |
| Components for reuse | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 1.57E-02 | 4.62E-03 | 5.19E-03 | 1.57E-02 | 1.57E-02 | 1.57E-02 | 1.57E-02 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ per energy carrier | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 4 (cont'd): Results for 1 kg of cementitious components over the production stage (A1 to A3)

| Indicators | Units | Sika® Level-125[CA] | Sika® Level-250 | Sika® MonoTop-410 F | Sika® MonoTop-623 F | Sika® MonoTop-721 Sack & Patch | SikaQuick®-1000 | SikaScreed®-40 |
|---|---|---|---|---|---|---|---|---|
| Environmental indicators | | | | | | | | |
| Global warming potential | kg $CO_2$ eq. | 3.01E-01 | 3.69E-01 | 4.61E-01 | 6.80E-01 | 3.66E-01 | 3.73E-01 | 2.77E-01 |
| Ozone depletion potential | kg CFC-11 eq. | 3.45E-09 | 4.27E-09 | 6.10E-09 | 8.97E-09 | 3.57E-09 | 2.74E-09 | 2.07E-09 |
| Eutrophication potential | kg N eq. | 4.38E-04 | 5.88E-04 | 8.28E-04 | 1.26E-03 | 6.79E-04 | 4.30E-04 | 4.53E-04 |
| Acidification potential | kg $SO_2$ eq. | 7.52E-04 | 9.30E-04 | 1.46E-03 | 2.35E-03 | 1.19E-03 | 8.65E-04 | 8.55E-04 |
| Smog formation potential | kg $O_3$ eq. | 1.35E-02 | 1.66E-02 | 2.31E-02 | 3.40E-02 | 1.90E-02 | 1.71E-02 | 1.58E-02 |
| Resource use | | | | | | | | |
| Depletion of abiotic resources (fossil) | MJ | 3.06E+00 | 3.81E+00 | 4.34E+00 | 5.88E+00 | 2.75E+00 | 2.62E+00 | 2.02E+00 |
| Renewable primary energy | MJ | 2.22E-01 | 3.38E-01 | 4.01E-01 | 3.91E-01 | 3.60E-01 | 2.03E-01 | 3.20E-01 |
| Renewable primary materials | MJ | 7.18E-02 | 1.38E-01 | 1.52E-01 | 7.18E-02 | 1.52E-01 | 7.18E-02 | 1.52E-01 |
| Non-renewable primary energy | MJ | 2.92E+00 | 3.45E+00 | 4.10E+00 | 5.59E+00 | 3.03E+00 | 2.73E+00 | 2.14E+00 |
| Non-renewable primary materials | MJ | 4.67E-01 | 7.77E-01 | 7.11E-01 | 9.69E-01 | 1.80E-02 | 1.77E-01 | 7.80E-02 |
| Secondary materials | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 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 |
| 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 |
| Fresh water | $m^3$ | 1.63E-03 | 1.77E-03 | 2.86E-03 | 4.58E-03 | 2.50E-03 | 1.51E-03 | 1.49E-03 |
| Recovered energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Waste flows | | | | | | | | |
| Hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.59E-06 | 0.00E+00 |
| Non-hazardous waste disposed | kg | 1.65E-02 | 1.65E-02 | 1.65E-02 | 1.65E-02 | 1.44E-02 | 1.64E-02 | 7.37E-02 |
| High-level radioactive waste disposed | $m^3$ | 8.09E-11 | 1.06E-10 | 1.25E-10 | 2.07E-10 | 9.37E-11 | 7.67E-11 | 5.02E-11 |
| Intermediate and low-level radioactive waste disposed | $m^3$ | 4.37E-10 | 5.88E-10 | 6.06E-10 | 1.03E-09 | 4.53E-10 | 4.25E-10 | 2.22E-10 |
| Biogenic carbon | | | | | | | | |
| Biogenic carbon content in product | kg C | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Biogenic carbon content in packaging | kg C | 1.75E-03 | 3.36E-03 | 3.70E-03 | 1.75E-03 | 3.70E-03 | 1.75E-03 | 3.70E-03 |

| Indicators | Units | Sika® Level-125CA | Sika® Level-250 | Sika® MonoTop-410 F | Sika® MonoTop-623 F | Sika® MonoTop-721 Sack & Patch | SikaQuick®-1000 | SikaScreed®-40 |
|---|---|---|---|---|---|---|---|---|
| Output flows | | | | | | | | |
| Components for reuse | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 1.56E-02 | 1.57E-02 | 1.57E-02 | 1.57E-02 | 8.81E-03 | 1.53E-02 | 7.37E-02 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ per energy carrier | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 4 (cont'd): Results for 1 kg of cementitious components over the production stage (A1 to A3)

| Indicators | Units | SikaTop® Armatec-110 EpoCem | SikaTop® - 123 FL | SikaTop® - 121 PLUS | SikaTop® - 122 PLUS | SikaTop® - 123 PLUS |
|---|---|---|---|---|---|---|
| Environmental indicators | | | | | | |
| Global warming potential | kg $CO_2$ eq. | 4.62E-01 | 5.41E-01 | 7.56E-01 | 4.20E-01 | 6.36E-01 |
| Ozone depletion potential | kg CFC-11 eq. | 4.92E-09 | 5.04E-09 | 6.11E-09 | 3.01E-09 | 5.68E-09 |
| Eutrophication potential | kg N eq. | 6.94E-04 | 1.00E-03 | 1.93E-03 | 6.21E-04 | 1.06E-03 |
| Acidification potential | kg $SO_2$ eq. | 1.41E-03 | 1.84E-03 | 2.64E-03 | 1.31E-03 | 2.11E-03 |
| Smog formation potential | kg $O_3$ eq. | 2.26E-02 | 2.77E-02 | 4.07E-02 | 2.25E-02 | 3.23E-02 |
| Resource use | | | | | | |
| Depletion of abiotic resources (fossil) | MJ | 4.12E+00 | 3.72E+00 | 6.09E+00 | 2.63E+00 | 4.27E+00 |
| Renewable primary energy | MJ | 2.70E-01 | 4.20E-01 | 9.13E-01 | 2.55E-01 | 3.48E-01 |
| Renewable primary materials | MJ | 7.49E-02 | 1.38E-01 | 0.00E+00 | 7.49E-02 | 7.18E-02 |
| Non-renewable primary energy | MJ | 4.38E+00 | 4.10E+00 | 6.94E+00 | 2.88E+00 | 4.72E+00 |
| Non-renewable primary materials | MJ | 1.50E-01 | 7.50E-02 | 1.20E-02 | 3.30E-02 | 4.12E-02 |
| Secondary materials | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Renewable secondary fuels | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Non-renewable secondary fuels | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fresh water | $m^3$ | 2.47E-03 | 3.57E-03 | 4.14E-03 | 2.07E-03 | 3.68E-03 |
| Recovered energy | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Waste flows | | | | | | |
| Hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.25E-05 | 2.37E-05 |
| Non-hazardous waste disposed | kg | 1.65E-02 | 1.65E-02 | 1.65E-02 | 1.18E-02 | 1.41E-02 |
| High-level radioactive waste disposed | $m^3$ | 1.02E-10 | 1.52E-10 | 3.81E-10 | 8.54E-11 | 1.64E-10 |
| Intermediate and low-level radioactive waste disposed | $m^3$ | 4.87E-10 | 7.41E-10 | 1.74E-09 | 4.05E-10 | 8.01E-10 |
| Biogenic carbon | | | | | | |
| Biogenic carbon content in product | kg C | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Biogenic carbon content in packaging | kg C | 1.83E-03 | 3.36E-03 | 0.00E+00 | 1.83E-03 | 1.75E-03 |

| Indicators | Units | SikaTop® Armatec-110 EpoCem | SikaTop® - 123 FL | SikaTop® - 121 PLUS | SikaTop® - 122 PLUS | SikaTop® - 123 PLUS |
|---|---|---|---|---|---|---|
| Output flows | | | | | | |
| Components for reuse | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 1.57E-02 | 1.57E-02 | 1.57E-02 | 3.85E-03 | 9.38E-03 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy | MJ per energy carrier | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## 4.6. Life cycle impact assessment – interpretation

### Sikacrete®-08 SCC

The interpretation of the Sikacrete®-08 SCC results is presented in this section. It was selected in collaboration with the manufacturer as a typical concrete mix for concrete repair and maintenance applications.

#### Potential environmental impact indicators

As observed in Figure 3, the **raw material supply (A1)** is the main contributor to most indicators. This is due mainly to **cement production**. Following A1, **manufacturing (A3)** significantly contributes to the impact indicators. **Natural gas consumption** is the main contributor within the manufacturing stage for most indicators, as well as the **kraft paper packaging** manufacturing. The impact associated with **transportation (A2)** is due to the **transport of ingredients by road**.

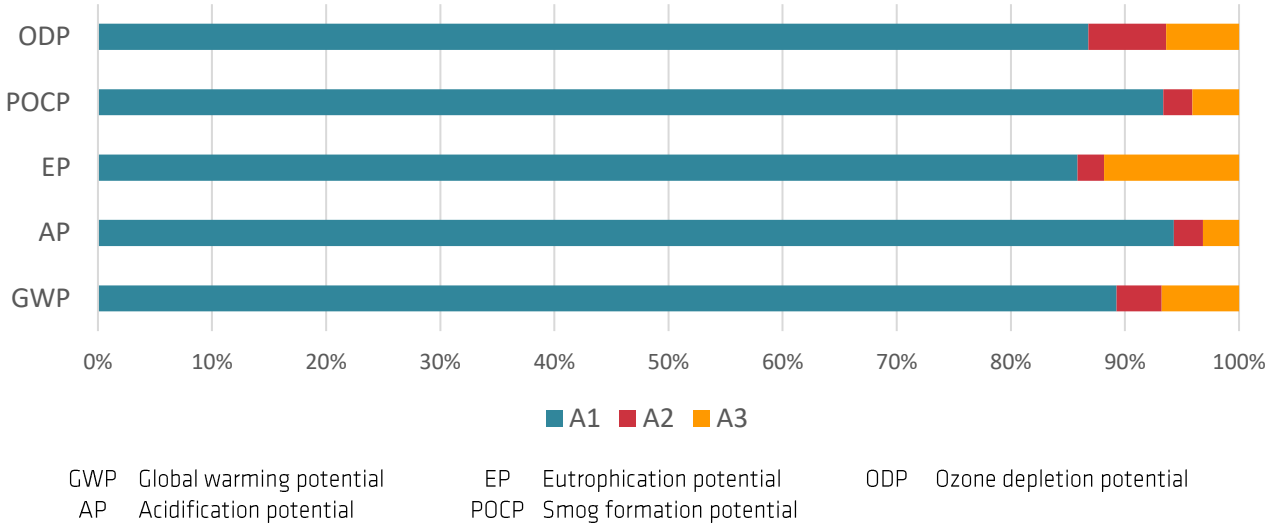



Figure 3: Relative contribution of life cycle modules for the production of 1 kg of Sikacrete®-08 SCC (potential environmental impacts)

#### Use of resources indicators

The **electricity grid mixes** used at the Quebec and British Columbia plants have a low impact on non-renewable (fossil) resources indicators as they are composed mainly of hydroelectricity, which contributes to renewable energy use during **manufacturing (A3)**. The only contributor to the renewable material indicator is the **kraft paper packaging**. Fresh water is mostly consumed during **raw material supply (A1)**, essentially for the **extraction of lime and sand**.

#### Waste generation indicators

Since the inventory of waste is a rough estimate only based on foreground processes, there is no waste accounted for the **raw material supply stage (A1) and transport (A2)**. The bulk of the waste generated comes from **manufacturing (A3)** and consists mainly of **non-hazardous waste sent to recycling**.

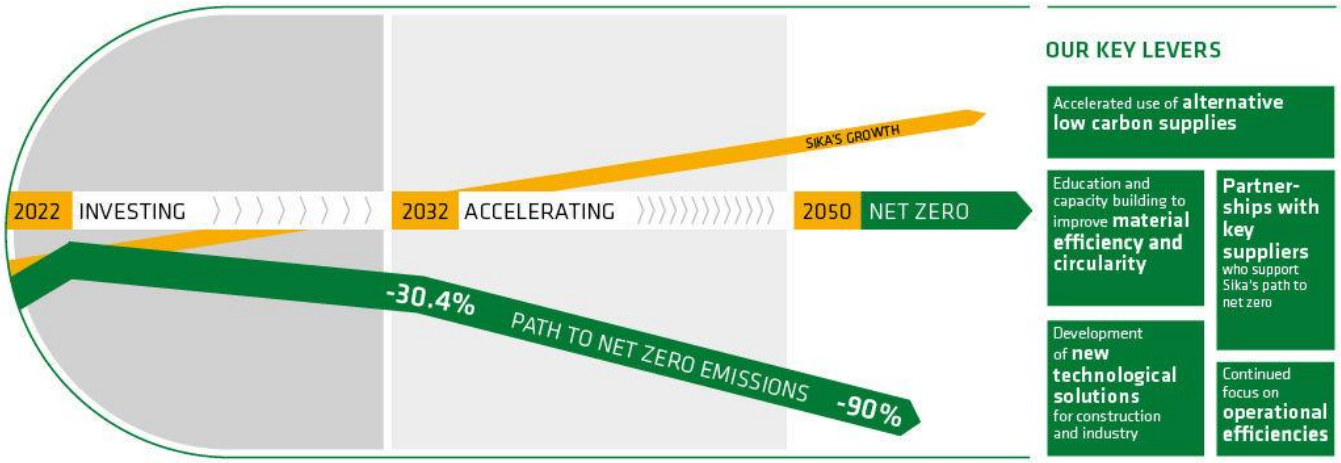
## 5. Additional environmental information

This section provides additional relevant environmental information about the manufacturer and the cementitious components that were not derived from the LCA.

### Sika's Commitment to sustainability

Providing long lasting and high-performance solutions to the benefit of our customers, Sika is committed to pioneering sustainable solutions that are safer, have the lowest impact on resources and address global environmental challenges. Therefore, Sika assumes the responsibility to provide sustainable solutions to improve material, water and energy efficiency in construction and transportation. Sika strives to create more value for all its stakeholders with its products, systems and solutions along the whole value chain and throughout the entire life span of its products. In 2023, Sika launched its new strategy for the upcoming five years. **Strategy 2028** lays out ambitious financial targets and non-financial objectives, marking a continued commitment to excellence and expansion. The strategy is based on four key pillars: Market Penetration, Innovation & Sustainability, Acquisitions, People & Culture. It is aligned with eight megatrends that are transforming the industry and driving Sika's continuous success.

Sika is committed to reach **net-zero** no later than 2050. Sika commits to report annually on its progress towards meeting these targets (see figure below). Sika also acknowledges that the latest climate science may change and is committed to reviewing all active targets every 5 years to ensure consistency with the latest Science Based Targets Initiative (SBTi) criteria.




On the perspective of reducing the environmental impacts of their products, some components studied in the present document present a biobased carbon content, measured in accordance with ASTM D6866-24.

SPM | Sustainability Portfolio Management

Sika is the 1st company within the specialty chemicals and building materials sector to develop and implement the **Sustainability Portfolio Management (SPM)** Concept based on the World Business Council of Sustainable Development framework. The SPM evaluates solutions based on 12 sustainability and 6 performance categories. SPM is used to classify, and market sustainable solutions.

## Waste packaging management

Sika Canada encourages its customers to responsibly dispose of used packaging. Most of them are recyclable. To make recycling easier, it is recommended to separate used packaging according to their material (paper, plastic and metal). Ask information to local municipalities about recycling programs for industrial coating packaging.

# 6. GLOSSARY

## 6.1. Acronyms

| | |
|---|---|
| AP | Acidification potential |
| CSA | Canadian Standards Association |
| EP | Eutrophication potential |
| GHG | Greenhouse gas |
| GWP | Global warming potential |
| ISO | International Organization for Standardization |
| kg C | Kilogram of carbon |
| kg CFC-11 eq. | Kilogram of trichlorofluoromethane equivalent |
| kg $CO_2$ eq. | Kilogram of carbon dioxide equivalent |
| kg N eq. | Kilogram of nitrogen equivalent |
| kg $O_3$ eq. | Kilogram of ozone equivalent |
| kg Sb eq. | Kilogram of antimony equivalent |
| kg $SO_2$ eq. | Kilogram of sulphur dioxide equivalent |
| L | litre |
| LCA | Life cycle assessment |
| LEED | Leadership in Energy and Environmental Design |
| LHV | Lower heating value |
| MJ | Megajoule |
| $m^3$ | Cubic metre |
| ODP | Ozone depletion potential |
| PCR | Product category rules |
| POCP | Photochemical ozone creation potential (smog) |
| TRACI | Tool for Reduction and Assessment of Chemicals and Other Environmental Impacts |
| VOC | Volatile organic compound |

## 6.2. Environmental impact categories and parameters assessed

The acidification potential refers to the change in acidity (i.e., reduction in pH) in soil and water due to human activity. The increase in $NO_x$ and $SO_2$ emissions generated by the transportation, manufacturing and energy sectors are the main causes of this impact category. The acidification of land and water has multiple consequences: degradation of aquatic and terrestrial ecosystems, endangering numerous species and food security. The concentration of the gases responsible for the acidification is expressed in sulphur dioxide equivalents (kg $SO_2$ equivalent).

The eutrophication potential measures the enrichment of an aquatic or terrestrial ecosystem due to the release of nutrients (e.g., nitrates, phosphates) resulting from natural or human activity (e.g., the discharge of wastewater into watercourses). In an aquatic environment, this activity results in the growth of algae which consume dissolved oxygen present in water when they degrade and thus affect species sensitive to the concentration of dissolved oxygen. Also, the increase in nutrients in soils makes it difficult for the terrestrial environment to manage the excess of biomass produced. The concentration of nutrients causing this impact is expressed in nitrogen equivalents (kg N equivalent).

Net fresh water consumption accounts for the imbalance in the natural water cycle created by the water evaporated, consumed by a system or released to a different watershed (i.e., not its original source). This imbalance can cause water scarcity and affect biodiversity. This indicator refers to the waste of the resource rather than its pollution. Also, it does not refer to water that is used but returned to the original source (e.g., water for hydroelectric turbines, cooling or river transportation) or lost from a natural system (e.g., due to evaporation of rainwater). The quantity of fresh water consumed is expressed as a volume of water in meter cube (m³ of water consumed).

The global warming potential refers to the impact of a temperature increase on the global climate patterns (e.g., severe flooding and drought events, accelerated melting of glaciers) due to the release of greenhouse gases (GHG) (e.g., carbon dioxide and methane from fossil fuel combustion). GHG emissions contribute to the increase in the absorption of radiation from the sun at the earth's surface. These emissions are expressed in units of kg of carbon dioxide equivalents (kg $CO_2$ equivalent).

The ozone depletion potential indicator measures the potential of stratospheric ozone level reduction due to the release of some molecules such as refrigerants used in cooling systems (e.g., chlorofluorocarbons). When they react with ozone ($O_3$), the ozone concentration in the stratosphere diminishes and is no longer sufficient to absorb ultraviolet (UV) radiation which can cause high risks to human health (e.g., skin cancers and cataracts) and the terrestrial environment. The concentration of molecules that are responsible of ozone depletion is expressed in kilograms of trichlorofluoromethane equivalents (kg CFC-11 equivalent).

The smog formation potential (or photochemical ozone creation potential) indicator covers the emissions of pollutants such as nitrogen oxides and volatile organic compounds (VOCs) into the atmosphere. They are mainly generated by motor vehicles, power plants and industrial facilities. When reacting with the sunlight, these pollutants create smog which can affect human health and cause various respiratory problems. The concentration of pollutants causing smog is expressed in kg of ozone equivalents (kg $O_3$ equivalent).

The renewable/nonrenewable primary energy consumption parameters refer to the use of energy from renewable resources (e.g., wind, solar, hydro) and non-renewable resources (e.g., natural gas, coal, petroleum). The quantity of primary energy used is expressed in megajoules, on the basis of the lower heating value of the resources (MJ, LHV).

The renewable/nonrenewable material resources consumption parameters represent the quantity of material made from renewable resources or non-renewable resources used to manufacture a product, excluding recovered or recycled materials. The quantity of these resources is reported in megajoules (MJ).

# 7. REFERENCES

CSA Group (2007). CAN/CSA-ISO 14025:07 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO (2022). ISO 14020:2022. Environmental statements and programmes for products – Principles and general requirements.

ecoinvent (2023). ecoinvent 3.10. https://ecoinvent.org/ecoinvent-v3-10/

Groupe AGÉCO (2025). Life cycle assessment of sika floor coating systems, cementitious solutions, concrete admixtures and cement additives for environmental product declarations

ISO (2020a). ISO 14040:2006/AMD 1:2020. Environmental management – life cycle assessment – principles and framework. International Standard Organization, Geneva, Switzerland.

ISO (2020b). ISO 14044:2006/AMD 1:2017/AMD 2:2020. Environmental management – life cycle assessment – requirements and guidelines. International Standard Organization, Geneva, Switzerland.

ISO (2017). ISO 21930. Sustainability in building construction -- Environmental declaration of building products. International Standard Organization, Geneva, Switzerland.

[US EPA] United States Environmental Protection Agency (2012). Tool for the Reduction and Assessment of Chemical and other Environmental Impacts (TRACI) User's Manual. Retrieved from http://nepis.epa.gov/Adobe/PDF/P100HN53.pdf