

GreenScreen® for Safer Chemicals – A Method to LEED v4 Compliance



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Meet the Presenters

Lauren Heine, Ph.D.
Co-Director Clean Production Action
Director GreenScreen Program



Annie Bevan CSM, LEED Green Associate
Certification and Operations Manager
GreenCircle Certified, LLC



Objectives

- How GreenScreen can help manufacturers identify and develop products that can contribute to earning LEED v4 Material Ingredient Disclosure and Optimization credits through the debut of their "How To" document
- How the partnership with GreenScreen and GreenCircle will simplify the process for LEED project teams, architects, designers, and manufacturers
- How to join the newly formed consensus group that will test and refine the "How To" document and the LEED v4 compliance and the third-party certification processes



What is GreenScreen?

- A method for comparative chemical hazard assessment (CHA)
- Assesses the inherent hazards of chemicals and their potential effects on human health and the environment
- Used by businesses like Hewlett-Packard, governments like Washington State, and NGOs such as Healthy Building Network in their Pharos Project.



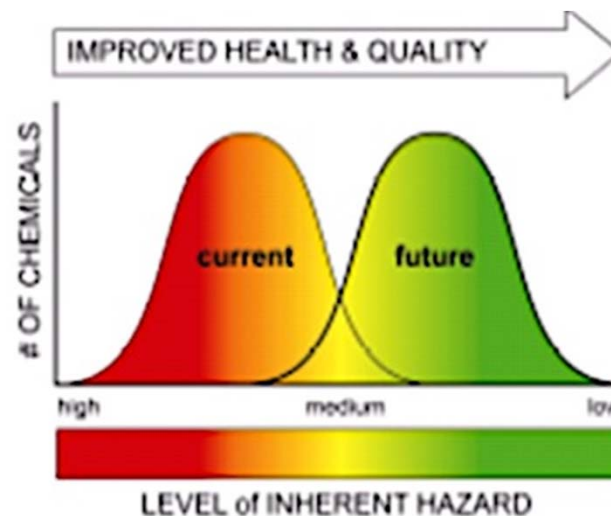
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GreenScreen for Safer Chemicals

A method for Chemical Hazard Assessment (CHA) developed by Clean Production Action

- Fully transparent
- Scientifically based
- Simplifies complex information
- Freely downloadable*
- Becoming a global standard
- Applies to chemicals, materials and products



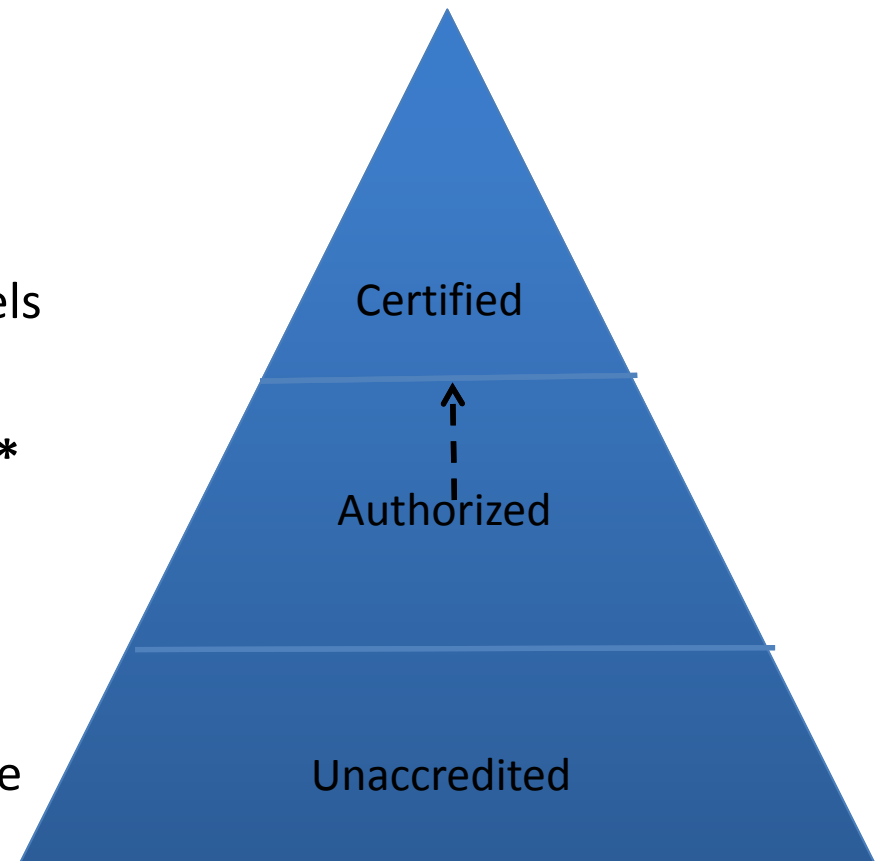
*All supporting resources at: www.greenscreenchemicals.org

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Types of GS Assessors and Assessments

- **Certified:** These are GS assessments performed by **Licensed GS Profilers** (Toxicology firms).
 - Highest quality; may be used to meet requirements of standards and ecolabels
- **Authorized:** These are GS assessments performed by **Authorized GS Practitioners*** (Individuals)
 - May be upgraded to Certified GS assessments with review by Profilers
- **Unaccredited:** GS method is freely available for use by **Anyone** for internal purposes



GS Practitioners are accredited for successfully completing the GS Practitioner Program; a virtual, instructor-led course that includes Advanced Topics and a Practicum to complete two high quality GS assessments. Next course begins May 15 2015.

See: <http://www.greenscreenchemicals.org/training/certified-practitioner-program>

Who Uses GreenScreen?



MATERIAL IQ

GC³ Green Chemistry & Commerce Council



INTERSTATE CHEMICALS
IC₂
CLEARINGHOUSE

 Health Product Declaration Collaborative™



How is GreenScreen Used?

- Regulations
- Corporate Policy, Reporting and Management
- **External Standards & Technology**
 - USGBC LEED v4
- Material Selection - Design & Re-Design
- Procurement
- Process Chemicals
- Occupational Health & Safety
- Training & Education
- Research



GreenScreen (GS) Tools

GS List Translator (GS LT)

- High level review based on hazard lists only
- Doesn't require toxicology expertise
- Generate LT Scores (LT-1, LT-P1, LT-UNK)
- Automated tools
 - Pharos
 - HPD Builder
 - GreenWERCS with GS List Translator

Full GreenScreen

- Comprehensive review
- Can identify safer chemicals
- Generate Benchmark Scores (1,2,3,4 or U)
- Requires technical expertise such as Licensed Profilers (toxicologists)



Full GreenScreen Assessments Always Trump GS List Translator Results



LEED and GreenScreen

- LEED BD+C: New Construction | v4 - LEED v4; Building product disclosure and optimization - material ingredients
- LEED ID+C: Commercial Interiors | v4 - LEED v4; Building product disclosure and optimization - material ingredients
- LEED BD+C: New Construction | v3 – LEED 2009; MRpc76 – Material ingredient reporting



Two Paths to LEED v4 Credit

Material Ingredient Credits

Nutrition Facts
Serving Size: 1 oz (28g)
Servings Per Container: 12

	Amount Per Serving	% Daily Value*
Total Fat	10g	20%
Saturated Fat	5g	10%
Trans Fat	0g	0%
Cholesterol	10mg	20%
Sodium	45mg	9%
Total Carbohydrate	10g	20%
Dietary Fiber	4g	8%
Sugars	4g	8%
Sugars (Total)	4g	8%
Protein	1g	2%
Vitamin A		2%
Vitamin C		2%
Calcium		2%
Iron		2%

*Percent Daily Values are based on a diet of other people's secrets.

Ingredients: Water, Flour, enriched flour, whole wheat flour, sugar, salt, yeast, soybean oil, and natural flavors. May contain wheat, soy, and/or milk.



The LEED v4 logo features a green horizontal bar with the text "LEED v4" in white. To the right of the bar is a circular green icon with a white recycling symbol. The background of the slide header includes various colorful icons: a red and white bowl, a blue water drop, a grey bus, and an orange flame.

LEED v4

Material Ingredient Reporting

MR c4: Building Product Disclosure and Optimization – Material Ingredient Reporting

- Option 1. Material Ingredient Reporting (Disclosure)
 - Product ingredients fully inventoried to 1000 ppm.
 - Goal is to drive greater transparency in reporting and does not preclude the presence of Benchmark 1 chemicals in a product



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Option 1. Material Ingredient Reporting (1 point)

- Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm):
- Options include:
 - 1. Manufacturer Inventory**
 - **Publicly disclose non-proprietary ingredients;**
 - **Publicly disclose role, amount and GreenScreen Benchmarks for proprietary ingredients**
 2. Health Product Declaration
 3. Cradle to Cradle- (v2 Basic, v3 Bronze)



Material Ingredient Reporting (1 Point)

	Ingredient Disclosure to 0.1% (1000ppm)	Hazard Disclosure using GS List Translator
HPD		
For fully disclosed ingredients	YES	YES
For trade secret ingredients	NO	YES
Manufacturer Inventory		
For fully disclosed ingredients	YES	NO
For trade secret ingredients	NO	YES



The LEED v4 logo features a green horizontal bar with the text "LEED v4" in white. To the right of the bar is a circular icon with a white recycling symbol on a green background. The background of the slide is decorated with various colorful icons representing sustainability, such as a water drop, a leaf, and a recycling symbol.

LEED v4

Material Ingredient Optimization

MR c4: Building Product Disclosure and Optimization – Material Ingredient Optimization

- Option 2. Material Ingredient Optimization

- This LEED credit is for products with chemical ingredients that have been fully inventoried to 100 ppm.
- For the Optimization credit, the goal is to drive the use of building products that contain inherently safer chemicals.
- Two Levels
 - 100% value
 - No GS Benchmark 1 chemicals based on GS List Translator only
 - C2C certification (v2 Gold or v3 Silver)
 - 150% value
 - No GS Benchmark 1 chemicals based on full GreenScreen method
 - C2C certification (v2 Platinum or v3 Gold or Platinum)



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Option 2: Material Ingredient Optimization (1 Point)

Ingredients assessed to 0.01% (100ppm)

Two ways to demonstrate the absence of Benchmark 1 hazards in products

1. Products valued at **100%** of cost

- No GreenScreen Benchmark 1 Chemicals
 - Based on GreenScreen List Translator only

2. Products valued at **150%** of cost

- No GreenScreen Benchmark 1 Chemicals
 - Based on full GreenScreen assessment
 - Licensed GreenScreen Profilers can serve as a valued third parties by performing either GS List Translator screens or full GreenScreen assessments



Licensed GreenScreen Profilers

Profilers support manufacturers with Certified GreenScreen assessments and LEED submittal documentation

Margaret H. Whittaker, Ph.D., M.P.H., E.R.T., D.A.B.T., UK/EU

ToxServices LLC

www.toxservices.com



Nancy Linde, Managing Toxicologist

NSF International

www.nsf.org



Patricia Beattie, PhD, DABT

SciVera LLC

www.scivera.com/services.php



Challenges

- GreenScreen assessments can be resource intensive and/or not readily available
- How do we help people comply?



Solutions: GreenScreen Store Provides Free or Low Cost Assessments

The screenshot displays the GreenScreen Store website interface. At the top, there are social media icons (Facebook, Twitter, LinkedIn, Search) and navigation links for CPA, BizNGO, GreenScreen, and DONATE. Below this is a header with the GreenScreen logo and a menu including Method, Professionals, Training, In Practice, News, Resources, Get Involved, About, and Store. A green navigation bar shows the current path: / GreenScreen® Store / Chemicals / Plasticizers.

The main content area is titled "Plasticizers" and features three product cards:

- 100-44-7: Benzyl Chloride**
CAS#: 100-44-7
Chemical Name: Benzyl Chloride
Chemical Synonyms: a-chlorotoluene; chloromethylbenzene; tolyl chloride (ChemIDplus 2014)
Primary Applications: Hydraulic Fracturing, Plasticizers, Processing Aids and Additives
Description: Hydraulic fracturing fluid additive; Benzyl chloride is a clear, colorless liquid that is used primarily as a chemical intermediate in the manufacture of dyes, plasticizers, lubricants, gasoline additives, pharmaceuticals, tanning agents, and quaternary ammonium compounds. Also used as an irritant gas in chemical warfare (HSDB 2005) and in the manufacture of photographic developer (HSDB 2005)
- 103-24-2: Bis(2-ethylhexyl)azelate**
CAS#: 103-24-2
Chemical Name: Bis(2-ethylhexyl)azelate
Chemical Synonyms: DOZ
Primary Applications: Plasticizers
Description: Bis(2-ethylhexyl) azelate (DOZ) is a plasticizer for cellulose, polystyrene, and vinyl plastics, and is especially used as a low-temperature plasticizer (HSDB 2002).
- 104-76-7: 2-Ethyl-1-Hexanol**
CAS#: 104-76-7
Chemical Name: 2-Ethyl-1-Hexanol
Primary Applications: Hydraulic Fracturing, Plasticizers, Solvents
Description: 2-Ethyl-1-hexanol is an alcohol that is a colorless liquid at room temperature with a slightly floral odor. 2-Ethyl-1-hexanol is used as a solvent for dyes, oils and resins as well as a plasticizer for PVC resins and a wetting agent. It can be manufactured by the

On the right side, a sidebar titled "Find by Chemical Applications" lists various categories with expandable arrows:

- > View All
- > Adhesives (4)
- > Biocides or Fungicides (9)
- > Chelating Agents (1)
- > Colorants (1)
- > Flame Retardants (18)
- > Hydraulic Fracturing (38)
- > Lubricants (3)
- > Monomers (4)
- > Plasticizers (9)
- > Polymers (1)
- > Processing Aids and Additives (22)
- > Solvents (15)

Below this is the "GreenScreen® Store" section with a shopping cart icon (View Cart (0) \$0.00), a Register button, and a "Search GreenScreen® Chemical Assessments" section with a search input field and a green SEARCH button.

At the bottom of the sidebar is a "Join GreenScreen's Mailing List" section with the text "Be informed about method updates, program developments and training opportunities." and a form with an "email address" input field and a SUBSCRIBE button.

Search by chemical name, CAS number or application



GreenScreen and GreenCircle Partnership

- GreenScreen/Clean Production Action and GreenCircle Partnership
- Simplify and streamline this credit for LEED project teams, architects, and designers
- Certify
 - Products with Manufacturer Inventories
 - Products that do not contain GreenScreen Benchmark 1 chemicals based on:
 - GS List Translator (100%) or
 - Full GreenScreen (150%)



Solutions: LEED-Compliant Products

Profilers support manufacturers with LEED submittal documentation

Margaret H. Whittaker, Ph.D., M.P.H., E.R.T., D.A.B.T., UK/EU

ToxServices LLC

www.toxservices.com



Nancy Linde, Managing Toxicologist

NSF International

www.nsf.org



Patricia Beattie, PhD, DABT

SciVera LLC

www.scivera.com/services.php



Third Party Certification provides easy to recognize mark.

Annie Bevan, CSM, LEED Green Associate,

Certification Operations Manager

GreenCircle Certified

www.greencirclecertified.com

***First approved
Certification Partner!
LEED v4 Compliant
products***



How To

- Step 1: Product Inventory
- Step 2: Chemical Hazard Assessment
- Step 3: LEED Submittal Documentation Requirements (Reporting)
- Step 4 (Optional): LEED-Compliant Certification



LEED CREDIT OPTION 1 – Manufacturer Inventory

- Conduct early research to help the project team identify products that contribute to multiple credits and options.
- Create a rough list of products/materials/ingredients/chemicals to get an idea of the scope of work.

Step 1: Product Inventory

Can you identify CASRN's at or above **1000 ppm** reporting threshold, either directly from your suppliers or using a Consultant?

YES

NO

Does NOT Meet
Option 1

Step 2: Chemical Hazard Assessment

Are there any proprietary ingredients?

YES

Can you generate hazard scores using GS List Translator or Full GreenScreen for proprietary ingredients?

YES

NO

Does NOT Meet
Option 1

Step 3: Reporting

Publically disclose non-proprietary ingredients (i.e., Chemical Name and CASRN)

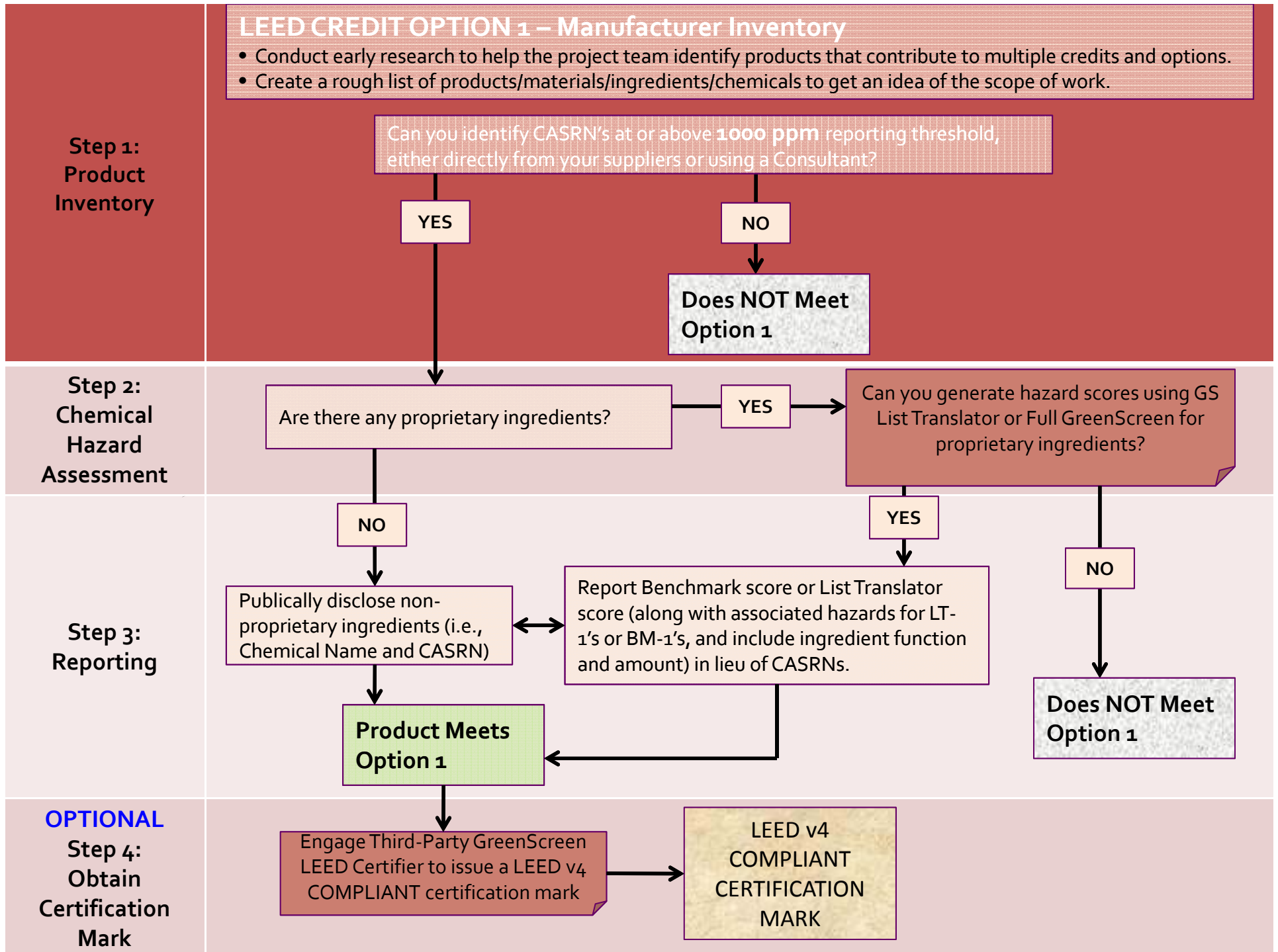
Report Benchmark score or List Translator score (along with associated hazards for LT-1's or BM-1's, and include ingredient function and amount) in lieu of CASRN's.

Product Meets
Option 1

OPTIONAL Step 4: Obtain Certification Mark

Engage Third-Party GreenScreen LEED Certifier to issue a LEED v4 COMPLIANT certification mark

LEED v4
COMPLIANT
CERTIFICATION
MARK



LEED CREDIT OPTION 2 – Optimization Using GS List Translator (Valued at 100%)

- Conduct early research to help the project team identify products that contribute to multiple credits and options.
- Create a rough list of products/materials/ingredients/chemicals to get an idea of the scope of work.

Step 1:
Product
Inventory

Can you identify CASRN's at or above **100 ppm** reporting threshold, either directly from your suppliers or using a Consultant?

NO

**DOES NOT
Meets
Option 2**

YES

Step 2:
Chemical
Hazard
Assessment

Assess all CASRN's using GreenScreen List Translator*

Are there LT-1's*

YES

**DOES NOT
Meets
Option 2**

NO

Are there LT-P1's*?

YES

Hire a 3rd party
Licensed Profiler
to resolve LT-P1
scores

LT-1's or BM-1's

NO

Are all ingredients LT-UNK's?

YES

No LT-1's or BM-1's

**Product Meets Option 2
(100%)**

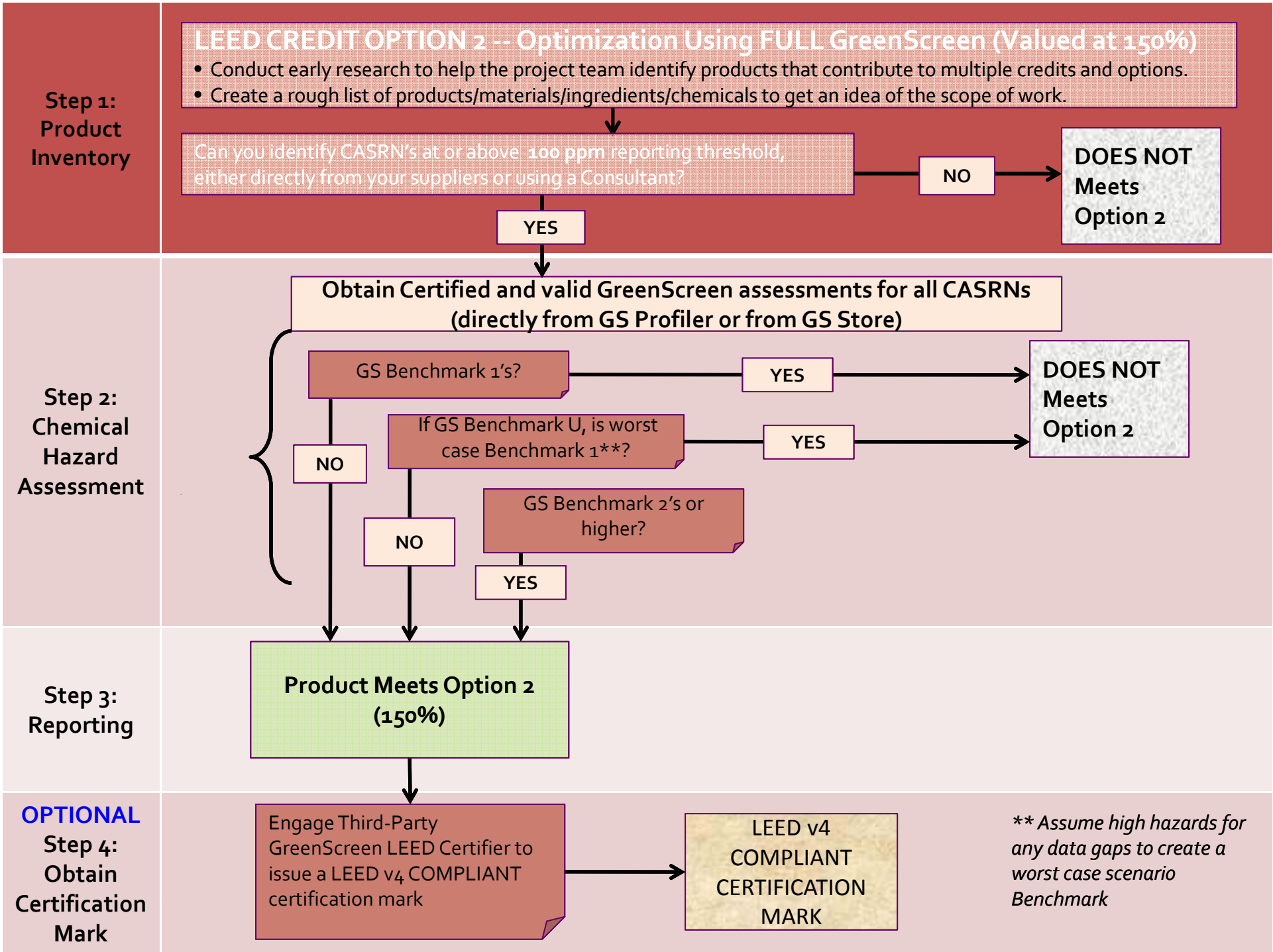
Step 3:
Reporting

OPTIONAL
Step 4:
Obtain
Certification
Mark

Engage Third-Party
GreenScreen LEED Certifier to
issue a LEED v4 COMPLIANT
certification mark

LEED v4
COMPLIANT
CERTIFICATION
MARK

** A Certified and valid full
GreenScreen always trumps
GS List Translator results*



LEED v4 Compliance Third Party Certification



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Sample Client Base



MERCK

ASSA ABLOY

Aleris

**SAINT-GOBAIN**

**MASTIC**
HOME EXTERIORS
by PLY GEM



COVANTA
ENERGY

PLY GEM

**SUPERIOR**
ESSEX



**AARON**
INDUSTRIES CORP.
Recycled Plastic Compounds

decoustics
SAINT-GOBAIN

CertainTeed
SAINT-GOBAIN

**RETURN**
POLYMERS INC
POLYMER PROCESS & RECOVERY

deceuninck

GAF

WYNDHAM
WORLDWIDE

STANLEY[®]

Security Solutions

**Heritage**Plastics

**EOS**
SURFACES

**REGUPOL**AMERICA

Why Third-Party Certification?

- Confusion in marketplace
- Lack of accuracy
- Ensures completion to proper thresholds
- Ensures compliance to LEED v4 Material Ingredient Credit Options
 - Manufacturer's Inventory
 - Optimization x2



Certification Procedure

- Step 1: Contact approved LEED v4 GreenScreen Certifier
- Step 2: Data Collection and Desk Audit
 - Initial Data Collection Phase (includes call(s) with manufacturer contact)
 - Desk Top Analysis to verify manufacturer's claims
 - Conclusion call to report results of verification
 - A final report will be submitted to the manufacturer documenting the audit process



Documentation Needed for Certification

- Fully Completed Product Inventory
- Purchase Orders (sampling) for all ingredients within your product
- All MSDS or SDS sheets for all ingredients within your product
- A Technical Sheet or MSDS/SDS for your product (as applicable)
- A copy of either your Manufacturer's Inventory or Statement of Disclosure (pending the option)
- Copies of valid and certified GreenScreen Assessment Summary Reports (if applicable)



Certification Procedure (Cont.)


- Step 3: LEED v4 Compliant marks
 - Marks applied directly to Manufacturer's Inventory or Statement of Disclosure documentation for submittal in LEED v4 projects.
 - Online Product Database: Manufacturer documentation can be uploaded and stored on the Online Product database for download and reference by architects, designers, or other LEED professionals.




Certification Marks



**LEED v4 Compliant
MR Credit
Material Ingredients
Option 1 Manufacturer Inventory**



**LEED v4 Compliant
MR Credit
Material Ingredients
Option 2 Optimization
GS List Translator - 100% by cost**



**LEED v4 Compliant
MR Credit
Material Ingredients
Option 2 Optimization
GreenScreen Benchmark - 150% by cost**



Sample Manufacturer's Inventory Report

Company Name Here

"Company slogan here"

123 E. My Address Avenue • Chicago, IL 60614-0240

Phone: (312) 555-5555 • Fax: (312) 555-5555 • <http://www.companywebsite.com>



LEED v4 Material Ingredient Credit, Reporting Option: Manufacturer Inventory

Product Name: Fancy Fence™

Reporting Threshold: 1000ppm

Ingredients	CAS #	Percent of Final Product	Constituents of Ingredients	Percent of Constituents	Function of Constituent	List Translator or Benchmark score	Hazard
PET	25038-59-9	89.27%					
Titanium Dioxide	1344-28-1	1.60%					
Calcium Carbonate	1317-65-3	7.56%					
Antioxidant	Proprietary MIXTURE	0.68%	CAS 1	95%	Inhibits oxidation	LT-1	High-Carcinogen
			CAS 2	5%		Not required - Below 1000 ppm in final product	
Impact modifier	Proprietary MIXTURE	0.89%	CAS 3	85%	Improves impact resistance	LT-UNK	
			CAS 4	10%		Not required - Below 1000 ppm in final product	
			CAS 5	5%		Not required - Below 1000 ppm in final product	

Sincerely,

John Smith, VP of Operations



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Sample Report Optimization (100%)



Company Name Here

"Company slogan here"

123 E. My Address Avenue • Chicago, IL 60614-0240

Phone: (312) 555-5555 • Fax: (312) 555-5555 • <http://www.companywebsite.com>

LEED v4 Material Ingredient Credit, Optimization Option: Statement of Disclosure

Product Name: Fancy Fence™

Reporting Threshold: 100ppm

To Whom It May Concern,

In Company Name's commitment to holistic sustainability, we take pride in not only focusing on reducing the life cycle environmental impacts of our products but also in reducing our products' impact on human health. This document is to be used as a Statement of Disclosure verifying that there are no GreenScreen LT-1 chemicals (to the 100ppm level) within the Fancy Fence™ product. Company Name continues to excel in the realm of sustainability, and takes pride in the fact that Fancy Fence™ does not have any GreenScreen LT-1 chemicals.

For questions or concerns, please contact me at John.Smith@companyname.com.

These claims have been certified by GreenCircle Certified, LLC. Please refer to certificate number 00-0000, for further reference. Please contact Annie Bevan at annie@greencirclecertified.com for questions in regard to certification.

Sincerely,

John Smith, VP of Operations
Company Name



Sample Report Optimization (150%)



Company Name Here

"Company slogan here"

123 E. My Address Avenue • Chicago, IL 60614-0240

Phone: (312) 555-5555 • Fax: (312) 555-5555 • <http://www.companywebsite.com>

LEED v4 Material Ingredient Credit, Optimization Option: Statement of Disclosure

Product Name: Fancy Fence™

Reporting Threshold: 100ppm

To Whom It May Concern,

In Company Name's commitment to holistic sustainability, we take pride in not only focusing on reducing the life cycle environmental impacts of our products but also in reducing our products' impact on human health. This document is to be used as a Statement of Disclosure verifying that there are no GreenScreen LT-1 chemicals (to the 100ppm level) within the Fancy Fence™ product. Company Name continues to excel in the realm of sustainability, and takes pride in the fact that Fancy Fence™ does not have any GreenScreen LT-1 chemicals.

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These claims have been certified by GreenCircle Certified, LLC. Please refer to certificate number 00-0000, for further reference. Please contact Annie Bevan at annie@greencirclecertified.com for questions in regard to certification.

Sincerely,

A handwritten signature in black ink that reads "John Smith".

John Smith, VP of Operations
Company Name



Challenges

- Resistant suppliers
- Lack of available certified and valid GreenScreen Assessments
- Lack of understanding of GreenScreen tool and methodology



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Benefits of Certification

- Transparency
- Assurance
- Brand Recognition
- Preference



Consensus Group Plan

- Contact Lauren or Annie in regard to interest in participation in:
 - Consensus Group
 - Pilot
- Doodle Poll to be sent last week of February 2015 for call sometime Mid-Late March 2015
- Kick off Call Mid-Late March 2015-Webinar on How to Document (30-45 minutes)
- Manufacturer Review of How To Document, includes:
 - Personal Follow up calls with Lauren/Annie re comments (April/May 2015)
 - Deadline for comment Mid-May 2015
- How To Document to be published on CPA website
 - Est. June 2015



Participation in Consensus or Pilot

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Director, GreenScreen Program

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