



SMART

EPD

Environmental Product
Declaration

Program Operator: Smart EPD®

www.smartepd.com

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017



EUCLID CHEMICAL

SmartEPD-2026-109-0726-01.1

DURAL 452 GEL

Date of Issue

Jan 05, 2026

Expiration date

Jan 05, 2031

Last updated

Jan 14, 2026



Refer to the EPD Library at www.smartepd.com for the latest EPD listing information

General Information

Euclid Chemical Company

📍 19215 Redwood Road Cleveland, OH, 44110

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✉ info@euclidchemical.com 🌐 euclidchemical.com



Product Name:	DURAL 452 GEL
Declared Unit:	1 m2
Declaration Number:	SmartEPD-2026-109-0726-01.1
Date of Issue:	January 05, 2026
Expiration:	January 05, 2031
Last updated:	January 14, 2026
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, B1 - B7, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

Euclid Chemical is a leading manufacturer of concrete and masonry products. Example products include admixtures, fiber, integral color, shotcrete, grouts, repair mortars, bonding agents, adhesives, coatings, curing and sealing compounds, dry shake hardeners, joint fillers, sealants, densifiers, waterproofing, repair and other products.

Further information can be found at: <https://www.euclidchemical.com/>

Limitations, Liability, and Ownership

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

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences in results upstream or downstream of the life cycle stages declared.

The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

A manufacturer shall not make claims based on an industry-average EPD which leads the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

Reference Standards

Standard(s): ISO 14025 and ISO 21930:2017

Core PCR:	Smart EPD® Part A Product Category Rules for Building and Construction Products and Services, 1000, v1.2 Date of issue: March 14, 2025 Valid until: March 14, 2030
Sub-category PCR review panel:	 Contact Smart EPD for more information.
General Program Instructions:	 Smart EPD General Program Instructions v.2.0, March 2025

Verification Information

LCA Author/Creator:	 trenor.philbin@truenorthcollective.net  trenor.philbin@truenorthcollective.net
EPD Program Operator:	 Smart EPD  info@smartepd.com  www.smartepd.com  585 Grove St., Ste. 145, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071:  Arka Pandit  pandit_arka@outlook.com External Independent external verification of EPD, according to ISO 14025 and reference PCR(s):  Arka Pandit  pandit_arka@outlook.com External

Product Information

Declared Unit:	1 m2
Mass:	0.569 kg
Reference Service Life:	60 Years
Reference Service Life:	60 Years
Estimated Service Life:	60 Years
Product Specificity:	 Product Average  Product Specific

Product Description

Dural 452 Gel is a two-component, 100% solids, DOT non-corrosive, moisture insensitive, high strength epoxy adhesive and binder for numerous applications. This high modulus structural gel is perfect for bonding applications that require a non-sag adhesive.

Product Specifications

Product SKU(s):	
DURAL 452 GEL	
Product Classification Codes:	Masterformat - Unknown



Material Composition

Material/Component Category	Origin	% Mass
Acids, Salts & Alkalis	GLO	0.00
Chemical Additives & Agents	GLO	0.24
Metals & Metal Oxides	GLO	0.00
Mineral Aggregates & Fillers	GLO	9.02
Miscellaneous / Composite Materials	GLO	0.00
Oils, Waxes & Natural Compounds	GLO	0.00
Pigments, Dyes & Colorants	GLO	2.63
Polymers & Resins	GLO	59.12
Functional Minerals & Specialty Powders	GLO	0.08
Organic Compounds & Solvents	GLO	28.91

Packaging Material	Origin	kg Mass
Packaging Metal	GLO	3.61E-02
Packaging Plastic	GLO	5.36E-02
Packaging Wood	GLO	6.99E-02

Hazardous Materials
Hazardous Waste

EPD Data Specificity

- Primary Data Year:2024
- Manufacturing Specificity:

✗

 Industry Average

✗

 Manufacturer Average

✓

 Facility Specific

Averaging:
Averaging was not conducted for this EPD

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	✓
	B2	Maintenance	✓
	B3	Repair	✓
	B4	Replacement	✓
	B5	Refurbishment	✓
	B6	Operational Energy Use	✓
	B7	Operational Water Use	✓
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Note:

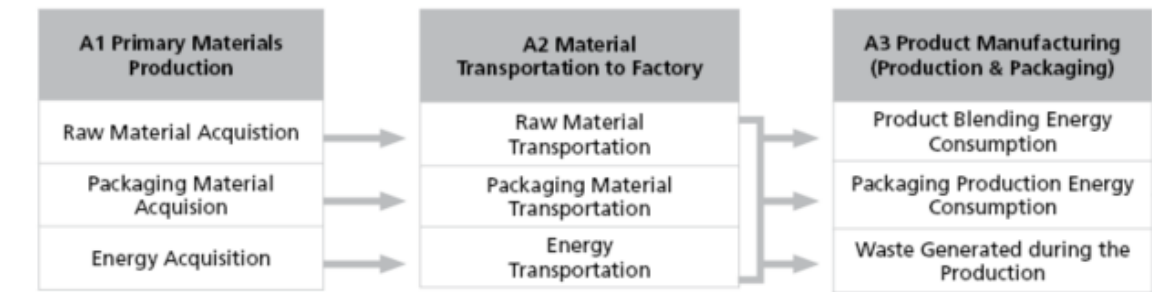
ND = Module not declared

Plants



Kirkland
3835 IL-72, Kirkland, IL 60146

Product Flow Diagram



Building material products are manufactured by sourcing materials from suppliers. Where applicable, the raw materials are crushed, homogenized, heated, cooled, and separated. Products throughout the facility may require all or some combination of those processes. All components of the product are then mixed to the desired specification, packaged, and distributed to the customer.

Software and Database

LCA Software:	 SimaPro v. 10.2
LCI Foreground Database(s):	 ecoinvent v. 3.10  Best available, with North American focus  Cut-off
LCI Background Database(s):	 ecoinvent v. 3.10  Best available, with North American focus  Cut-off

A foreground LCI database is the database used to model the primary, site-specific data collected for this EPD. A background LCI database is the database used to model generic or non-specific data.

Data Quality

A comprehensive data quality assessment was conducted to evaluate multiple data quality indicators such as reliability, representativeness, and geographic and temporal correlation. Data were found to be consistent, precise, and reproducible, with selected datasets being recent and relevant to current operations. The ecoinvent data quality system was used for background datasets. All inputs and processes were determined to be representative and suitable for supporting the conclusions of the LCA.

Data used in the life cycle assessment comes directly from the manufacturer for all processes under their operational control. Primary data was obtained from the manufacturing facility and reviewed for completeness and accuracy. Where data gaps existed, proxy data is used. Secondary data sources were selected for their alignment with the study's geographic, temporal, and technological scope. All inventory parameters required for a cradle-to-gate analysisincluding material production, energy use, transport, and processingwere reviewed for completeness, with no significant data gaps identified. All inputs and data sources meet the requirements set forth in the PCR.

Data Sources

Material/Process Category	Module	Material/Process Name	Inventory Dataset Name	Dataset Geographic Region	Reporting Period/Year Dataset Represents	Reference	Amount (if relevant)	Unit
A1_Silica	A1	Silica sand	ecoinvent 3.10	GLO	2024	Euclid Data	0.05	kg
A1_Epoxy	A1	Epoxy resin, liquid	ecoinvent 3.10	RoW	2024	Euclid Data	0.57	kg
A1_Phenol	A1	Phenol	ecoinvent 3.10	RoW	2024	Euclid Data	0.11	kg
A1_Gray_Pigment	A1	Carbon black	ecoinvent 3.10	GLO	2024	Euclid Data	0.03	kg
A1_Diamine	A1	Ethylene diamine	ecoinvent 3.10	RoW	2024	Euclid Data	0.13	kg
A1_Benzyl_Alcohol	A1	Benzyl alcohol	ecoinvent 3.10	RoW	2024	Euclid Data	0.05	kg
A1_Wollastonite	A1	Sodium silicate, solid	ecoinvent 3.10	RoW	2024	Euclid Data	0.04	kg



Electricity	A3	Electricity, medium voltage	ecoinvent 3.10	US-SERC	2024	Euclid Data	0.05	kWh
Water	A3	Tap water	ecoinvent 3.10	RoW	2024	Euclid Data	0	kg
Waste	A3	Municipal solid waste	ecoinvent 3.10	GLO	2024	Euclid Data	0.01	kg
Packaging Wood	A3	Corrugated board box	ecoinvent 3.10	RoW	2024	Euclid Data	0.04	kg
Packaging Metal	A3	Scrap steel	ecoinvent 3.10	RoW	2024	Euclid Data	0.02	kg
Packaging Plastic	A3	Polyethylene, linear low density, granulate	ecoinvent 3.10	RoW	2024	Euclid Data	0.03	kg
Transportation Truck	A2	Transport, freight, lorry 16-32 metric ton, euro3	ecoinvent 3.10	RoW	2024	Euclid Data	1.03	kgkm
Transportation Rail	A2	Transport, freight train	ecoinvent 3.10	US	2024	Euclid Data	0	kgkm
Transportation Ocean	A2	Transport, freight, sea, container ship	ecoinvent 3.10	GLO	2024	Euclid Data	0	kgkm
A1_Cement_Recycle	A1	Gravel, crushed	ecoinvent 3.10	RoW	2024	Euclid Data	0.01	kg
C2_Transportation	C2	Transport, freight, light commercial vehicle	ecoinvent 3.10	RoW	2024	Euclid Data	1.00	kgkm
C4_Disposal_WaterBased	C4	Municipal solid waste	ecoinvent 3.10	GLO	2024	Euclid Data	1.00	kg
A1_Polyethylene	A1	Polyethylene, low density, granulate	ecoinvent 3.10	RoW	2024	Euclid Data	0.01	kg
A1_Polyamine	A1	Amine oxides	ecoinvent 3.10	RoW	2024	Euclid Data	0.01	kg
Natural gas	A3	Heat, district or industrial, natural gas	ecoinvent 3.10	RoW	2024	Euclid Data	0.24	kWh

Life Cycle Module Descriptions

Primary data on materials purchased from suppliers was collected from the reporting company, which contains the part description (SKU), the Bill of Materials (BOM) for each part description, list of suppliers for each raw material found with the BOM, and the suppliers' location. Supplier names and location were provided for materials within the bill of materials. The location is provided as destination of supplier. An assumed conservative distance is used for the supplier destination information to the facility acquired through Google maps and converted to kilometers. The flows related to product manufacturing are facility inputs and outputs at the manufacturing location. Data is generally collected on a plant-level through utilities receipts, emissions reporting or other methods and is then allocated to individual products through mass-based allocation. Intensity factors for energy, waste, and water were created, and they are based on the total mass of products produced in calendar year 2024. Distribution, use and end of life treatment are assumed based on the reference PCR, NSF PCR for Resinous Floor Coatings.

LCA Discussion

Allocation Procedure

Per ISO 21930 and the PCR, this is an attributional LCA and as such, no allocation using system expansion was performed. Allocation of background data (energy and materials) is taken from the available datasets from Ecoinvent.

Cut-off Procedure

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. Cut-offs were not applied to this LCA. In cases where no matching life cycle inventories were available to represent a flow, proxy data were applied based on conservative assumptions regarding environmental impacts. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No other known flows are deliberately excluded from this EPD.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:

✗

No

Scenarios

Use (B1)

B1 Module

ESL:

60 Years

Results

Environmental Impact Assessment Results

IPCC AR6 GWP 100, TRACI 2.1

per 1 m2 of product.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Method	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
GWP-total	IPCC AR6 GWP 100	kg CO2 eq	3.53e+0	1.47e-1	1.41e-2	0	6.26e+1	0	2.22e+1	0	0	0	0	1.33e-2	0	7.43e-1
GWP-total (excl. Biogenic)	IPCC AR6 GWP 100	kg CO2 eq	3.70e+0	1.48e-1	1.41e-2	0	6.35e+1	0	2.31e+1	0	0	0	0	1.33e-2	0	7.43e-1
GWP-total (incl. Biogenic)	IPCC AR6 GWP 100	kg CO2 eq	3.53e+0	1.47e-1	1.41e-2	0	6.26e+1	0	2.22e+1	0	0	0	0	1.33e-2	0	7.43e-1
GWP-fossil	IPCC AR6 GWP 100	kg CO2-eq	3.57e+0	1.47e-1	3.37e-3	0	6.26e+1	0	1.88e+1	0	0	0	0	1.32e-2	0	3.51e-2
GWP-bio-genic	IPCC AR6 GWP 100	kg CO2-eq	1.12e-1	8.12e-4	1.08e-2	0	8.94e-1	0	4.16e+0	0	0	0	0	8.99e-5	0	7.08e-1
GWP-luluc	IPCC AR6 GWP 100	kg CO2-eq	1.96e-2	5.92e-5	2.46e-7	0	2.54e-2	0	9.85e-2	0	0	0	0	6.43e-6	0	2.41e-7
GWP-Total	TRACI 2.1	kg CO2 eq	3.70e+0	1.48e-1	1.41e-2	0	6.35e+1	0	2.31e+1	0	0	0	0	1.33e-2	0	7.43e-1
GWP-Total (excl. Biogenic)	TRACI 2.1	kg CO2 eq	3.59e+0	1.47e-1	3.37e-3	0	6.26e+1	0	1.89e+1	0	0	0	0	1.33e-2	0	3.51e-2
GWP-Total (incl. Biogenic)	TRACI 2.1	kg CO2 eq	3.70e+0	1.48e-1	1.41e-2	0	6.35e+1	0	2.31e+1	0	0	0	0	1.33e-2	0	7.43e-1
ODP	TRACI 2.1	kg CFC-11 eq	1.31e-7	2.26e-9	1.79e-12	0	1.50e-6	0	6.70e-7	0	0	0	0	2.17e-10	0	4.51e-11
AP	TRACI 2.1	kg SO2 eq	1.42e-2	7.49e-4	2.24e-5	0	2.97e-1	0	7.54e-2	0	0	0	0	5.49e-5	0	5.33e-5
EP	TRACI 2.1	kg N eq	1.34e-2	1.66e-4	1.22e-4	0	3.09e-1	0	1.27e-1	0	0	0	0	1.94e-5	0	1.16e-2
POCP	TRACI 2.1	kg O3 eq	1.95e-1	2.09e-2	3.92e-4	0	3.51e+0	0	1.09e+0	0	0	0	0	1.27e-3	0	7.63e-4
HTP-c	TRACI 2.1	CTUh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HTP-nc	TRACI 2.1	CTUh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETP-fw	TRACI 2.1	CTUe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	TRACI 2.1	kg PM2.5 eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
PERE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RPRE	MJ	4.64e+0	2.88e-2	3.19e-5	0	2.59e+1	0	2.34e+1	0	0	0	0	4.71e-3	0	2.23e-4
RPRM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RPRT	MJ	4.64e+0	2.88e-2	3.19e-5	0	2.59e+1	0	2.34e+1	0	0	0	0	4.71e-3	0	2.23e-4
NRPRE	MJ	6.79e+1	2.20e+0	1.22e-3	0	1.58e+3	0	3.52e+2	0	0	0	0	1.93e-1	0	3.85e-2
NRPRM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRPRT	MJ	6.79e+1	2.20e+0	1.22e-3	0	1.58e+3	0	3.52e+2	0	0	0	0	1.93e-1	0	3.85e-2
ADP-fossil	MJ	7.09e+0	2.73e-1	1.35e-4	0	1.65e+2	0	3.69e+1	0	0	0	0	2.31e-2	0	5.04e-3
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m3	3.97e-2	2.81e-4	3.19e-6	0	1.36e+0	0	2.00e-1	0	0	0	0	3.30e-5	0	2.59e-6
RE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRM or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

For RPRM and NRPRM indicators, packaging is not included.

Waste and Output Flow Indicators

per 1 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
HWD	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NHWD	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RWD	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HLRW	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ILLRW	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MNER	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.



Carbon Emissions and Removals
per 1 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
BCRP	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BCEP	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BCRK	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BCEK	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BCEW	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCE	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCR	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CWNR	kg CO2-eq	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:
Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

None

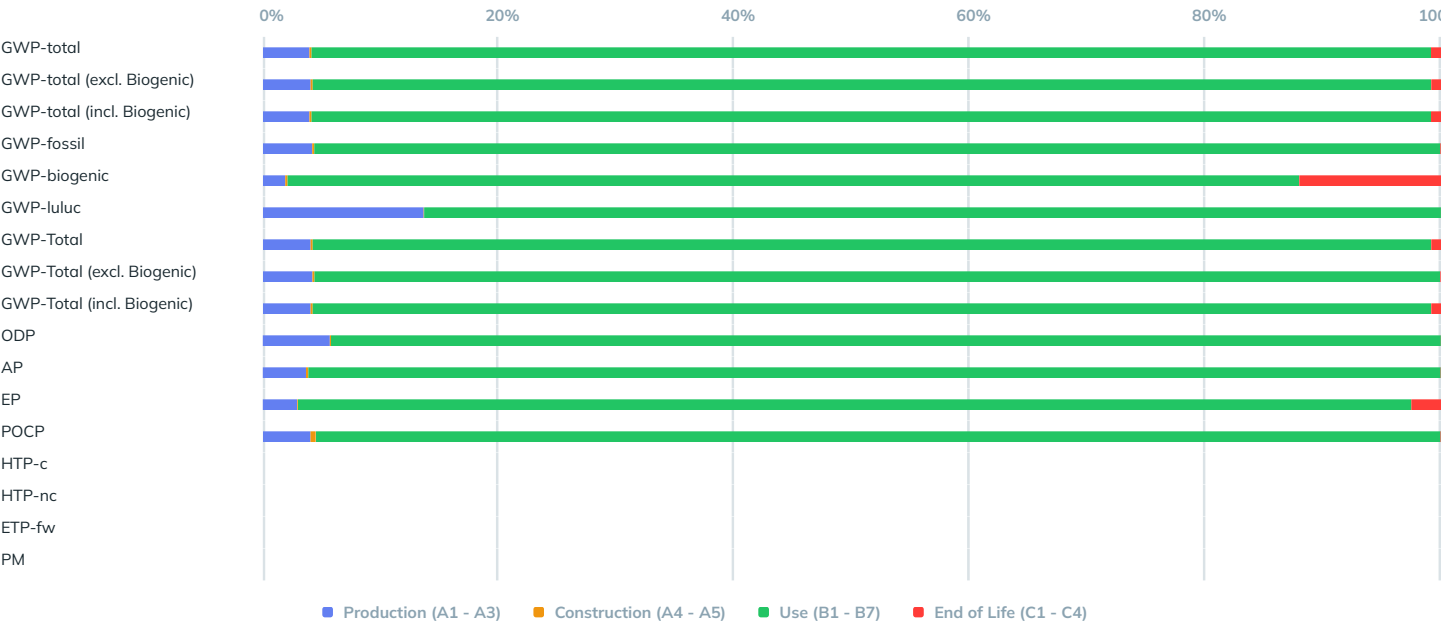
Impact Scaling Factors

Product Name and/or Product Attribute	Product Specific Functional/Declared Unit Multiplier
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Interpretation

The largest contributing module of Dural 452 Gel is B2 (Maintenance) with contribution totaling 70%. The B2, B3, and B4 module impacts are based on PCR default scenarios, from NSF PCR for Resinous Floor Coatings, and are not intended to represent product-specific maintenance behavior. The B2 module is the largest impact for some products considering the required cleaning materials per m2 of product based on the lower density.

The impact from module B4 is due to the fact that replacements are needed to satisfy the 60-year requirement for the functional unit. This replacement effectively multiplies the impacts from other modules. Of the modules included in B4, A1 Raw Materials Extraction and Processing, B2 Maintenance, and C4 Disposal stages represents the largest contributor to impacts.



Additional Environmental Information

There are no significant environmental aspects for this product

Modified Impact Results: Renewable Electricity
per 1 m2 of product.

Impact Category	Unit	Method	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particulate Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Environmental Activities and Certifications

Certification
None

References

ACLCA. (2019). ACLCA Guidance to Calculating Non-LCIA Inventory Metrics in Accordance with ISO 21930:2017. ACLCA.

- Bare, J., Gloria, T., & Norris, G. (2006). Development of the Method and U.S. Normalization Database for Life Cycle Impact Assessment and Sustainability Metrics. *Environmental Science & Technology*.
- Bare, J., Norris, G., Pennington, D., & McKone, T. (2003). TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. *Journal of Industrial Ecology*.
- Boulay A.M., B. J. (2018). The WULCA consensus characterization model for 108 water scarcity footprints: Assessing impacts of water consumption based on available water remaining (AWARE). . *The International Journal of Life Cycle Assessment*.
- Center of Environmental Science, L. U. (2016). *CML-IA Characterisation Factors*.
- Ecoinvent 3.10. (2024).
- Frischknecht, R., Jungbluth, N., Althaus, H., Doka, G., Dones, R., Hischier, R., . . . Nemecek, T. (2007). *Implementation of Life Cycle Impact Assessment Methods: Data v2.0*. Dbendorf, Switzerland: ecoinvent report No. 3, Swiss centre for Life Cycle Inventories.
- IPCC, I. P. (2013). *IPCC Fifth Assessment report. The Physical Science Basis*. Retrieved from <http://www.ipcc.ch/report/ar5/wg1/>.
- ISO 14025. (2006). *ISO 14025:2006: Environmental labels and declarations Type III environmental declarations Principles and procedures*. International Organization for Standardization.
- ISO 14040. (2006). *ISO 14040:2006/Amd 1:2020 -- Environmental management -- Life cycle assessment -- Principles and framework*. International Organization for Standardization.
- ISO 14071:2024. (n.d.). *ISO 14071:2024 Environmental management - Life cycle assessment - Critical review processes and reviewer competencies*. International organization for Standards (ISO).
- ISO. (2006). *ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework*. International Organization for Standardization (ISO).
- ISO. (2006). *ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines*. International organization for Standardization (ISO).
- ISO 21930. (2017). Sustainability in buildings and civil engineering works Core rules for environmental product declarations of construction products and services.
- SmartEPD. (2022, November). General Program Instructions, v1.0.
- SmartEPD. (2024). *Part A Product Category Rules for Building and Construction Products and Services, Standard 1000, version 1.01*.
- Weidema B P, B. C. (2013). *Overview and methodology. Data quality guideline for the ecoinvent database version 3*. St. Gallen: The ecoinvent Centre.