

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025

SmartEPD-2023-002-0009-01

ThinAir® Hand Dryer, 120V



Date of Issue:
Jul 10, 2023

Expiration:
Jul 10, 2028

Last updated:
Mar 11, 2024



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General Information

Excel Dryer

357 Chestnut St, East Longmeadow, MA 01028, USA

888-709-9827

sales@exceldryer.com exceldryer.com



Product Name:	ThinAir® Hand Dryer, 120V
Functional Unit:	100,000 instances of hand drying
Declaration Number:	SmartEPD-2023-002-0009-01
Date of Issue:	July 10, 2023
Expiration:	July 10, 2028
Last updated:	March 11, 2024
EPD Scope:	Cradle to grave A1 – A3, A4, A5, B1 - B3, C1 - C4
Market(s) of Applicability:	North America

Reference Standards

Standard(s):	ISO 14025
Core PCR:	UL PCR for Hand Dryers v.1 Date of issue: July 13, 2016 Valid until: July 13, 2024
Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

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Verification:

Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071 :

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Independent external verification of EPD, according to ISO 14025 and reference PCR(s) :

External

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Limitations, Liability, and Ownership

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 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 results for upstream or downstream of the life cycle stages declared.

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

Organization Information

Excel Dryer manufactures American-made, touchless hand dryers and accessories to help commercial facilities create a hygienic restroom environment. For more than 50 years, facilities around the world have used Excel's hand dryers to create clean, modern restrooms that set the standard for sustainability and efficiency. A leader in sustainability, Excel Dryer was the first hand dryer company to commission a peer reviewed Life Cycle Assessment, become a member of the United States Green Building Council, use third-party testing to prove its products' performance, and manufactures the only hand dryers that are Made In USA Certified.

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

Product Description

The ThinAir® Hand Dryer is a high-efficiency model that is surface-mounted and ADA-compliant. ThinAir has adjustable speed and sound control, on/off heat, and optional HEPA Filtration. Models vary by cover type, white ABS or stainless steel.

Painted and custom cover stainless steel cover options are also available. The results presented in this EPD are based on the average of the two cover options:

ABS and stainless cover models (most representative in terms of sales). The ThinAir Hand Dryer has three voltage models: 120V (most common for North America market), 208V, and 230V (most common for international markets).

These models are similar, except for the use stage, in that the different voltage results in different dry time and power demand. This EPD represents the 120V model. Total years of estimated service life (ESL) is 730,000 uses over 10 years of

service life.

Further information can be found at: <https://www.exceldryer.com/product/thinair-hand-dryer/>

Product Information

Functional Unit: 100,000 instances of hand drying

Mass: 2.8 kg



Reference Service Life:	730,000 Cycles
Estimated Service Life:	10 Years
Product Specificity:	✗ Product Average ✓ Product Specific

Averaging:

Different models vary by cover type, color (white, graphite, custom special paint, chrome plated, and brushed stainless steel), noise reduction function, voltage, and HEPA filtration system. The results presented in this EPD are based on the average of the three cover options: zinc cover model (most representative in terms of sales), stainless steel and thermoset resin cover models. Data utilized for this EPD is based on production records for the calendar year 2020 to 2022 and results presented are weighted average based on production volume.

Plants

 Excel Dryer
357 Chestnut Street, East Longmeadow, MA 01028, USA

Product Specifications

Product SKU(s):	TA-ABS/W/GR/SB/SO/SP
Product Classification Codes:	UNSPSC - 47131707 (Institutional Hand Dryers)
Product width:	233 mm
Product height:	354 mm
Product depth:	100 mm
Estimated service life:	10 years
Power consumption:	915 VA
Dry time:	14 seconds
Energy use per operational cycle:	0.13 MJ
Standby power consumption:	0.44 VA
Run on time per use:	0.7 seconds



Material Composition

Material/Component Category	Origin	% Mass
ABS/PC	United States	33.98
Stainless Steel (chromium steel 18/8)	United States	24.07
ABS	United States	11.46
Steel (low-alloyed, hot rolled)	United States	10.87
Aluminum	United States	5.37
Copper	United States	4.63
Glass fibre reinforced plastic	United States	2.57
Rubber	United States	1.84
PCB	United States	1.39
Phenolic Resin	United States	0.87
Brass	United States	0.75
Mica	United States	0.54
Carbon Graphite	United States	0.36
Nichrome	United States	0.31
Acrylic	United States	0.3
Polyurethane Foam	United States	0.26
Electronics/non-IC	United States	0.18
Vinyl	United States	0.15
LDPE	United States	0.05
Paper	United States	0.04
Electronics/IC	United States	0.01

Packaging Material	Origin	kg Mass
Cardboard	United States	0.68
Molded Pulp	United States	0.19
Plastic Bag	United States	0.01

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.



EPD Data Specificity

Primary Data Year:	2020 to 2022
Manufacturing Specificity:	✗ Industry Average
	✓ Manufacturer Average
	✓ Facility Specific

Software and LCI Data Sources

LCA Software:	📁 SimaPro v. 9.4.0
LCI Foreground Database(s):	📁 Ecoinvent v. 3.8 🌿 Cut-Off by Classification 📁 DATASMART LCI Package v. 2021
LCI Background Database(s):	📁 Ecoinvent v. 3.8 📁 DATASMART LCI Package v. 2021

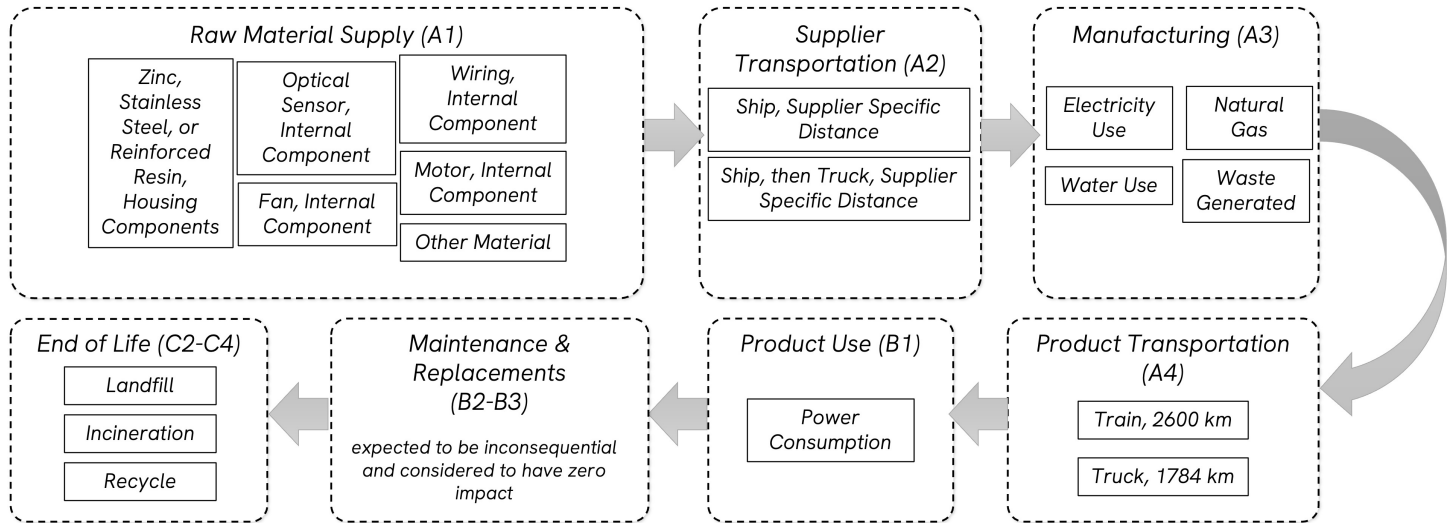
Renewable Electricity

Renewable electricity is used:	No
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System Boundary

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

Product Flow Diagram



Life Cycle Module Descriptions

The manufacturing process at Excel facility in East Longmeadow, Massachusetts is mostly assembly and there is no major difference during assembly among all models. The system boundary for this EPD is cradle-to-grave, covering supplied raw materials (A1), transport from suppliers to Excel Dryer (A2), production of manufactured products (A3), transport out of Excel facilities (A4), use of the product (B1), maintenance (B2), replacement (B3), transport to end-of-life facilities (C2), and waste processing and disposal of the product (C3 and C4). A number of processes are excluded from the study, as allowed by the PCR (UL 10007, Version 1, 2016). Typically, in an LCA, some aspects within the set boundaries are excluded due to statistical insignificance or irrelevancy to the goal and scope. The following activities were excluded from the scope and boundaries for this study:

- Installation module (A5): The ThinAir® Hand Dryer is an electrical product. For proper electrical connections, local building codes should be consulted and the unit should be installed by a qualified, licensed electrician. Full installation instructions are available in the user's manual, found on the product detailed page: <https://www.exceldryer.com/product/thinair-hand-dryer/>. A5 is not declared as it identified as an optional life cycle stage according to the PCR.
- Modules B2 and B3 were considered to have zero impact in the EPD results. In the case of B2, the cleaning process involves blowing dust off the product and wiping down the cover as needed. These activities are expected to be inconsequential in the life cycle of the product system and therefore maintenance impacts are excluded. In the case of B3, Replacement is not relevant because the functional unit is shorter than the predicted reference service life (RSL), which is the cycles of operation over the estimated service life (ESL).
- Removal module (C1) is not declared and is optional reported elements according to the PCR.

In addition, the following activities were excluded:

- Human activities (e.g., employee travel to and from work)
- R&D (i.e., the laboratory and inputs related to the development of the technologies)
- Services (e.g., the use of purchased marketing, consultancy services and business travel).
- Construction of capital equipment and maintenance and operation of support equipment

LCA Discussion

All known mass and energy flows are included; no known flows are excluded. All upstream and downstream activities are included using a combination of primary and secondary data. While the majority of inventory data are sourced from primary resources, representative proxies are used to close gaps in the absence of primary data.

While conducting an LCA, if the life cycles of more than one product are connected, allocation of the process inputs should be avoided by using the system boundary expansion approach. according to the reference PCR requirements and ISO 14044:2006, mass should be used as the primary basis for co-product allocation. The allocations of relevance for calculation (appropriation of impacts across various products) shall be indicated, at least:

- Allocation in the use of recycled and/or secondary raw materials.



- Allocation of energy, ancillary and operating materials used for individual products in a factory.

No co-product allocation was necessary in the foreground of the study. Allocation in the Ecoinvent v3.8 was performed according to the cut-off method.

For allocation between product systems, this study uses the cut-off method or polluter pays approach for recycling. According to this approach, the first life of a material bears the environmental burdens of its production (e.g., raw material extraction and processing) and the second life (e.g., scrap input) bears the burdens of refurbishment (e.g., collection and refining of scrap). Burdens from waste treatment of recycling are therefore accounted for in the next, or downstream, product system.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1

per 100,000 instances of hand drying.

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

Impact Category	Unit	A1	A2	A3	A1A2A3	A4	B1	B2	B3	C2	C3	C4
GWP-total	kg CO2 eq	6.43e+0	3.02e-2	2.61e-1	6.72e+0	2.32e-1	1.88e+2	0	0	4.39e-3	1.89e-2	5.80e-2
AP	kg SO2 eq	3.61e-2	2.32e-4	3.64e-4	3.67e-2	1.70e-3	5.38e-1	0	0	2.71e-5	9.04e-5	1.48e-5
EP	kg N eq	2.85e-2	3.08e-5	1.32e-4	2.87e-2	3.18e-4	1.10e+0	0	0	5.26e-6	7.62e-5	2.95e-4
POCP	kg O3 eq	3.59e-1	5.85e-3	4.28e-3	3.69e-1	4.78e-2	5.23e+0	0	0	7.30e-4	1.07e-3	2.44e-4
ODP	kg CFC 11 eq	3.42e-7	5.99e-9	7.96e-9	3.56e-7	5.14e-8	1.25e-5	0	0	1.04e-9	8.04e-10	1.99e-10
ADP-fossil	MJ	7.91e+0	6.25e-2	5.54e-1	8.53e+0	4.60e-1	1.97e+2	0	0	9.29e-3	1.43e-2	2.56e-3

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. 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 100,000 instances of hand drying.

Indicator	Unit	A1	A2	A3	A1A2A3	A4	B1	B2	B3	C2	C3	C4
PERE	MJ	9.24e+0	4.47e-3	1.57e+0	1.08e+1	5.33e-2	3.51e+2	0	0	7.54e-4	3.14e-2	7.46e-4
PERM	MJ	2.75e-3	0	0	2.75e-3	0	0	0	0	0	0	0
PERT	MJ	9.24e+0	4.47e-3	1.57e+0	1.08e+1	5.33e-2	3.51e+2	0	0	7.54e-4	3.14e-2	7.46e-4
PENRE	MJ	7.87e+1	4.41e-1	3.64e+0	8.28e+1	3.34e+0	3.19e+3	0	0	6.59e-2	2.46e-1	2.16e-2
PENRM	MJ	6.64e+0	0	0	6.64e+0	0	0	0	0	0	0	0
PENRT	MJ	8.53e+1	4.41e-1	3.64e+0	8.94e+1	3.34e+0	3.19e+3	0	0	6.59e-2	2.46e-1	2.16e-2
SM	kg	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0
FW	m3	6.64e-2	1.94e-4	1.98e-3	6.86e-2	4.48e-4	1.17e+0	0	0	7.30e-6	1.42e-4	4.10e-5

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, NRPRRT 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.



Waste and Output Flow Indicators
per 100,000 instances of hand drying.

Indicator	Unit	A1	A2	A3	A1A2A3	A4	B1	B2	B3	C2	C3	C4
HWD	kg	0	0	0	0	0	0	0	0	0	0	0
NHWD	kg	0	0	2.24e-4	2.24e-4	0	0	0	0	0	0	4.23e-2
RWD	kg	0	0	0	0	0	0	0	0	0	0	0
RWD	kg	0	0	0	0	0	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0	8.51e-2
MER	kg	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ, LHV	0	0	0	0	0	0	0	0	0	0	0
EET	MJ, LHV	0	0	0	0	0	0	0	0	0	0	0

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.

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	27.9 l/100km
Vehicle Type:	Diesel Truck 16-32t
Transport Distance:	2600 km
Capacity Utilization:	80 %
Packaging Mass:	0.12 kg
Gross density of products transported:	2.8 kg/m3
Weight of products transported:	0.38 kg
Capacity utilization volume factor:	80

Reference Service Life

B1 Module

RSL:	730,000 Cycles
ESL:	10 Years

Declared Product Properties:

The results presented in this EPD are based on the average of the two cover options: ABS and stainless cover models (most representative in terms of sales). ThinAir® Hand Dryer has three voltage models: 120V (most common for North America market), 208V, and 230V (most common for international markets). These models are similar, except for the use stage, in that the different voltage results in different dry time and power demand. This EPD represents the 120V model.

End of Life

C1 - C4 Modules

Collection Process

Collected Separately:	0.38 kg
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Recovery

Landfill:	0.31 kg
Incineration:	0.08 kg

Disposal

Product or Material for Final Disposal:	0.38 kg
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Assumptions for scenario development:

Activities included in the End-of-life stage are the transportation of the hand dryer to the end-of-life facility, waste processing and disposal. It is assumed the hand dryer is sent to the end-of-life processing facility with an average distance of 50 km by truck. The percentages for the landfill, incineration, and recycling were sourced from the general US waste scenario as shown below:

Hand dryer:

Waste electric and electronic equipment, shredded;

Metal and other material:

80% landfilled, 20% Incinerated;

Cardboard, Molded pulp and Paper:

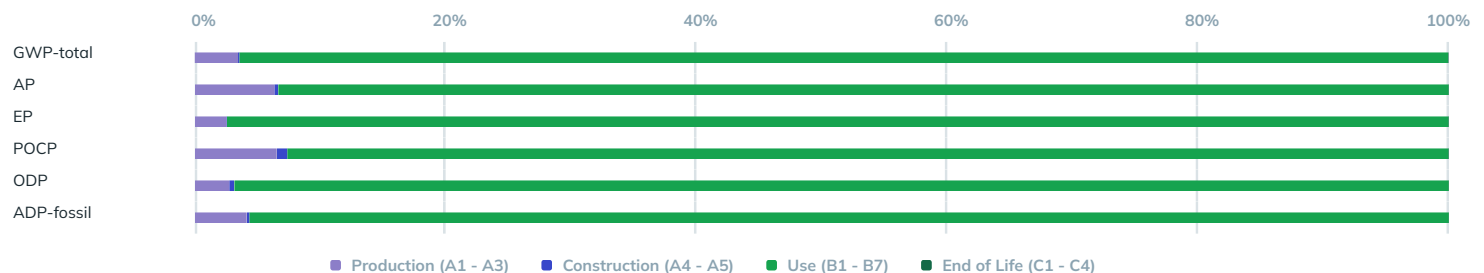
68.2% Recycled, 25.7% Landfilled, 6.1% Incinerated;

Plastics bag and foam:

80.9% Landfilled, 19.1% Incinerated.

Interpretation

Interpretation is the last phase of an LCA, although it is typically done iteratively to inform and refine the goal and scope. In this section, the results are examined based on the data quality and consistency. Key assumptions are reviewed to ensure that conclusions and recommendations are consistent with the goal and scope. It should be noted that LCA results are based on a relative approach and indicate potential environmental effects therefore do not predict actual impacts on category impacts. Based on the results and study assumptions, methods and data, the cradle-to-grave impacts for XLERATOR® Hand Dryer are dominated by B1, Use Phase (92.6% to 97.4%), followed by A1, Raw Materials (2.5% to 6.4%).



Additional Environmental Information

GREEN GLOBES

Green Globes is a green management tool for the building design and construction industry. More than 450 buildings across the United States have successfully achieved Green Globes certification. Energy efficiencies associated with the XLERATOR and XLERATOReco Hand Dryers may help facilities qualify for points.

ENVIRONMENTAL BUILDING NEWS – BUILDINGGREEN APPROVED

EBN is the leading newsletter on sustainable design and construction. Researchers independently tested XLERATOR and determined that it clearly outperforms conventional electric hand dryers in energy savings and dry time — which is why XLERATOR was the first hand dryer to be BuildingGreen Approved.

ARCHITECTURE 2030 FOR PRODUCTS

Issued by Architecture 2030 in response to the climate change crisis, the challenge seeks thought leaders of the global architecture and building community to adopt, design and manufacture green products that reduce their carbon footprint by 50% below the product average by the year 2030.

US GREEN BUILDING COUNCIL

Excel Dryer has been an organizational member of the USGBC since 2003. USGBC's mission is to transform the way buildings and communities are designed, built and operated. Our headquarters earned LEED-CI Gold certification in 2011.

Made in USA Certified®

Excel Dryer manufactures all of its XLERATOR® Hand Dryers in East Longmeadow, MA. They employ over 50 people and are the only hand dryer manufacturer to achieve Made in the USA Certification for their product line.

GREEN BUILDING INITIATIVE

The mission of the Green Building Initiative is to accelerate the adoption of building practices that result in healthier, more sustainable buildings by promoting credible and practical green building approaches. Our headquarters earned a Green Globes rating of 1 Globe in 2012.



SUSTAINABLE BUILDINGS INDUSTRY COUNCIL
SBIC is a national leader in defining the whole-building approach to design, which results in high performance buildings and favors sustainability as a prominent design objective.

GREEN RESTAURANT ASSOCIATION
The XLERATOR® is the only hand dryer endorsed by the GRA as the best environmental solution in the hand dryer category for the restaurant industry.

Dry Time and Energy Use
Tests were performed by SGS International on standard XLERATOR® Hand Dryer with 0.8" nozzle to 0.25g or less of residual moisture, pursuant to the UL Environment Global Product Category Rules (PCR) for Hand Dryers.

Product Safety Standards
The XLERATOR® Hand Dryer follows the required safety standards for the USA and Canada UL 499 Standard for Safety – Electric Heating Appliances and CE IEC 60335-2-23.

Environmental Activities and Certifications

Certification
Marks for North America
OSHA's Safety and Health Fundamentals Certificate
CE marking
ENVIRONMENTAL BUILDING NEWS – BUILDINGGREEN APPROVED
RoHS Compliant
Made in USA Certified®

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