Specrete
Grouting Additives

Environmental Product Declaration for **Intrusion-Aid Grout Fluidifiers**

Intrusion-Aid MAX

Intrusion-Aid SCX

Intrusion-Aid FGX

Intrusion-Aid FG+

Intrusion-Aid SCG-M

Intrusion-Aid FG

Intrusion-Aid DSC Concentrate

General Information

This cradle to gate Environmental Product Declaration covers dry mix products produced at the Cleveland Plant. The Life Cycle Assessment (LCA) was prepared in conformity with ISO 21930, ISO 14025, ISO 14040, and ISO 14044. This EPD is intended for business-to-business (B-to-B) audiences.

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ISO 21930:2017 Sustainability in Building Construction-Environmental Declaration of Building Products serves as the core PCR

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Independent verification of the declaration, according to ISO 21930:2017 and ISO 14025:2006:
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EPDs are comparable only if they comply with ISO 21930 (2017), 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.

General Information

Producer

Specrete develops and manufactures dry additives specifically for underground grout and concrete applications. Benefits include pressure filtration resistance, bleed elimination, viscosity modification, stability, water retention and water reduction.

Product

This EPD reports environmental information for the products produced by Specrete at its Cleveland Plant.
The products covered in this EPD meet the following description and standards:

Product Name	Product Description	Product's intended application and use	Markets of applicability
Intrusion-Aid MAX	Maximum Water Retentive Grout Fluidifier	ACIP / DD Piling	Global
Intrusion-Aid SCX	Water Retentive Grout Fluidifer	ACIP / DD Piling	Global
Intrusion-Aid FGX	Water Retentive Grout Fluidifer	ACIP / DD Piling	Global
Intrusion-Aid FG+	Stabilizing Grout Fluidifier	Micropiles / Tiebacks	Global
Intrusion-Aid SCG-M	Stabilized High Range Water Reducing Grout Fluidifier	ACIP / DD Piling	Global
Intrusion-Aid FG	Mid Range Water Reducing Grout Fluidifier	ACIP / DD Piling	Global
Intrusion-Aid DSC Concentrate	Normal Range Water Reducing Grout Fluidifier	ACIP / DD Piling	Global

Declared Unit

The declared unit is one kg of concrete admixtures.

System Boundary

This EPD is a cradle-to-gate EPD covering A1-A3 stages of the life cycle.

PRODUCTION Stage (*Mandatory*)			CONSTRUCTION Stage		USE STAGE					END-OF-LIFE Stage			
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	De-construction/ Demolition	Transport to waste processing or disposal	Waste processing	Disposal of waste
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**C1**	**C2**	**C3**	**C4**
X	**X**	**X**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**
Note: MND = module not declared; X = module included.													

Cut-Off

Items excluded from system boundary include:

- production, manufacture and construction of manufacturing capital goods and infrastructure;
- production and manufacture of production equipment, delivery vehicles, and laboratory equipment;
- personnel-related activities (travel, furniture, and office supplies); and
- energy and water use related to company management and sales activities that may be located either within the factory site or at another location.

Allocation Procedure

Allocation follows the requirements and guidance of ISO 14044:2006, Clause 4.3.4; and ISO 21930:2017 section 7.2. Recycling and recycled content is modeled using the cut-off rule.

Life Cycle Assessment

Specrete Admixture Products, bulk shipped per 1 kg of finished product

Table 1 Product Stage LCA Results for Intrusion-Aid MAX (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid MAX			
		Maximum Water Retentive Grout Fluidifier			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	1.25E+00	8.11E-02	2.69E-01	1.60E+00
Ozone depletion	*kg CFC-11 eq*	4.04E-07	3.37E-12	1.03E-08	4.14E-07
Eutrophication	*kg N eq*	4.95E-03	6.87E-05	4.90E-04	5.51E-03
Acidification	*kg SO_2 eq*	4.42E-03	1.17E-03	5.97E-04	6.18E-03
Smog	*kg O_3 eq*	6.58E-02	3.10E-02	8.73E-03	1.06E-01
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	7.05E-06	0.00E+00	2.86E-08	7.08E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	5.14E+00	1.14E+00	1.43E+00	7.70E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.70E+00	0.00E+00	7.60E-01	2.46E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	7.89E+00	1.14E+00	1.97E+00	1.10E+01
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	1.75E-02	0.00E+00	1.38E-03	1.88E-02
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	1.64E-09	0.00E+00	3.28E-10	1.96E-09
Intermediate and low-level radioactive waste	*m^3*	1.26E-08	0.00E+00	2.39E-09	1.50E-08
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

** Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories

Table 2 Product Stage LCA Results for Intrusion-Aid SCX (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid SCX			
		Water Retentive Grout Fluidifer			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	1.03E+00	7.50E-02	2.69E-01	1.37E+00
Ozone depletion	*kg CFC-11 eq*	2.77E-07	3.11E-12	1.03E-08	2.87E-07
Eutrophication	*kg N eq*	3.74E-03	6.38E-05	4.90E-04	4.29E-03
Acidification	*kg SO_2 eq*	3.52E-03	1.09E-03	5.97E-04	5.21E-03
Smog	*kg O_3 eq*	5.36E-02	2.89E-02	8.73E-03	9.11E-02
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	6.19E-06	0.00E+00	2.86E-08	6.22E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	3.79E+00	1.05E+00	1.43E+00	6.27E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.33E+00	0.00E+00	7.60E-01	2.09E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	5.92E+00	1.05E+00	1.97E+00	8.95E+00
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	1.33E-02	0.00E+00	1.38E-03	1.47E-02
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	1.28E-09	0.00E+00	3.28E-10	1.60E-09
Intermediate and low-level radioactive waste	*m^3*	9.74E-09	0.00E+00	2.39E-09	1.21E-08
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

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Table 3 Product Stage LCA Results for Intrusion-Aid FGX (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid FGX			
		Water Retentive Grout Fluidifer			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	7.85E-01	8.76E-02	2.69E-01	1.14E+00
Ozone depletion	*kg CFC-11 eq*	1.55E-07	3.64E-12	1.03E-08	1.65E-07
Eutrophication	*kg N eq*	2.57E-03	7.42E-05	4.90E-04	3.13E-03
Acidification	*kg SO_2 eq*	2.69E-03	1.26E-03	5.97E-04	4.55E-03
Smog	*kg O_3 eq*	3.92E-02	3.34E-02	8.73E-03	8.13E-02
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	5.06E-06	0.00E+00	2.86E-08	5.09E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	2.78E+00	1.23E+00	1.43E+00	5.44E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.48E+00	0.00E+00	7.60E-01	2.24E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	4.24E+00	1.23E+00	1.97E+00	7.44E+00
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	1.07E-02	0.00E+00	1.38E-03	1.21E-02
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	8.75E-10	0.00E+00	3.28E-10	1.20E-09
Intermediate and low-level radioactive waste	*m^3*	6.60E-09	0.00E+00	2.39E-09	8.99E-09
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

** Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories.

Table 4 Product Stage LCA Results for Intrusion-Aid FG+ (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid FG+			
		Stabilizing Grout Fluidifier			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	7.94E-01	8.74E-02	2.69E-01	1.15E+00
Ozone depletion	*kg CFC-11 eq*	1.55E-07	3.63E-12	1.03E-08	1.66E-07
Eutrophication	*kg N eq*	2.59E-03	7.41E-05	4.90E-04	3.15E-03
Acidification	*kg SO_2 eq*	2.72E-03	1.26E-03	5.97E-04	4.57E-03
Smog	*kg O_3 eq*	3.95E-02	3.33E-02	8.73E-03	8.15E-02
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	5.05E-06	0.00E+00	2.86E-08	5.08E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	2.80E+00	1.23E+00	1.43E+00	5.46E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.49E+00	0.00E+00	7.60E-01	2.25E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	4.28E+00	1.23E+00	1.97E+00	7.48E+00
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	1.08E-02	0.00E+00	1.38E-03	1.22E-02
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	8.87E-10	0.00E+00	3.28E-10	1.22E-09
Intermediate and low-level radioactive waste	*m^3*	6.68E-09	0.00E+00	2.39E-09	9.07E-09
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

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Table 5 Product Stage LCA Results for Intrusion-Aid SCG-M (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid SCG-M			
		Stabilized High Range Water Reducing Grout Fluidifier			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	1.35E+00	8.56E-02	2.69E-01	1.70E+00
Ozone depletion	*kg CFC-11 eq*	4.67E-07	3.58E-12	1.03E-08	4.77E-07
Eutrophication	*kg N eq*	5.52E-03	7.05E-05	4.90E-04	6.08E-03
Acidification	*kg SO_2 eq*	4.96E-03	1.18E-03	5.97E-04	6.74E-03
Smog	*kg O_3 eq*	7.12E-02	3.10E-02	8.73E-03	1.11E-01
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	7.57E-06	0.00E+00	2.86E-08	7.60E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	5.94E+00	1.21E+00	1.43E+00	8.58E+00
Renewable primary energy resources as energy	*MJ, NCV*	2.18E+00	0.00E+00	7.60E-01	2.94E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	8.93E+00	1.21E+00	1.97E+00	1.21E+01
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	2.07E-02	0.00E+00	1.38E-03	2.20E-02
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	1.77E-09	0.00E+00	3.28E-10	2.10E-09
Intermediate and low-level radioactive waste	*m^3*	1.36E-08	0.00E+00	2.39E-09	1.60E-08
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

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Table 6 Product Stage LCA Results for Intrusion-Aid FG (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid FG			
		Mid Range Water Reducing Grout Fluidifier			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	5.03E-01	7.12E-02	2.69E-01	8.43E-01
Ozone depletion	*kg CFC-11 eq*	1.95E-08	2.97E-12	1.03E-08	2.98E-08
Eutrophication	*kg N eq*	1.06E-03	5.95E-05	4.90E-04	1.61E-03
Acidification	*kg SO_2 eq*	1.66E-03	1.00E-03	5.97E-04	3.27E-03
Smog	*kg O_3 eq*	2.39E-02	2.65E-02	8.73E-03	5.91E-02
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	3.27E-06	0.00E+00	2.86E-08	3.29E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	1.18E+00	1.01E+00	1.43E+00	3.61E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.08E+00	0.00E+00	7.60E-01	1.84E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	1.85E+00	1.01E+00	1.97E+00	4.83E+00
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	6.34E-03	0.00E+00	1.38E-03	7.72E-03
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	4.10E-10	0.00E+00	3.28E-10	7.39E-10
Intermediate and low-level radioactive waste	*m^3*	2.98E-09	0.00E+00	2.39E-09	5.37E-09
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

** Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories.

Table 7 Product Stage LCA Results for Intrusion-Aid DSC Concentrate (Declared unit: 1 kg of finished product)

Impact category	Unit	Intrusion-Aid DSC Concentrate			
		Normal Range Water Reducing Grout Fluidifier			
		A1	*A2*	*A3*	*Total*
Global warming	*kg CO_2 eq*	5.25E-01	6.64E-02	2.69E-01	8.60E-01
Ozone depletion	*kg CFC-11 eq*	1.98E-08	2.79E-12	1.03E-08	3.00E-08
Eutrophication	*kg N eq*	1.07E-03	5.37E-05	4.90E-04	1.62E-03
Acidification	*kg SO_2 eq*	1.79E-03	8.96E-04	5.97E-04	3.28E-03
Smog	*kg O_3 eq*	2.50E-02	2.32E-02	8.73E-03	5.69E-02
Resource Use					
Abiotic depletion (non-fossil mineral)	*kg Sb eq*	3.76E-06	0.00E+00	2.86E-08	3.79E-06
Abiotic depletion (fossil fuels)	*MJ, NCV*	1.25E+00	9.47E-01	1.43E+00	3.63E+00
Renewable primary energy resources as energy	*MJ, NCV*	1.21E+00	0.00E+00	7.60E-01	1.97E+00
Renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources as energy	*MJ, NCV*	1.92E+00	9.47E-01	1.97E+00	4.84E+00
Non-renewable primary resources as material	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of fresh water	*m^3*	7.06E-03	0.00E+00	1.38E-03	8.44E-03
Secondary Material, Fuel and Recovered Energy					
Secondary materials	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste & Output Flows					
Hazardous waste disposed	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	*kg*	0.00E+00	0.00E+00	1.39E-02	1.39E-02
High-level radioactive waste	*m^3*	4.14E-10	0.00E+00	3.28E-10	7.42E-10
Intermediate and low-level radioactive waste	*m^3*	2.97E-09	0.00E+00	2.39E-09	5.36E-09
Components for reuse	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	*kg*	0.00E+00	0.00E+00	5.39E-03	5.39E-03
Materials for energy recovery	*kg*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported from product system	*MJ, NCV*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic CO2 emissions	*kg CO_2 eq*	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* This EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

** Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories.

All LCIA values were modeled with TRACI 2.1 & ACLCA ISO 21930 Guidance

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