

LCA & Material health results & interpretation

Ultramax® MS854114E, MS604114CEF & MS604114CUFG

Life cycle assessment

Material health

Disclosure program: Health Product Declaration®

A **Health Product Declaration (HPD)** is a disclosure of product contents and their relationship to particular potential human and environmental health impacts. HPDs are based on the HPD Open Standard, administered by the HPD Collaborative.

How it works

Material ingredients are screened against the HPD Priority Hazard Lists which have been selected based upon criteria developed for the GreenScreen® for Safer Chemicals method.

GreenScreen® is a method for comparative chemical hazard assessment used for identifying chemicals of high concern and safer alternatives, administered by Clean Production Action.

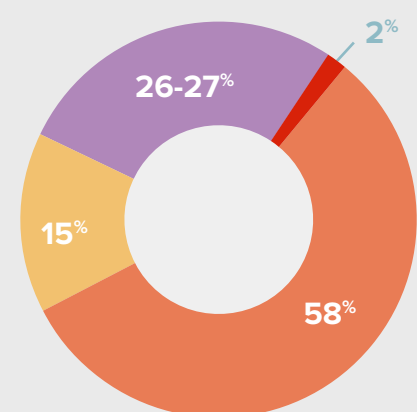
Assessment scope and results

Inventory threshold: 100 ppm

Based on the selected content inventory threshold:

Characterized Screened Identified

TOTAL INTENTIONAL INGREDIENTS



GreenScreen® List Translator Scores

- List Translator Likely Benchmark 1 ?
- List Translator Possible Benchmark 1 ?
- List Translator Benchmark Unknown ?
- Unknown ?

[Learn about the GreenScreen® List Translator.](#)

VOC content in liquid/wet applied products ?

N/A

What are the greatest health concerns

What's in the product and why

- Discussion of what/why product qualifies for any green ratings or eco-labels
- Discussion of material choices, comment on:
 - Functional vs. environmental performance, industry standards and/or requirements
 - Why ingredients rated Benchmark/List Translator 1 are used
 - Have alternatives been considered or implemented recently? If yes, were there trade-offs between functional and environmental performance?
 - Impacts at material level and product level

Product handling and exposure concerns

- What is the potential exposure impact on human health?
 - Ingredients with the greatest percentage by weight
 - Ingredients rated List Translator 1
 - Should the user be concerned about interacting with the product?
 - Relevance to location in the building where it is used; frequency of use

How we're making it healthier

Programs we've implemented or are investigating; goals and plans for improvement

This section demonstrates the manufacturer's understanding of the products' impacts and the steps being taken to improve. These statements can be repeated on page 3 of a Transparency Report, where the manufacturer can show and tell what they're doing in any stage of the product's lifecycle based on the LCA and/or HPD information.

[See how we make it greener](#)

References

Health Product Declaration®

TOTO USA, Health Product Declaration for the Ultramax 1G



Health Product Declaration® Open Standard

The standard provides guidance to accurately disclose the material contents of a building product using a standard, consistent, and transparent format.

Rating systems

LEED v4, Building product disclosure and optimization Material ingredients

Credit values:

- | | |
|---|-----------|
| <input checked="" type="checkbox"/> Option 1. Material ingredient reporting | 1 product |
| <input type="checkbox"/> Option 2. Material ingredient optimization | 1 product |



SM Transparency Report™ + Material Health Overview

VERIFICATION

LCA

3rd party verified

Transparency Report

Certified

Material evaluation

3rd party verified

Validity: 10/15/14 – 10/15/17
TOT – 10152014 – 004

The LCA and Report are independently verified and certified to the SM Transparency Report Framework and ISO 14025.

NSF International
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www.nsf.org
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The material health evaluation is independently verified and done in accordance with the Health Product Declaration® Open Standard.

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Material health

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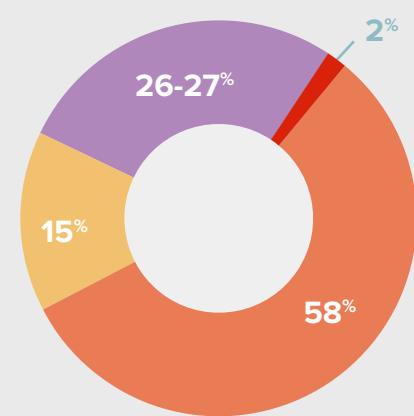
Assessment scope and results

Inventory threshold: 100 ppm

Based on the selected content inventory threshold:

Characterized Screened Identified

TOTAL INTENTIONAL INGREDIENTS



GreenScreen® List Translator Scores

- List Translator Likely Benchmark 1 ?
- List Translator Possible Benchmark 1 ?
- List Translator Benchmark Unknown ?
- Unknown ?

[Learn about the GreenScreen® List Translator.](#)

VOC content in liquid/wet applied products ?

N/A

What are the greatest health concerns

What's in the product and why

- Discussion of what/why product qualifies for any green ratings or eco-labels
- Discussion of material choices, comment on:
 - Functional vs. environmental performance, industry standards and/or requirements
 - Why ingredients rated Benchmark/List Translator 1 are used
 - Have alternatives been considered or implemented recently? If yes, were there trade-offs between functional and environmental performance?
 - Impacts at material level and product level

Product handling and exposure concerns

- What is the potential exposure impact on human health?
 - Ingredients with the greatest percentage by weight
 - Ingredients rated List Translator 1
 - Should the user be concerned about interacting with the product?
 - Relevance to location in the building where it is used; frequency of use

How we're making it healthier

Programs we've implemented or are investigating; goals and plans for improvement

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[See how we make it greener](#)

References

Health Product Declaration®

TOTO USA, Health Product Declaration for the Ultramax 1G



Health Product Declaration® Open Standard

The standard provides guidance to accurately disclose the material contents of a building product using a standard, consistent, and transparent format.

Rating systems

LEED v4, Building product disclosure and optimization Material ingredients

Credit values:

- | | |
|---|-----------|
| <input checked="" type="checkbox"/> Option 1. Material ingredient reporting | 1 product |
| <input type="checkbox"/> Option 2. Material ingredient optimization | 1 product |



SM Transparency Report™ + Material Health Overview

VERIFICATION

LCA

3rd party verified

Transparency Report

Certified

Material evaluation

3rd party verified

Validity: 10/15/14 – 10/15/17
TOT – 10152014 – 004

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The material health evaluation is independently verified and done in accordance with the Health Product Declaration® Open Standard.

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Life cycle assessment

Material health

Manufacturer Inventory

A **Manufacturer Inventory (MI)** is a disclosure of all ingredients identified by name and Chemical Abstract Service Registration Number (CAS #) used in the manufacture of a product.

How it works

When all ingredient names and CAS #s are disclosed, no screening is required. When there are proprietary ingredients, the name and CAS#s can be withheld and ingredients are screened against the GreenScreen® List Translator v1.2. The ingredient role, amount and GreenScreen List Translator scores are then disclosed.

GreenScreen® is a method for comparative chemical hazard assessment, used for identifying chemicals of high concern and safer alternatives. GreenScreen® List Translator is an abbreviated form that includes only those hazard lists specified in the full method. Both are administered by Clean Production Action.

Assessment scope and results

Inventory threshold: 1000 ppm

GreenScreen® List Translator Scores

Reporting GreenScreen® List Translator Scores is optional, required only for proprietary materials. Hazards must be disclosed for proprietary materials scored as List Translator 1.

- List Translator Likely Benchmark 1 ?
- List Translator Possible Benchmark 1 ?
- List Translator Benchmark Unknown ?
- Not screened ?

[Learn about the GreenScreen® List Translator.](#)

GS	INGREDIENT	WEIGHT	ROLE	CAS #	HAZARD
—	PROPRIETARY				
●	Proprietary additives	24.9%	Vinyl Component		
●	Proprietary Ingredient	1.8%	Vinyl Component		Respiratory
●	Proprietary Ingredient	1.3%	Alum. component		
—	DISCLOSED				
●	Aluminum	56.6%	Alum. component	7429-90-5	
●	Polyvinyl Chloride	10.7%	Vinyl Component	9002-86-2	
●	Zinc	1.6%	Alum. component	7440-66-6	
●	Pigment Ingredient	1-2%	Colorant for vinyl	6589-86-6	
●	Silicone	1.1%	Alum. component	7440-21-3	
●	Manganese	0.9%	Alum. component	7439-96-5	
●	Copper	0.8%	Alum. component	7440-50-8	
●	Iron	0.6%	Alum. component	7439-89-6	
●	Chromium	0.3%	Alum. component	7440-47-3	
●	Chrome Antimony Titanate Buff Ruttle	0.2%	Colorant for vinyl	68186-90-3	
●	Carbon Black	0.2%	Colorant for vinyl	1333-86-4	
●	Chromium (III) Compound	0.2%	Colorant for vinyl	1308-38-9	
●	Copper Dusts	0.2%	Colorant for vinyl	7440-50-8	

References

Guidance to use GreenScreen® for LEED v4

The document provides guidance to create LEED v4 compliant Manufacturer Inventories using GreenScreen®.



What are the greatest health concerns

What's in the product and why

- Discussion of what/why product qualifies for any green ratings or eco-labels
- Discussion of material choices, comment on:
 - Functional vs. environmental performance, industry standards and/or requirements
 - Why ingredients rated Benchmark/List Translator 1 are used
 - Have alternatives been considered or implemented recently? If yes, were there trade-offs between functional and environmental performance?
 - Impacts at material level and product level

Product handling and exposure concerns

- What is the potential exposure impact on human health?
 - Ingredients with the greatest percentage by weight
 - Ingredients rated List Translator 1
 - Should the user be concerned about interacting with the product?
 - Relevance to location in the building where it is used; frequency of use

How we're making it healthier

Programs we've implemented or are investigating; goals and plans for improvement

This section demonstrates the manufacturer's understanding of the products' impacts and the steps being taken to improve. These statements can foreshadow content found on page 3, where the manufacturer can show and tell what they're doing in any stage of the product's lifecycle based on the LCA and/or material health evaluation information.

[See how we make it greener](#)

Rating systems

LEED v4, Building product disclosure and optimization Material ingredients

Credit values:

- Option 1. Material ingredient reporting 1 product
- Option 2. Material ingredient optimization 1 product



SM Transparency Report™ + Material Health Overview

VERIFICATION LCA

3rd party verified

Transparency Report

Certified

Material evaluation

3rd party verified

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The material health evaluation is independently verified and done in accordance with the Guidance for Using GreenScreen for Safer Chemicals in LEED v4.

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Life cycle assessment

Material health

Evaluation method: C2C Material Health Certificate

A **Material Health Certificate (MHC)** uses the acclaimed material health assessment methodology of the **Cradle to Cradle Certified™ Product Standard** to provide manufacturers with a trusted way to communicate their work towards chemically optimized products. A third-party certification, the assessments are conducted by chemists and toxicologist applying scientific methodology to determine hazard and exposure against 24 human and environmental endpoints.

How it works

Materials present at ≥100 ppm are subject to review. Within each of those materials, all chemicals present at ≥100 ppm are identified and assessed against 24 human and environmental endpoints using the Cradle to Cradle Material Health Methodology, including hazard and exposure considerations in the manufacturer, use and reuse phases.

Each end point is given an A/B, C, X, or Grey rating. The goal is to eliminate all X (highly problematic) substances. The level of achievement indicates the level of optimization. All certified products are free of the C2C banned list including PVC and other substances of very high concern. To ensure thorough assessments, proprietary ingredient disclosure is done under NDA.

Assessment scope and results

Inventory threshold: 100 ppm

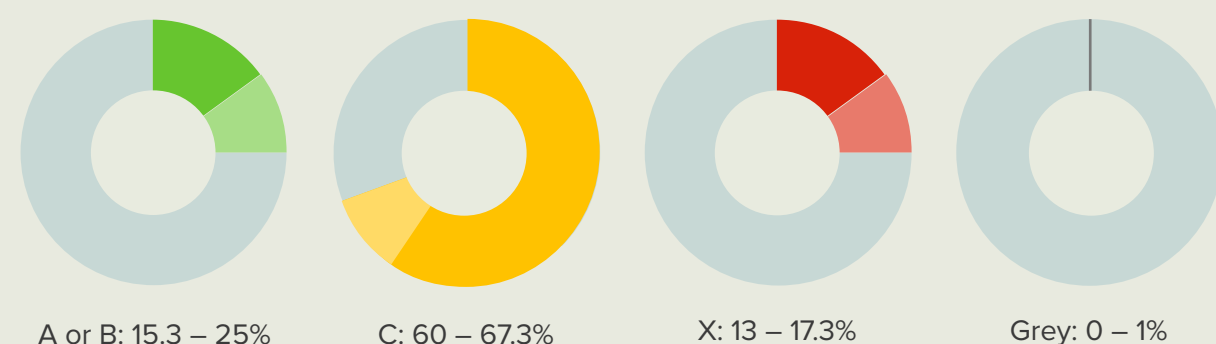
Percentage of materials assessed by weight: 99-100%



Product optimization summary

- ✓ Cradle to Cradle Certified™ Banned List compliant
- ✓ Material Health optimization strategy developed
- ✓ No exposure from carcinogens, mutagens, or reproductive toxicants

ASSESSMENT RATING BY WEIGHT



Cradle to Cradle Certified assessment ratings

- A or B: Optimal ?
- C: Moderately problematic, but acceptable for use ?
- X: Highly problematic; targeted for phase out ?
- Grey: Considered unassessed due to unknown identity or lack of toxicity info ?

How this rating was achieved

Certification level

- What does it mean to be gold, silver or bronze.
- Use this section to briefly explain what makes this product a healthy product and how the company achieved so. You may provide more details about this in the 'Our Optimization Strategy' section.

What's in the product and why

- Discussion of what other green ratings or eco-labels this product has earned
- Discussion of material choices, comment on:
 - Functional vs. environmental performance, industry standards and/or requirements
 - Why x-assessed ingredients are used
 - Have alternatives been considered or implemented recently? If yes, were there trade-offs between functional and environmental performance?

Assessed scenarios

- Discussion of use and end-of-use scenarios considered in the exposure portion of the Material Health assessment.
 - What's been done in the design and manufacture of the product in consideration of the potential human health impacts in the use stage?
 - Should the user be concerned about interacting with the product.

Our Optimization Strategy

Discussion of how Cradle to Cradle helps manufacturers to fully optimize material health.

[See how we make it greener](#)

References

Material Health Certificate

TOTO USA, Material Health Certificate for Ultramax II, #MHC2315
Cradle to Cradle Certified™ – Silver

Material Health Certificate Standard

The standard provides complete details of the chemical assessment methodology and the requirements that must be met to achieve a Material Health Certificate rating. They are identical to those at each level of the Material Health section of the **Cradle to Cradle Certified™ Product Standard**, including the Continuous Improvement/Optimization requirement.

Rating systems

LEED v4, Building product disclosure and optimization Material ingredients

Credit values:

- | | |
|--|-----------|
| ✓ Option 1. Material ingredient reporting | 1 product |
| ✓ Option 2. Material ingredient optimization | 1 product |



SM Transparency Report™ + Material Health Overview

VERIFICATION

- | VERIFICATION | LCA |
|--------------------|-----|
| 3rd party verified | ✓ |
| Certified | ✓ |
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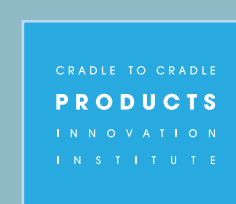
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The material health evaluation is independently verified and done in accordance with the Material Health Certificate Standard.

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Life cycle assessment

Material health

Evaluation program: Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

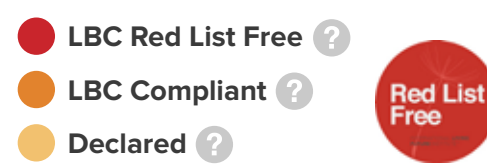
Material ingredients are inventoried and screened against the [Living Building Challenge](#) (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

Assessment scope and results

Content inventory: All ingredients identified by name and CAS #
Inventory threshold: 100 ppm

Declare level:

The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.



Ultramax II



Ultramax II 1G



EcoUltramax



Click on each label to see the full declaration.

How this rating was achieved

Declare level

- What does it mean to be red list free, LBC compliant or Declared
- When red list free, use this section to briefly explain what makes this product a healthy product and how the company achieved that

What's in the product and why

- Discussion of what other green ratings or eco-labels this product has earned
- Discussion of sourcing and material choices; focus on the following:
 - Sourcing, transportation
 - Why red listed materials are used
 - Have alternatives been considered or implemented recently? If yes, were there trade-offs between functional and environmental performance?

Where it goes at the end of its life

- Discussion of end-of-life scenarios, options and programs implemented

How we're making it healthier

Programs we've implemented or are investigating; goals and plans for improvement

This section demonstrates the manufacturer's understanding of the products' impacts and the steps being taken to improve. (These statements can be repeated on page 3 of a Transparency Report, where the manufacturer can show and tell what they're doing in any stage of the product's lifecycle based on the LCA information.)

[See how we make it greener](#)

References

Declare

- TOTO USA, Declare label for Eco Ultramax – MS854114E
- TOTO USA, Declare label for Ultramax II – MS604114CEFG
- TOTO USA, Declare label for Ultramax II 1G® – MS604114CUFG

Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

Rating systems

LEED v4, Building product disclosure and optimization Material ingredients

Credit values:

- Option 1. Material ingredient reporting 1 product
- Option 2. Material ingredient optimization 1 product

Living Building Challenge Petals summary matrix



Materials petal:

- Imperative 10. Red List
- Imperative 12. Responsible Industry
- Imperative 14. Living Economy Sourcing

SM Transparency Report™ + Material Health Overview

VERIFICATION

3rd party verified



Transparency Report

Certified



Material evaluation

Self-declared



Validity: 10/15/14 – 10/15/17
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Declare is a nutrition label for the building industry based on product ingredient inventory, sourcing and end of life options.

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