Environmental Product Declaration

In accordance with ISO 14025:2006 and ISO 21930:2017 for:

Carbon Neutral Porcelain Tile

From
Crossville®

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB; EPD is registered through aligned regional hub: EPD North America (www.epdna.com)
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification	
General Program Instructions and Product Category Rules (PCR)[2]	
General Programme Instructions for the International EPD® System. Version 4.0. 2021-03-29[1]	
UL Product Category Rules for Building-Related Products and Services. Part A: Life Cycle Assessment Calculations and Report Requirements. V4.0, March 2022.	
UL Product Category Rule (PCR) Guidance for Building-Related Products and Services. Part B: Flooring EPD Requirements. UL 10010-7, Version 2.0 September 2018.	
PCR review was conducted by: Lindita Bushi, PhD, Chair Hugues Imbeault-Tétreault, Eng., M.A. Sc. Jack Geibig,	
The Sub-Category PCR review was conducted by: Jack Geibig (Chair) Thomas Gloria, PhD Thaddeus Owen	
Life Cycle Assessment (LCA)	
LCA accountability: Chandler Jacobson; WAP Sustainability Consulting	
Third-party verification	
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier ☐ INTERNAL ☒ EXTERNAL	Third-party verifier: Dr. Freddy Navarro, LCACHECK S.A.S. de C.V. Approved by: The International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No	

[1] Not all requirements in the GPI are fulfilled, particularly the requirement, for construction products, to follow EN 15804 for certain aspects of the LCA method.

[2] This EPD is based on a PCR that satisfies procurement rules at the federal, state, and municipal levels which call for EPDs based on the UL Part B PCR. The ULPart B PCR was used to meet regulatory (example: Buy Clean California Act, etc.) and market expectations (example: Building Transparency EC3 comparisons, LEED and existing vendor procurement requirements, product scoring programs, etc.). The EPD should not be used outside of this context.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804 or ISO 21930, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804, ISO 21930, and ISO 14025.

Company information

Owner of the EPD: Crossville®

Contact: Noah Chitty. noah.chitty@ahfproducts.com.

Description of the organization: As the first tile manufacturer in Tennessee (est. 1986), Crossville® is the leading American manufacturer of beautiful, sustainable solutions that advance the frontiers of tile design.
From introducing the nation's first large-format porcelain tiles, to developing cutting edge performance innovations that turn mere surfaces into "breathing" living environments – Crossville® is committed to pioneering products and practices that change the way the world views tile. We produce a range of tile collections for interior and exterior spaces, carrying a variety of products, from low maintenance marble-look porcelain to durable exterior finishes. Crossville® is a leading porcelain tile manufacturer and a design industry partner committed to sustainability.

Product-related or management system-related certifications: No product-related or management system-related certifications are declared.

Location of production site(s): Crossville, TN

Product information

Product name: Crossville® Carbon Neutral Porcelain Tile produced in Crossville, Tennessee

Product Lines Covered:

- Civilization
- Native Metal
- Beljn
- Argent 2.0

Product identification: CSI division 09-30-13

Product description: Crossville® presents a collection of porcelain tiles that blend style and durability, promising to infuse your renovation with timeless elegance and enduring strength. Crossville's® products embody luxury and sophistication, ultimately transforming any home into a chic and functional living space. Homeowners have the power to curate beautiful, enduring environments that reflect their unique styles through the use of Crossville's® expertly crafted tiles. Crossville® offers a diverse product line encompassing low-maintenance marble-look porcelain and resilient exterior finishes, ensuring both practicality and aesthetic appeal.
Crossville's® Carbon Neutral porcelain tile is made in the United States, reflecting the beauty and serenity of the Appalachian Mountains of Tennessee where we're headquartered. Carbon Neutral porcelain tile is porcelain tile that has been made with either zero carbon emissions, or whose associated carbon emissions have been offset with carbon credits. We do not purchase credits just to offset the embodied carbon associated with manufacturing. Crossville® goes further than many other manufacturers who practice "cradle-to-site" or "cradle-to-gate" carbon reduction. We purchase credits that offset the embodied carbon of our tiles through the entire product lifecycle. By taking into account the carbon footprint of our tiles from inception through demolition and destruction, our "cradle-to-grave" carbon credits do more for the environment.

UN CPC code: 37350

Geographical scope: The geographical scope of the raw material acquisition is North America, Europe, and New Zealand. The geographical scope of the manufacturing portion of the life cycle is

North America. Distribution from the manufacturing location is to the United States. The end of life (disposal of the product) occurs within the United States.

Multiple products: The LCA underlaying this EPD was conducted for a representative porcelain tile derived from Crossville's® line of products. Crossville's® porcelain tiles are comprised of a ceramic body and a top-coat glaze. Crossville® uses two unique body formulations and several unique glaze formulations. The primary difference between various Crossville® tile products is primarily the amount and type of stain and glaze used which is why the look and feel are unique to each type of tile. To derive a representative body composition, practitioners calculated a sales-weighted average composition from bills of materials representing the two body compositions utilized at Crossville's® facilities. A sales-weighted average glaze formulation was developed via analysis of 94 unique glaze bills of materials (BOMs) and 261 unique glaze applications. The body of this EPD centers on Crossville's® 9.5 mm thick porcelain tile (identified as Crossville's® average product via the calculation of a sales-weighted average mass of product which aligns with the mass of the 9.5 mm offering) while results for additional thicknesses are reported in an appendix at the end of this document. The calculated weighted average composition was scaled by mass to model varying thicknesses of tile.

Name	Value	Unit
Class	P1	-
Tile type	Porcelain	-
Grade	Standard & Second	-
Facial area	1,000,000 (1 m^2)	mm^2
Product Thickness	9.5	mm
Product weight	20,409	g/m^2
Dimensional Categories	3"X3" to 24" X 48"	inches
Dimensional Categories (SI)	7.62 X 7.62 to 60.96 X 121.9	CM

LCA information

Functional unit: One (1) m^2 of finished flooring for the reference service life of 75 years.

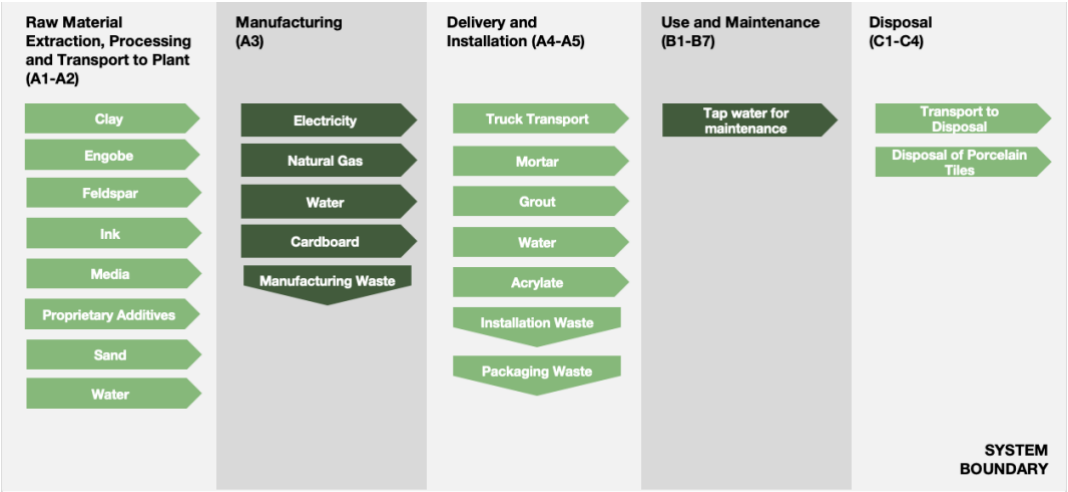
Reference service life: 75 years.

Time representativeness: Primary data were provided by the manufacturer and represent all information for calendar year 2022.

Database(s) and LCA software used: MLC Database 2024.1 and LCA FE 10.8.0.14 software.

Description of system boundaries: Cradle-to-grave, modules A1-A5, modules B1-B7, and modules C1–C4.

System diagram:



A1-A3 (Raw Material Supply, Transport, and Manufacturing):
This stage includes an aggregation of raw material extraction, supplier processing, delivery, manufacturing, and packaging by Crossville®. In general, the mixing of materials, firing tiles in the kiln, and packaging of the final products are performed at Crossville's® facilities in Crossville, Tennessee.

Energy resources used in the manufacturing process include electricity, natural gas, and steam.

Included in stage are:

- Extraction and processing of raw materials
- Processing of recycled raw material from previous product system
- Generation of energy and water inputs
- Waste creation and processing, including packaging waste
- Processing of secondary materials
- Energy Recovery (not applicable)
- Transportation up to factory gate
- Manufacturing of products and co-products
- Manufacturing and use of packaging
- Production of ancillary materials (not applicable)

Electricity: Electricity is sourced from a supplier that provides a mix to Crossville® based on a Power Purchasing Agreement (PPA). This PPA mix differs from the local grid in that it emphasizes the use of lower carbon electricity sources. Using the IPCC AR5 Global Warming Potential Excluding Biogenic Carbon (GWPe) indicator, the GWP of the modeled PPA mix is 0.353 kg CO_2-eq/kWh.
Results presented in this EPD include electricity modeled according to this PPA mix; however, for compliance with the listed PCRs, results utilizing the grid mix are also provided. Given that the PPA mix only impacts A3, it was deemed appropriate to only include grid mix A1-A3 results.
No onsite electricity generation is used. Sub-meter specific electricity values were not available from the manufacturing facility. Annual electricity consumption was normalized to the functional unit of one meter squared of tile using the allocation methodology described below.

End of life: At the product's end of life, tiles are assumed to be manually stripped from the floor and 100% of the product is sent to landfill as mixed construction waste.

Assumptions: Throughout this study, value choices and judgements that may have affected the LCA have been described. Additional decisions are summarized below:

- The inclusion of overhead energy data was determined appropriate due to the inability to sub-meter and isolate manufacturing energy from overhead energy.
- The use and selection of secondary datasets from Sphera's MLC database – The selection of which generic dataset to use to represent an aspect of a supply chain is a significant value choice. Collaboration between the LCA practitioner, the manufacturer, and Sphera LCA FE data experts was invaluable in determining best-case scenarios in the selection of data. However, no generic data can be a perfect fit. Improved supply chain specific data would improve the accuracy of results, however budgetary and time constraints also must be considered.

Cut-off Rules: All inputs and outputs to unit processes for which data are available are included in the assessment. When data was not available, average, generic, or proxy data from the MLC database was utilized.
A cut-off rule of 1% is considered in this assessment. This rule dictates that the included inventory data accounts for greater than 99% of the total material and energy inputs to the system. Furthermore, greater than 99% of the environmental impacts are presumed to have been modeled based on the assessor's best judgment of excluded inputs. All substances with hazardous and toxic properties that can be of concern for human health and/or the environment have been identified, if present in the product, and declared according to normative requirements in standards or regulations applicable in the market for which the EPD is valid, even if the given process unit is under the cut-off criterion.
The list of excluded materials and energy inputs include:

- Some material inputs may have been excluded within the Sphera MLC datasets used for this project. All Sphera MLC datasets have been critically reviewed and conform to the exclusion requirement of the PCR.
- No VOC emissions were included. Crossville® does not measure or estimate VOC emissions and any related impact would likely fall below the cut-off criteria. As such, they were not included in this study.
- Manufacturing of operational equipment and production infrastructure and long-term emissions were excluded from this study.

Data Quality: Overall, the data quality for this LCA is considered good. The geographic coverage, time coverage, and technological coverage are all good. The precision, consistency, and reproducibility are all high and the model is considered complete.

Allocation: General principles of allocation were based on ISO 14040/44. There is currently no sub-metering at the manufacturing facility. To derive a per-unit value for manufacturing inputs and outputs such as electricity, water, and manufacturing waste, mass-based allocation was applied.
As a default, secondary MLC datasets use a physical basis for allocation.
Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method.

Modules declared, geographical scope:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	ND
Geography	US	US	US	US	US	US	US	US	US	US	US	US	US	US	US	US	US

Content information

All values are reported according to the functional unit of one square meter of flooring.
No substances included in the Candidate List of Substances of Very High Concern for authorization under REACH Regulations are present in Crossville® porcelain tiles, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

Material	Mass %
Kaolin Clay	2-5%
Feldspar	45-50%
Ball Clay	30-35%
Talc	1-5%
Polymer Mixture	0-1%
Recycled Tile	1-5%
Deflocculant	0-1%
Water	5-10
Dispersant	0-1%
Glaze	2-5%

Crossville's® porcelain tiles have fired and green tile waste (post-industrial) that is reground and incorporated into the ball clay mixture. Given that the utility data provided for this study included overhead, utility consumption and impacts associated with this process are accounted for within the A3 module. No other inputs contain recycled content.

Packaging Information

Crossville® porcelain tiles are packaged using corrugated cardboard and then transported to a distributor. The distributor then sells the tile to an installer. Packaging could be disposed of by either the distributor or the installer. For all cases in the LCA, packaging is assumed to be landfilled.

Packaging materials	9.5 mm thickness (kg)	Weight biogenic carbon (kg C/kg)
Cardboard	0.0803	0.43 kg C/kg
Plastic Film	0.0146	N/A
Plastic Strap	0.0219	N/A
Wooden Pallet	0.365	0.43 kg C/kg
TOTAL	**0.482**	**N/A**
Biogenic Carbon in Packaging (kg C/Functional Unit)	0.192	N/A

Post-Factory Gate Scenario Development

A4 (Delivery to Installation Site) Scenario Per Functional Unit

The product is delivered to the customer via truck. Transportation distance from the manufacturing facility was modeled based on the Part B PCR assumption. This distance, in conjunction with the mass of product transported, was used to model the fuel consumption and environmental impact of the transportation process.

Distribution Details	9.5 mm
Vehicle Type	Heavy Heavy-duty Diesel Truck/ 53.333lb payload – 8b
Fuel Efficiency [L/100km] (whole vehicle)	42
Fuel Type	Diesel
Distance [km]	800
Capacity Utilization [%]	67
Weight of Products Transported [kg]	20.89
Capacity utilization volume factor	1

A5 (Construction) Scenario Per Functional Unit

Packaging and installation waste disposal were modeled as per guidelines in section 2.8.5 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment. Additional materials including grout, mortar, water, and acrylate solution are necessary for the installation of Crossville® tile products. Cement mortar acts as the adhesive that binds the tile to the ground. It has been calculated that 4.07 kg/m^2 of mortar is required to install 1 m^2 of tile. Cement grout acts as the filler for the spaces in between the tiles. It was determined that 0.212 kg of grout is required to fill the spaces around 1 m^2 of porcelain tiles. Along with cement and mortar, installation solution made up of acrylate and water is also used in the installation process. 4.5% of the total installation material is lost as waste which is then sent to the landfill. In this study, it was assumed that 4.5% of the actual tile product is wasted during installation due to cutting. It was assumed that all installation is done by non-powered hand tools. Hand tools are assumed to be multi-use with per use impacts assumed to be negligible. As such, they were excluded from this study.

Construction Phase End of Life Fates	9.5 mm
Waste materials at the construction site before waste processing, generated by product installation [kg]	1.59
Grout, Mortar, and Tile Waste to Landfill [kg]	1.11
Pulp Waste* to Landfill [kg]	0.09
Pulp Waste* to Incineration [kg]	0.0225
Pulp Waste* to Recycling	0.33
Plastic Waste to Landfill [kg]	0.0251
Plastic Waste to Incineration [kg]	0.00627
Plastic Waste to Recycling [kg]	0.0553
*Note that "Pulp" waste includes both cardboard and wooden pallets. Biogenic carbon content of these streams can be found in the "Packaging Information" section of this EPD.	

B1-B7 (Use Stage) Scenario Per Functional Unit

As required in the PCR, the results are based on the estimated service life (ESL) of the building of 75 years. Since porcelain tiles usually last as long as the building itself, the RSL of the product is assumed to be 75 years. Hence, no replacements are necessary during the service life of the building. Additionally, tiles do not require energy or water for use and no maintenance nor refurbishment is necessary for the upkeep of porcelain tiles once installed.

There are some impacts during the maintenance (B2) stage as the product uses water for cleaning purposes. Tile floors are regularly cleaned with tap water. It has been assumed that the floors are cleaned using a dust mop every day and using a damp mop 4 times a year for residential and 36 times a year for commercial applications as recommended by the Tile Council of North America (TCNA). The scenario for commercial applications, detailed below, has been adopted as a conservative estimate.

Use Phase Details	Per Functional Unit	Unit
Tap Water for Cleaning	0.783	$l/m^2/yr$

C1-C4 (Product End of Life) Scenario Per Functional Unit

End of life for Crossville® porcelain tiles was modeled as 100% landfilling. All waste was classified according to regional-specific legislation as laid out in Section 2.8.6 in Part A: Life Cycle Assessment Calculation Rules and Requirements from UL Environment. This scenario has been deemed the most representative for products disposed of in North America.

Distribution Details	9.5 mm
Collected as mixed construction waste [kg]	24.74
Waste to Landfill [kg]	24.74
Distance to Landfill [km]	100
Transport Type	US: Truck – Heavy Heavy-duty Diesel Truck 53.333 lb payload

Module D (Benefits and Loads Beyond the System Boundary) Scenario Per Functional Unit

Benefits and loads beyond the system boundary are accounted for in Module D; however, they are not declared in this EPD.

Impact Category Details

Impact Category	Acronym	Unit
IPCC AR5 GWP Indicators		
Global warming potential (100 years, excludes biogenic CO_2)	GWPe	kg CO_2 eq.
Global warming potential (100 years, includes biogenic CO_2)	GWPi	kg CO_2 eq.
TRACI 2.1 Indicators		
Acidification potential of soil and water	AP	kg SO_2 eq.
Eutrophication potential	EP	kg N eq.
Ozone depletion of air	ODP	kg CFC-11 eq.
Use of fossil fuel resources	Resources	MJ, surplus energy
Smog formation potential	SFP	kg O_3 eq.
Biogenic Carbon Indicators		
Biogenic Carbon Removal from Product	BCRP	kg CO_2 eq.
Biogenic Carbon Emission from Product	BCEP	kg CO_2 eq.
Biogenic Carbon Removal from Packaging	BCRK	kg CO_2 eq.
Biogenic Carbon Emission from Packaging	BCEK	kg CO_2 eq.
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	BCEW	kg CO_2 eq.
Calcination Carbon Emissions	CCE	kg CO_2 eq.
Carbonation Carbon Removals	CCR	kg CO_2 eq.
Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	CWNR	kg CO_2 eq.
Resource Use Indicators		
Use of renewable primary energy	RPR_E	MJ LHV
Use of renewable primary energy as materials	RPR_M	MJ LHV
Total use of renewable primary energy resources	RPR_T	MJ LHV
Use of non-renewable primary energy	$NRPR_E$	MJ LHV
Use of non-renewable primary energy as materials	$NRPR_M$	MJ LHV
Total use of non-renewable primary energy resources	$NRPR_T$	MJ LHV
Secondary materials	SM	kg
Renewable secondary fuels	RSF	MJ
Non-renewable secondary fuels	NRSF	MJ
Recovered energy	RE	MJ
Net use of fresh water	FW	m^3
Waste and Output Flow Indicators		
Hazardous waste disposed	HWD	kg
Non-hazardous waste disposed	NHWD	kg
Radioactive Waste deposited	RWD	kg
High-level radioactive waste	HLRW	kg
Intermediate- and low-level radioactive waste, conditioned, to final repository	ILLRW	kg
Components for reuse	CRU	kg
Materials for recycling	MFR	kg
Materials for energy recovery	MER	kg
Exported electrical energy	EEE	MJ
Exported thermal energy	EET	MJ

Results of the environmental performance indicators

Mandatory impact category indicators according to UL Product Category Rule (PCR) Guidance for Building-Related Products and Services. Part B: Flooring EPD Requirements

As noted in the Manufacturing section of this EPD, Crossville® uses a PPA to source an electricity mix different than the local grid. Results below are presented for the LCA model using this PPA mix. Additionally, the column farthest to the right contains A1-A3 results modeled with the local grid mix. Note that the results presented on the following page do not account for carbon offsets. Additional information regarding the impact of carbon offsets on these LCA results is shown in the section entitled, “Crossville® Carbon-Neutral Programming” in the Additional Environmental Information section of this document.

Thickness: 9.5 mm

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	2.16E+01	1.39E+00	3.34E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-03	0.00E+00	5.49E-01	ND	2.29E+01
GWPi	2.07E+01	1.39E+00	3.46E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-03	0.00E+00	5.46E-01	ND	2.20E+01
TRACI LCIA Impacts (North America)																
ODP	3.42E-07	4.06E-15	1.57E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-18	0.00E+00	2.56E-14	ND	3.42E-07
AP	4.91E-02	2.14E-03	5.86E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-06	0.00E+00	2.77E-03	ND	5.07E-02
EP	3.08E-03	2.95E-04	5.53E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.96E-07	0.00E+00	1.19E-04	ND	3.25E-03
ADP_{fossil}	3.55E+01	2.59E+00	2.94E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E-03	0.00E+00	1.05E+00	ND	3.55E+01
SFP	9.34E-01	4.72E-02	9.95E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-04	0.00E+00	4.96E-02	ND	9.52E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	7.13E-01	0.00E+00	3.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.13E-01
BCEK	0.00E+00	0.00E+00	7.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.71E+01	8.05E-01	3.78E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-03	0.00E+00	1.01E+00	ND	1.77E+01
RPR_m	4.96E+00	0.00E+00	2.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.96E+00
$NRPR_e$	2.99E+02	1.82E+01	2.69E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-02	0.00E+00	8.11E+00	ND	3.04E+02
$NRPR_m$	1.61E+00	0.00E+00	7.25E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.61E+00
SM	9.40E-01	0.00E+00	4.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	9.40E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.71E-02	2.67E-03	6.90E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-06	0.00E+00	1.05E-03	ND	1.62E-02
Output Flows and Waste Categories																
HWD	5.21E-07	2.45E-09	2.91E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-12	0.00E+00	2.00E-09	ND	5.20E-07
NHWD	4.27E-01	1.81E-03	2.40E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-06	0.00E+00	2.48E+01	ND	4.32E-01
HLRW	1.64E-05	6.50E-08	9.85E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.47E-11	0.00E+00	9.64E-08	ND	1.32E-05
ILLRW	1.38E-02	5.48E-05	8.55E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.98E-08	0.00E+00	8.62E-05	ND	1.12E-02
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	5.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	2.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	8.70E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.77E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

Additional environmental information

Additional information regarding these products can be found on Crossville's® website at: https://www.crossville.com/sustainability/overview/

Additional Certifications include Green Squared® Certifications.
More information about Crossville's® sustainability work can be found at https://www.crossvilleinc.com/Resources/Sustainability?tab=0.

Crossville® Carbon-Neutral Programming

Crossville's® ongoing commitment is to alter and reduce manufacturing's carbon impact through changes to product and manufacturing processes. However, product and process changes alone are not sufficient to eliminate the impacts of our products. For this reason, we have committed to further reducing our carbon footprint by purchasing verified emissions reductions, or carbon offsets, to offset our product and process emissions with contributions to projects which help make the world better, greener, and more sustainable.

Many manufacturers follow a similar path to offset their product-level impacts. Most focus on offsetting the embodied carbon (cradle-to-gate or A1-A3) in their products. What we do doesn't just end when the product leaves our plants. Crossville® goes further by purchasing credits which offset the carbon footprint of our tiles through the entire product lifecycle with scientifically deduced quantities determined by our life cycle assessments (LCA) and reported in our EPDs. Because we consider the carbon footprint of our tiles from inception through demolition, recycling, or destruction – a true cradle-to-grave approach - our carbon offsets do more for the environment.

Crossville® has purchased verified carbon offsets registered in the Verified Carbon Standard (VCS) from both Forestry and Renewable Energy related projects for 100% of the global warming potential (GWP) impact of the entire product Life Cycle (A1-C4) for products included in the Civilization, Beljn, and Argent 2.0 Collections as well as all field tile items included in the Native Metal Collection in 2024. Our purchases go through a quarterly verification with our supplier to ensure we have purchased enough to cover all sales each quarter. Crossville® prioritizes offsetting GWPe impacts as the most conservative option.

Product families included in Crossville's® Carbon Neutral Program currently include: Civilization, Beljn, Argent 2.0, and Native Metal. For more information concerning Crossville's® Carbon Neutral Program, visit: https://www.crossvilleinc.com/Carbon-Neutral-Tile.

Note that the table below contains total (A1-C4) GWP values for all tile thicknesses reported in this EPD. While the body of the EPD focuses on the 9.5 mm thickness, additional results for others can be found in the Appendix. Additionally, GWP values in this table utilize the PPA electricity mix addressed earlier in this document.

Thickness (mm)	GWPe (kg/m^2 CO_2e Excluding biogenic carbon)	GWPi (kg/m^2 CO_2e Including biogenic carbon)	GWP After Carbon Neutral Programming (kg/m^2 CO_2e)
6.5	19.5	19.0	0.00
7.5	22.1	21.5	0.00
8	23.3	22.7	0.00
8.5	24.6	24.0	0.00
9	25.9	25.2	0.00
9.5	27.2	26.4	0.00
10	28.4	27.7	0.00
10.5	29.7	28.9	0.00

Appendix: Additional Thickness Results

The majority of Crossville's® porcelain tile sales are 9.5 mm in thickness; however, Crossville® produces porcelain tiles of several other thicknesses. All thicknesses were modeled using the same functional unit (1 m2) formulation, manufacturing process data, and assumptions concerning distribution, installation, and end of life. The primary difference between these scenarios and the 9.5 mm scenario presented in the body of this EPD is the thickness (and corresponding mass) of the product. Results for Crossville® porcelain tiles of 6.5, 7.5, 8, 8.5, 9, 10, and 10.5 mm thickness can be found in this Appendix.

6.5 mm Products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	1.49E+01	9.56E-01	2.99E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-03	0.00E+00	4.06E-01	ND	1.57E+01
GWPi	1.43E+01	9.55E-01	3.07E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-03	0.00E+00	4.04E-01	ND	1.52E+01
TRACI LCIA Impacts (North America)																
ODP	2.34E-07	2.79E-15	1.09E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.37E-18	0.00E+00	1.90E-14	ND	2.34E-07
AP	3.39E-02	1.47E-03	5.08E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-06	0.00E+00	2.05E-03	ND	3.50E-02
EP	2.13E-03	2.03E-04	4.94E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.41E-07	0.00E+00	8.83E-05	ND	2.24E-03
ADP_{fossil}	2.44E+01	1.78E+00	2.41E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-03	0.00E+00	7.78E-01	ND	2.44E+01
SFP	6.42E-01	3.24E-02	8.53E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.52E-05	0.00E+00	3.67E-02	ND	6.54E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	4.90E-01	0.00E+00	2.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.90E-01
BCEK	0.00E+00	0.00E+00	5.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.19E+01	5.53E-01	3.55E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-04	0.00E+00	7.44E-01	ND	1.24E+01
RPR_m	3.41E+00	0.00E+00	1.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	3.41E+00
$NRPR_e$	2.06E+02	1.25E+01	2.25E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-02	0.00E+00	6.00E+00	ND	2.09E+02
$NRPR_m$	1.11E+00	0.00E+00	4.99E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.11E+00
SM	6.38E-01	0.00E+00	2.87E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	6.38E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.28E-02	1.84E-03	6.66E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-06	0.00E+00	7.76E-04	ND	1.22E-02
Output Flows and Waste Categories																
HWD	5.08E-07	1.69E-09	2.86E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-12	0.00E+00	1.48E-09	ND	5.08E-07
NHWD	3.27E-01	1.25E-03	2.05E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-06	0.00E+00	1.83E+01	ND	3.31E-01
HLRW	1.12E-05	4.47E-08	7.61E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.01E-11	0.00E+00	7.13E-08	ND	9.07E-06
ILLRW	9.50E-03	3.76E-05	6.65E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.90E-08	0.00E+00	6.37E-05	ND	7.69E-03
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	4.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	1.98E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	5.98E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	1.90E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

7.5 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	1.71E+01	1.10E+00	3.11E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03	0.00E+00	4.54E-01	ND	1.81E+01
GWPi	1.64E+01	1.10E+00	3.20E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03	0.00E+00	4.52E-01	ND	1.74E+01
TRACI LCIA Impacts (North America)																
ODP	2.70E-07	3.21E-15	1.25E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.89E-18	0.00E+00	2.12E-14	ND	2.70E-07
AP	3.90E-02	1.69E-03	5.34E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-06	0.00E+00	2.29E-03	ND	4.02E-02
EP	2.44E-03	2.34E-04	5.14E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-07	0.00E+00	9.87E-05	ND	2.58E-03
ADP_{fossil}	2.81E+01	2.05E+00	2.59E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-03	0.00E+00	8.69E-01	ND	2.81E+01
SFP	7.40E-01	3.73E-02	9.00E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-04	0.00E+00	4.10E-02	ND	7.53E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	5.64E-01	0.00E+00	2.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	5.64E-01
BCEK	0.00E+00	0.00E+00	5.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.36E+01	6.37E-01	3.63E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-04	0.00E+00	8.31E-01	ND	1.42E+01
RPR_m	3.93E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	3.93E+00
$NRPR_e$	2.37E+02	1.44E+01	2.39E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-02	0.00E+00	6.71E+00	ND	2.41E+02
$NRPR_m$	1.28E+00	0.00E+00	5.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.28E+00
SM	7.39E-01	0.00E+00	3.32E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.39E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.42E-02	2.12E-03	6.74E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-06	0.00E+00	8.66E-04	ND	1.35E-02
Output Flows and Waste Categories																
HWD	5.12E-07	1.94E-09	2.88E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-12	0.00E+00	1.66E-09	ND	5.12E-07
NHWD	3.60E-01	1.43E-03	2.17E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-06	0.00E+00	2.05E+01	ND	3.64E-01
HLRW	1.30E-05	5.14E-08	8.35E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.83E-11	0.00E+00	7.97E-08	ND	1.04E-05
ILLRW	1.09E-02	4.34E-05	7.28E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E-08	0.00E+00	7.12E-05	ND	8.85E-03
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	4.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	2.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	6.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

8 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	1.82E+01	1.17E+00	3.17E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03	0.00E+00	4.77E-01	ND	1.93E+01
GWPi	1.75E+01	1.17E+00	3.27E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03	0.00E+00	4.75E-01	ND	1.86E+01
TRACI LCIA Impacts (North America)																
ODP	2.88E-07	3.42E-15	1.33E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.14E-18	0.00E+00	2.23E-14	ND	2.88E-07
AP	4.15E-02	1.80E-03	5.47E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-06	0.00E+00	2.41E-03	ND	4.28E-02
EP	2.60E-03	2.49E-04	5.24E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-07	0.00E+00	1.04E-04	ND	2.75E-03
ADP_{fossil}	3.00E+01	2.18E+00	2.68E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-03	0.00E+00	9.15E-01	ND	3.00E+01
SFP	7.88E-01	3.98E-02	9.24E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	0.00E+00	4.31E-02	ND	8.03E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	6.01E-01	0.00E+00	2.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	6.01E-01
BCEK	0.00E+00	0.00E+00	6.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.45E+01	6.79E-01	3.66E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-03	0.00E+00	8.75E-01	ND	1.51E+01
RPR_m	4.19E+00	0.00E+00	1.88E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.19E+00
$NRPR_e$	2.52E+02	1.53E+01	2.47E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-02	0.00E+00	7.06E+00	ND	2.57E+02
$NRPR_m$	1.36E+00	0.00E+00	6.12E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.36E+00
SM	7.89E-01	0.00E+00	3.55E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.89E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.49E-02	2.26E-03	6.78E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.39E-06	0.00E+00	9.12E-04	ND	1.42E-02
Output Flows and Waste Categories																
HWD	5.14E-07	2.07E-09	2.89E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-12	0.00E+00	1.74E-09	ND	5.14E-07
NHWD	3.77E-01	1.53E-03	2.23E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-06	0.00E+00	2.16E+01	ND	3.81E-01
HLRW	1.38E-05	5.48E-08	8.73E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.24E-11	0.00E+00	8.39E-08	ND	1.11E-05
ILLRW	1.17E-02	4.62E-05	7.60E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.94E-08	0.00E+00	7.49E-05	ND	9.43E-03
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	4.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	7.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

LCIA Results for 8.5 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	1.93E+01	1.25E+00	3.22E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-03	0.00E+00	5.01E-01	ND	2.05E+01
GWPi	1.86E+01	1.24E+00	3.33E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-03	0.00E+00	4.99E-01	ND	1.97E+01
TRACI LCIA Impacts (North America)																
ODP	3.06E-07	3.63E-15	1.41E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.40E-18	0.00E+00	2.34E-14	ND	3.06E-07
AP	4.40E-02	1.91E-03	5.60E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-06	0.00E+00	2.53E-03	ND	4.54E-02
EP	2.76E-03	2.65E-04	5.34E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.44E-07	0.00E+00	1.09E-04	ND	2.91E-03
ADP_{fossil}	3.18E+01	2.32E+00	2.76E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-03	0.00E+00	9.61E-01	ND	3.18E+01
SFP	8.37E-01	4.23E-02	9.48E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-04	0.00E+00	4.53E-02	ND	8.52E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	6.38E-01	0.00E+00	2.87E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	6.38E-01
BCEK	0.00E+00	0.00E+00	6.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.54E+01	7.21E-01	3.70E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-03	0.00E+00	9.18E-01	ND	1.60E+01
RPR_m	4.44E+00	0.00E+00	2.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.44E+00
$NRPR_e$	2.68E+02	1.63E+01	2.54E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-02	0.00E+00	7.41E+00	ND	2.72E+02
$NRPR_m$	1.44E+00	0.00E+00	6.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.44E+00
SM	8.39E-01	0.00E+00	3.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	8.39E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.56E-02	2.39E-03	6.82E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.56E-06	0.00E+00	9.57E-04	ND	1.48E-02
Output Flows and Waste Categories																
HWD	5.16E-07	2.20E-09	2.89E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-12	0.00E+00	1.83E-09	ND	5.16E-07
NHWD	3.93E-01	1.62E-03	2.28E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-06	0.00E+00	2.26E+01	ND	3.98E-01
HLRW	1.47E-05	5.82E-08	9.10E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.65E-11	0.00E+00	8.81E-08	ND	1.18E-05
ILLRW	1.24E-02	4.91E-05	7.92E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.29E-08	0.00E+00	7.87E-05	ND	1.00E-02
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	2.58E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	7.79E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.48E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

LCIA Results for 9 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	2.04E+01	1.32E+00	3.28E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-03	0.00E+00	5.25E-01	ND	2.17E+01
GWPi	1.96E+01	1.32E+00	3.40E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-03	0.00E+00	5.23E-01	ND	2.09E+01
TRACI LCIA Impacts (North America)																
ODP	3.24E-07	3.85E-15	1.49E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.66E-18	0.00E+00	2.45E-14	ND	3.24E-07
AP	4.65E-02	2.02E-03	5.73E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.44E-06	0.00E+00	2.65E-03	ND	4.81E-02
EP	2.92E-03	2.80E-04	5.43E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-07	0.00E+00	1.14E-04	ND	3.08E-03
ADP_{fossil}	3.36E+01	2.45E+00	2.85E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.61E-03	0.00E+00	1.01E+00	ND	3.36E+01
SFP	8.86E-01	4.47E-02	9.71E-02	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04	0.00E+00	4.74E-02	ND	9.02E-01
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	6.76E-01	0.00E+00	3.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	6.76E-01
BCEK	0.00E+00	0.00E+00	7.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.62E+01	7.63E-01	3.74E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-03	0.00E+00	9.62E-01	ND	1.69E+01
RPR_m	4.70E+00	0.00E+00	2.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.70E+00
$NRPR_e$	2.83E+02	1.72E+01	2.61E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-02	0.00E+00	7.76E+00	ND	2.88E+02
$NRPR_m$	1.53E+00	0.00E+00	6.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.53E+00
SM	8.90E-01	0.00E+00	4.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	8.90E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.64E-02	2.53E-03	6.86E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-06	0.00E+00	1.00E-03	ND	1.55E-02
Output Flows and Waste Categories																
HWD	5.19E-07	2.32E-09	2.90E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-12	0.00E+00	1.92E-09	ND	5.18E-07
NHWD	4.10E-01	1.72E-03	2.34E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-06	0.00E+00	2.37E+01	ND	4.15E-01
HLRW	1.55E-05	6.16E-08	9.48E-07	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.06E-11	0.00E+00	9.23E-08	ND	1.25E-05
ILLRW	1.31E-02	5.19E-05	8.23E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.63E-08	0.00E+00	8.24E-05	ND	1.06E-02
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	4.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	2.73E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	8.25E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

LCIA Results for 10 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	2.27E+01	1.46E+00	3.40E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-03	0.00E+00	5.73E-01	ND	2.40E+01
GWPi	2.18E+01	1.46E+00	3.53E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-03	0.00E+00	5.70E-01	ND	2.31E+01
TRACI LCIA Impacts (North America)																
ODP	3.60E-07	4.27E-15	1.65E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.17E-18	0.00E+00	2.68E-14	ND	3.60E-07
AP	5.16E-02	2.25E-03	5.99E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.94E-06	0.00E+00	2.89E-03	ND	5.33E-02
EP	3.24E-03	3.11E-04	5.63E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.21E-07	0.00E+00	1.25E-04	ND	3.42E-03
ADP_{fossil}	3.73E+01	2.72E+00	3.03E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-03	0.00E+00	1.10E+00	ND	3.73E+01
SFP	9.83E-01	4.96E-02	1.02E-01	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-04	0.00E+00	5.18E-02	ND	1.00E+00
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	7.50E-01	0.00E+00	3.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.50E-01
BCEK	0.00E+00	0.00E+00	7.84E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.79E+01	8.46E-01	3.82E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-03	0.00E+00	1.05E+00	ND	1.86E+01
RPR_m	5.22E+00	0.00E+00	2.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	5.22E+00
$NRPR_e$	3.14E+02	1.91E+01	2.76E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-02	0.00E+00	8.47E+00	ND	3.20E+02
$NRPR_m$	1.70E+00	0.00E+00	7.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.70E+00
SM	9.90E-01	0.00E+00	4.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	9.90E-01
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.78E-02	2.81E-03	6.94E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E-06	0.00E+00	1.09E-03	ND	1.68E-02
Output Flows and Waste Categories																
HWD	5.23E-07	2.58E-09	2.92E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-12	0.00E+00	2.09E-09	ND	5.22E-07
NHWD	4.43E-01	1.91E-03	2.46E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-06	0.00E+00	2.59E+01	ND	4.48E-01
HLRW	1.72E-05	6.84E-08	1.02E-06	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.88E-11	0.00E+00	1.01E-07	ND	1.39E-05
ILLRW	1.46E-02	5.76E-05	8.86E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-08	0.00E+00	8.99E-05	ND	1.18E-02
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	5.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	3.03E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	9.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	2.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

LCIA Results for 10.5 mm products

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Grid Mix A1-A3
IPCC AR5 Impacts																
GWPe	2.38E+01	1.54E+00	3.45E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	0.00E+00	5.96E-01	ND	2.52E+01
GWPi	2.29E+01	1.53E+00	3.60E+00	0.00E+00	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	0.00E+00	5.94E-01	ND	2.43E+01
TRACI LCIA Impacts (North America)																
ODP	3.78E-07	4.48E-15	1.74E-08	0.00E+00	3.22E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.43E-18	0.00E+00	2.79E-14	ND	3.78E-07
AP	5.41E-02	2.36E-03	6.13E-03	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.18E-06	0.00E+00	3.01E-03	ND	5.59E-02
EP	3.40E-03	3.26E-04	5.73E-04	0.00E+00	7.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.47E-07	0.00E+00	1.30E-04	ND	3.59E-03
ADP_{fossil}	3.92E+01	2.86E+00	3.12E+00	0.00E+00	4.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-03	0.00E+00	1.14E+00	ND	3.92E+01
SFP	1.03E+00	5.21E-02	1.04E-01	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-04	0.00E+00	5.39E-02	ND	1.05E+00
Carbon Emissions and Uptake																
BCRP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCRK	7.87E-01	0.00E+00	3.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.87E-01
BCEK	0.00E+00	0.00E+00	8.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
BCEW	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CCR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
CWNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Resource Use Indicators																
RPR_e	1.88E+01	8.88E-01	3.86E+00	0.00E+00	9.26E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-03	0.00E+00	1.09E+00	ND	1.95E+01
RPR_m	5.48E+00	0.00E+00	2.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	5.48E+00
$NRPR_e$	3.29E+02	2.01E+01	2.83E+01	0.00E+00	4.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-02	0.00E+00	8.82E+00	ND	3.35E+02
$NRPR_m$	1.78E+00	0.00E+00	8.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.78E+00
SM	1.04E+00	0.00E+00	4.68E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.04E+00
RSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	1.85E-02	2.95E-03	6.99E-03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-06	0.00E+00	1.14E-03	ND	1.75E-02
Output Flows and Waste Categories																
HWD	5.25E-07	2.71E-09	2.93E-08	0.00E+00	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E-12	0.00E+00	2.18E-09	ND	5.24E-07
NHWD	4.60E-01	2.00E-03	2.52E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-06	0.00E+00	2.69E+01	ND	4.65E-01
HLRW	1.81E-05	7.18E-08	1.06E-06	0.00E+00	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-10	0.00E+00	1.05E-07	ND	1.46E-05
ILLRW	1.53E-02	6.05E-05	9.18E-04	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-08	0.00E+00	9.36E-05	ND	1.23E-02
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MR	0.00E+00	0.00E+00	5.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
MER	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EEE	0.00E+00	0.00E+00	9.60E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
EET	0.00E+00	0.00E+00	3.06E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

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