

William Paddock, Managing Director, WAP Sustainability Consulting



WAP Sustainability is a full service sustainability consultancy helping organizations with the technical aspects of sustainability. Specializing in Carbon Accounting, Lifecycle Assessment, Chemical Assessments and Transparency, and Sustainability Reporting. Based in Nashville and Chattanooga, serving 50+ global clients since 2008.



William Paddock is the Co-Founder and Managing Director of WAP Sustainability. Specializing in helping companies understand and manage their carbon and chemical footprints. Helps organizations as an outsourced sustainability function and/or department.



MR Tag Member



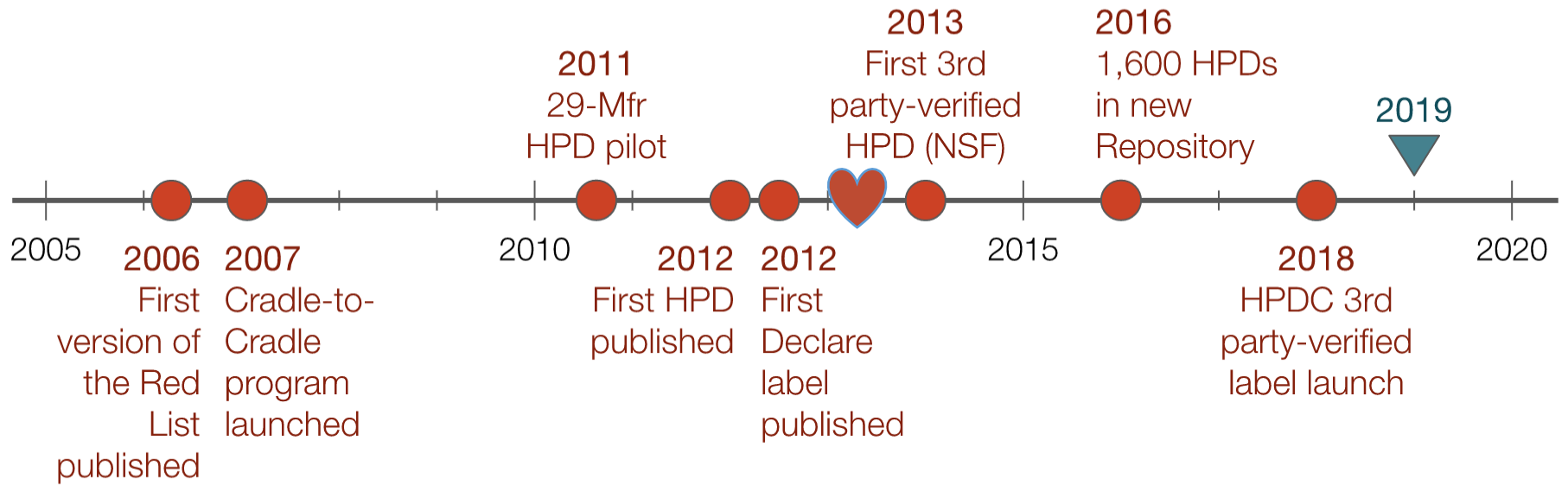
helps manufacturers manage sustainability and product transparency tasks in a strategic & service oriented capacity.

Founded in 2007, based in Chattanooga and Nashville.

Heavily involved with TSC, LEED, LBC, LPC, HPDC, GRI, Declare, Mindful Materials, and the LCA / EPD Community.

Setting the stage

Starting with the Ask





DISCLOSURE LETTERS ISSUED

As of Oct. 1, 2013, the following firms, listed alphabetically) had issued letters as part of the disclosure campaign:

[Beck Architecture](#)

[Boora Architects](#)

[Cannon Design](#)

[EHDD](#)

[FXFOWLE](#)

[GGLO](#)

[Harley Ellis Devereaux](#)

[HDR](#)

[HKS](#)

[KMD Architects](#)

[Lake|Flato Architects](#)

[Lord, Aeck & Sargent](#)

[Mahlum](#)

[Miller Hull](#)

[Perkins+Will](#)

[RTKL](#)

[SHW Group](#)

[Siegel & Strain Architects](#)

[SmithGroupJJR](#)

[Solomon Cordwell Buenz
Architecture](#)

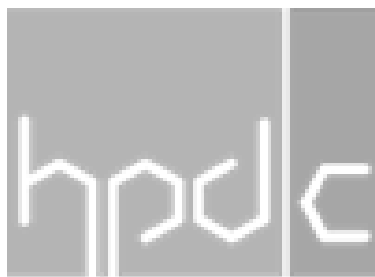
[Tsoi Kobus & Associates](#)

[Wight & Company](#)

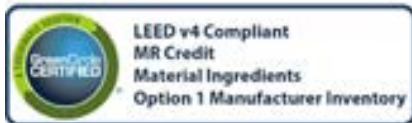
[WRNS Studio](#)

[Yost Grube Hall Architecture](#)

2013 started an explosion of material ingredient transparency documentation which has resulted in over 5,000 products with HPDs, 2,000+ Declare Labels and hundreds of other disclosure formats.



MRc4 – Option 1
Material Ingredient Disclosure



LEED
v4

Option 2



Asking for 1000ppm (or 100ppm) level disclosure supported by LEED

7,156

of MIRs**

7%

Percent that
have been 3PV

17%*

BPDO MIR
Credit Adoption

But Disclosure is Hard

Products can be complex

What is in a Twinkie?



Cake, cream

What is in a Twinkie?



Cake, cream



Wheat flour, sugar, corn syrup,
niacin, water, high fructose corn
syrup, shortening

What is in a Twinkie?



Cake, cream

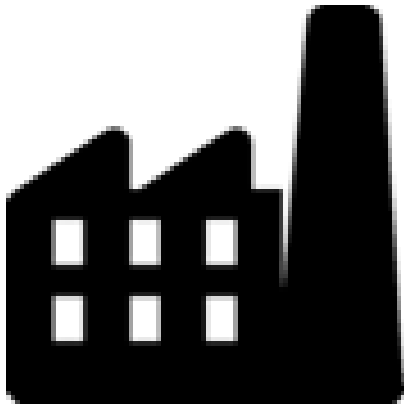


Wheat flour, sugar, corn syrup, niacin, water, high fructose corn syrup, shortening

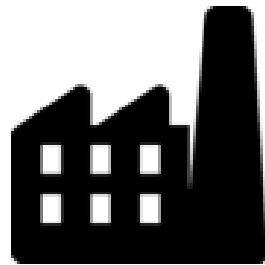
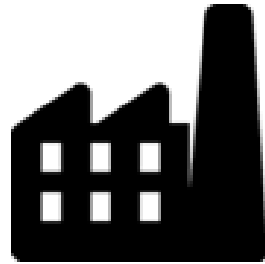
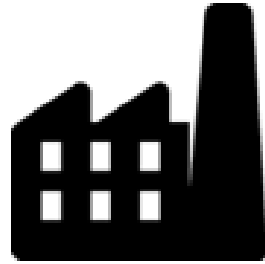


Enriched Bleached Wheat Flour [Flour, Reduced Iron, B Vitamins (Niacin, Thiamine Mononitrate (B1), Riboflavin (B2), Folic Acid)], Corn Syrup, Sugar, High Fructose Corn Syrup, Water, Partially Hydrogenated Vegetable and/or Animal Shortening (Soybean, Cottonseed and/or Canola Oil, Beef Fat), Whole Eggs, Dextrose. Contains 2% or Less of: Modified Corn Starch, Glucose, Leavenings (Sodium Acid Pyrophosphate, Baking Soda, Monocalcium Phosphate), Sweet Dairy Whey, Soy Protein Isolate, Calcium and Sodium Caseinate, Salt, Mono and Diglycerides, Polysorbate 60, Soy Lecithin, Soy Flour, Cornstarch, Cellulose Gum, Sodium Stearoyl Lactylate, Natural and Artificial Flavors, Sorbic Acid (to Retain Freshness), Yellow 5, Red 40.

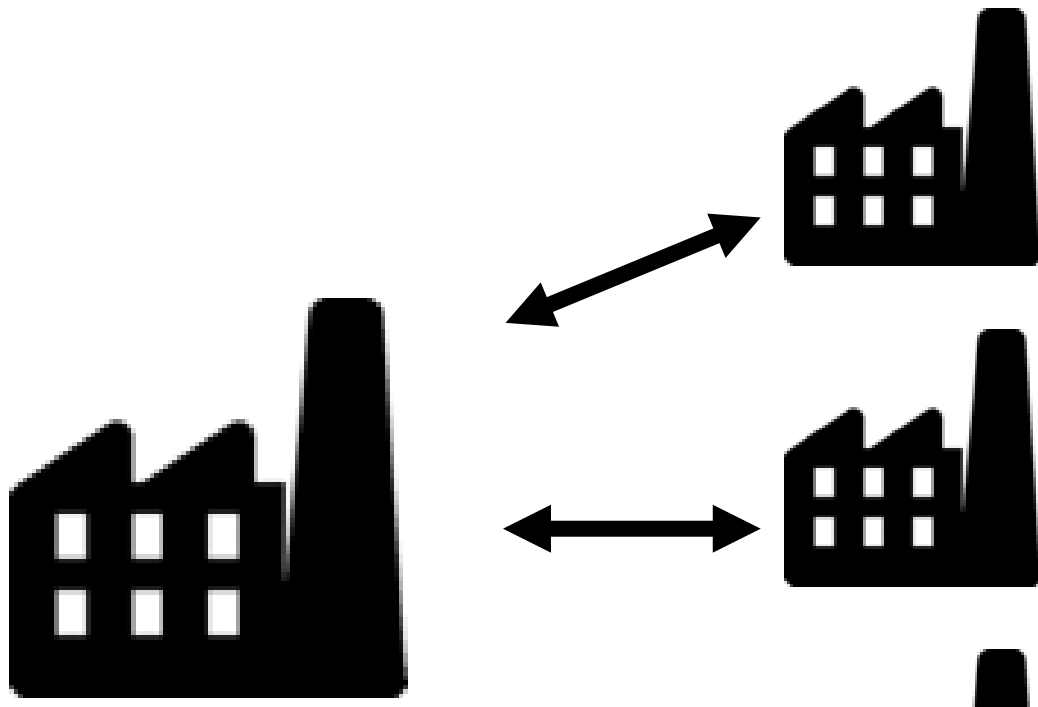
Supply Chains can be comp



Manufacturer

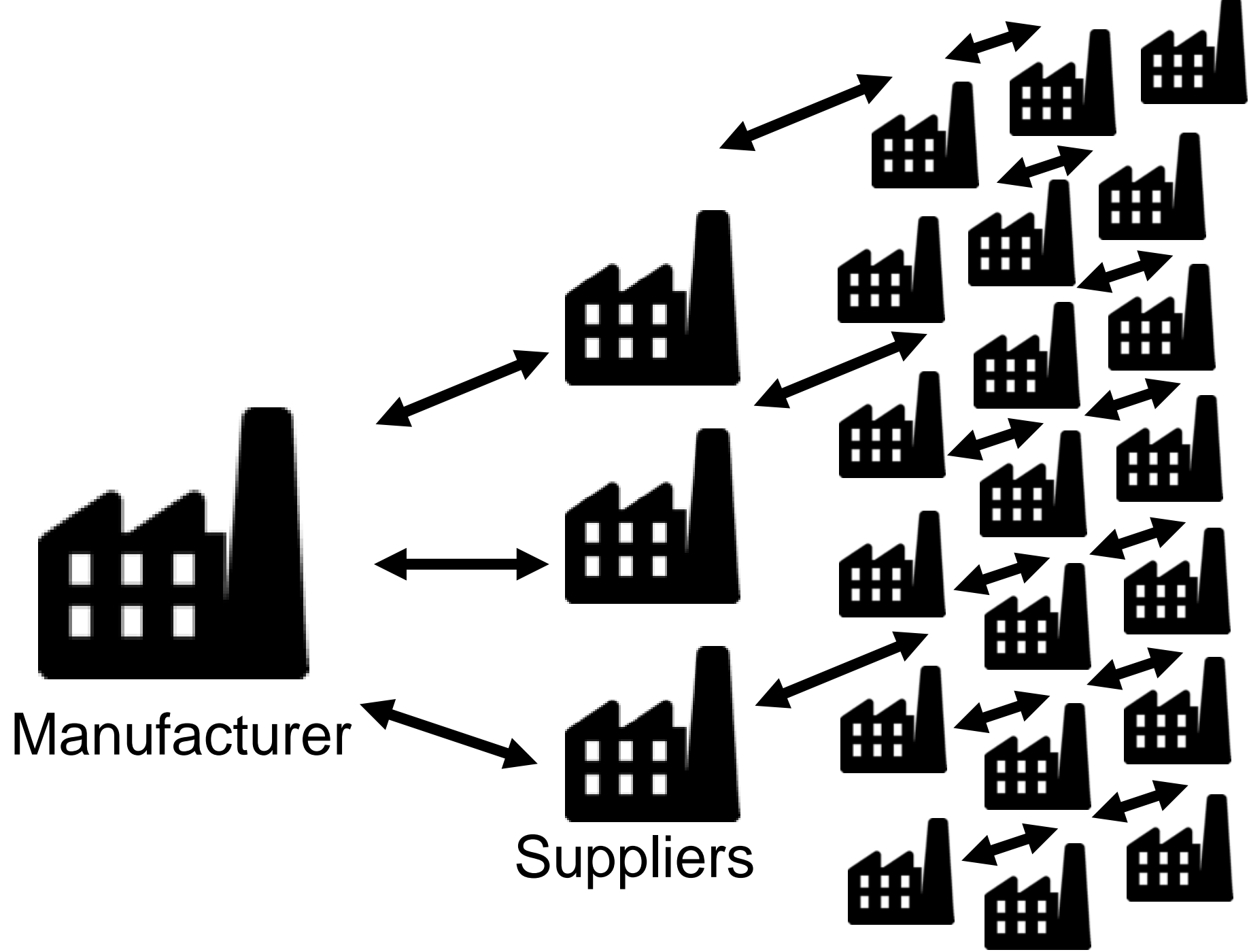


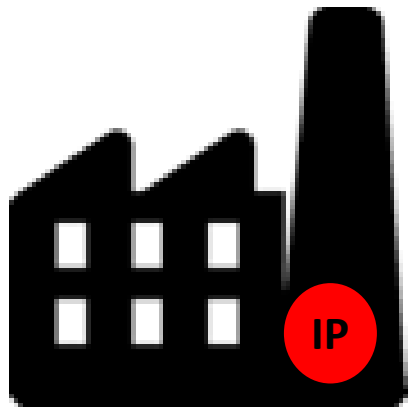
Suppliers



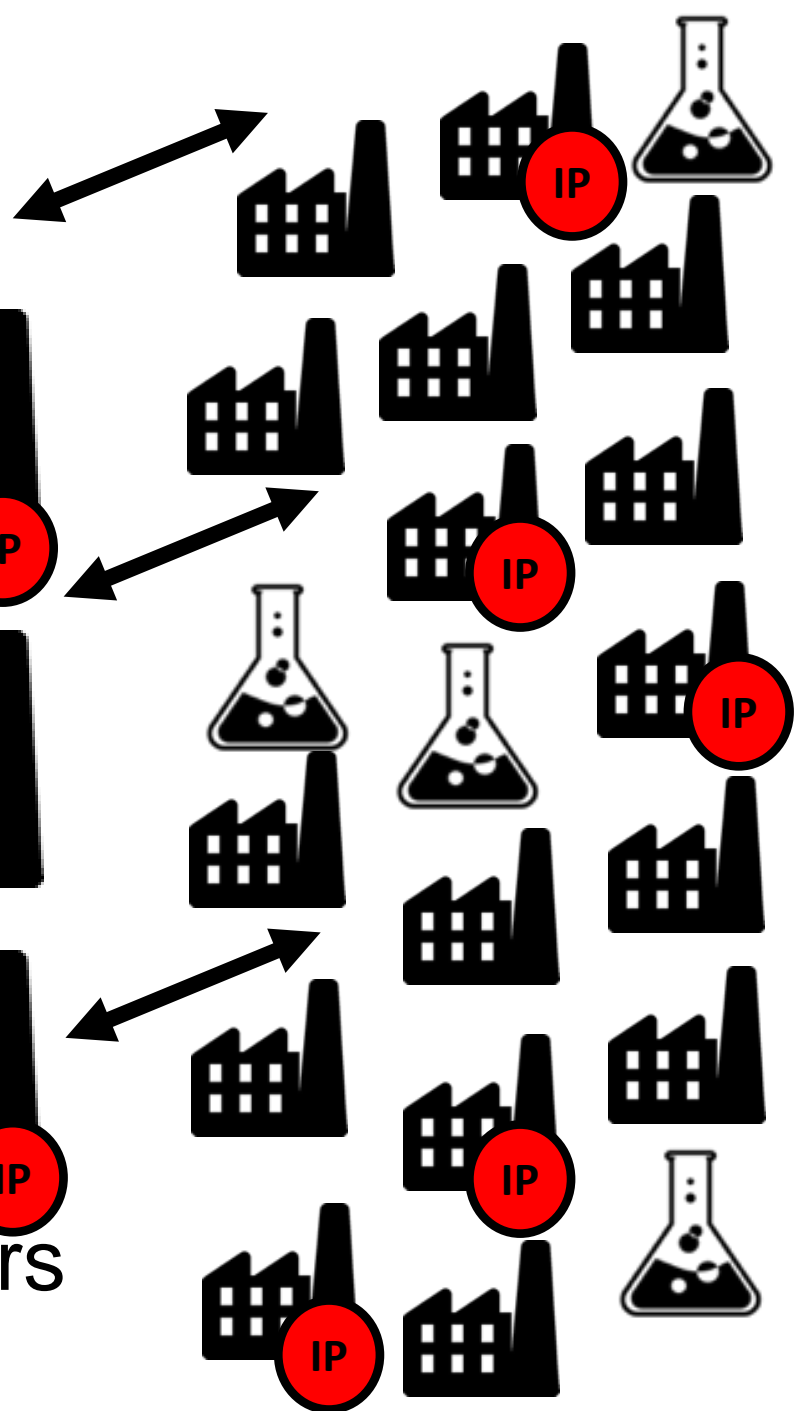
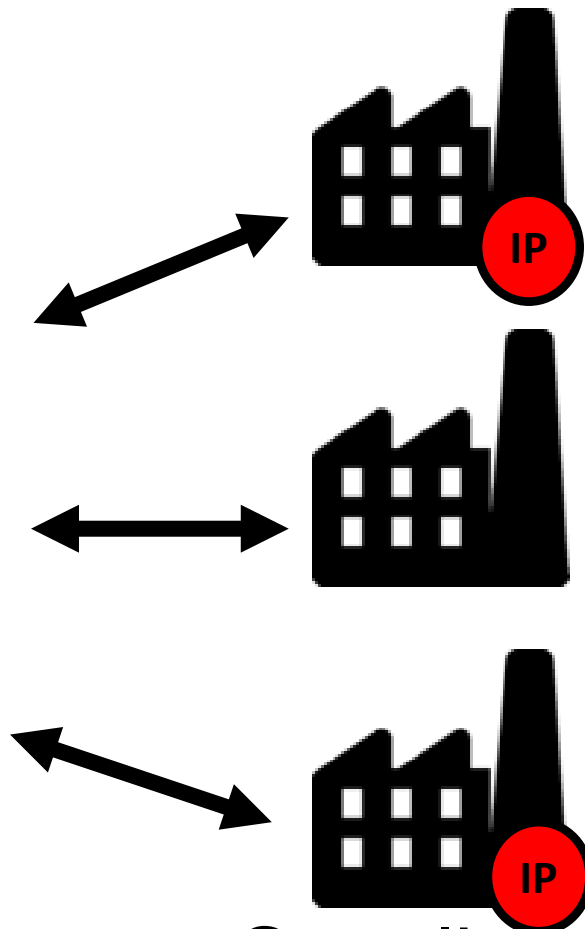
Manufacturer

Suppliers





Manufacturer



All disclosures are not equ

What does a manufacturer do when they need an HPD but does not have the data to meet the 1000ppm level?

Declare.

Modular Carpet with Nylon 6 Face and ES Polyurethane Cushion Backing

Milliken & Company

Final Assembly: LaGrange, Georgia, USA

Life Expectancy: 15-20 Years

End of Life Options: Takeback Program, Salvageable/Reusable in its Entirety

Ingredients:

Celceram Filler, Nylon 6, Calcium Carbonate, Polyurethane, Bitumen, Styrene Butadiene Latex, Polypropylene, Polyethylene Terephthalate, Alkylated Cycloaliphatic Hydrocarbons, Fiberglass, Zinc Pyrithione, Propylene/Acrylic Acid Copolymer, Topical Stain Release: Proprietary (<1%)*

*LBC Temp Exception I10-E4 Proprietary Ingredients

Living Building Challenge Criteria:

MKN-2002

VOC Content: N/A

Declaration Status

EXP. 07/01/2017

VOC Emissions: CDPH Compliant

LBC Red List Free

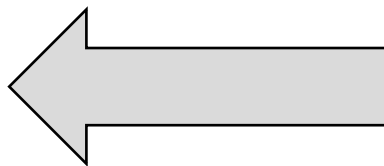
LBC Compliant

Declared

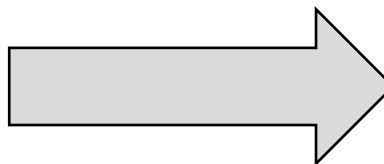
MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY

INTERNATIONAL LIVING FUTURE INSTITUTE™ declareproducts.com

Before Supply Chain Effort



After Supply Chain Effort



Declare.

Modular Carpet Tile with Solution Dyed Nylon 6,6 Fiber Milliken & Company

Final Assembly: LaGrange, GA, USA

Life Expectancy: 15 Years

End of Life Options: Recyclable (100%)

Ingredients:

Backing: Aluminatesilicate, Bitumens, Polyethylene Terephthalate/Polybutylene Terephthalate, Calcium Oxide, Polypropylene, Styrene-Butadiene-Vinylidene Chloride Based Polymer, Styrene-Butadiene Copolymers, Fiberglass, Hydrocarbons, c6-20, Polymers, Hydrogenated, Potassium Oxid, 2-Propenoic Acid, Polymer with 1-Propene, Nylon 6, Salt of Polycarboxylic Acid, Antimony Oxide (Trioxide), Stearic Acid; **Face Fiber:** Poly[Imino(1,6-Dioxo-1,6-Hexanedyl)Imino-1,6-Hexanedyl], Polymer, Polycaprolactam Thermoplastic Resin, Caprolactam, Carbon Black; **Cushion:** Calcium Carbonate, Oxirane, Methyl-, Polymer with Oxirane, Ether with 1,2,3-Propanetriol (3:1), 4,4'-Methylenediphenyl Diisocyanate, Quartz, Polymethylenepolyphenyl Polyisocyanate, Glycerol Ethoxylated / Propoxylated, Copolymer, Diethylene Glycol, Oxirane, Methyl-, Polymer with Oxirane, Ether with 1,2-Propanediol (2:1), Benzene, 1-Isocyanato-2-[(4-Isocyanatophenyl)Methyl]-, Benzene, c10-13-Alkyl Derivs, Siloxanes and Silicones, Di-Me, Hydroxy-Terminated, Ethoxylated Propoxylated, Poly(Oxy-1,2-Ethanedyl), Alpha-Phosphono-Omega-(Dodecyloxy)-, Compd. with 2,2'-iminobis[Ethanol], (EO 2-8 Mol), Benzene, 1,1'-methylenebis[2-isocyanato-, Benzenamine, N-Phenyl-, Reaction with 2,4,4-Trimethylpentene, Ethanol, 2,2'-[1,2-Ethanedylbis(Oxy)]Bis-; Various Additives

Living Building Challenge Criteria:

MKN-0013

VOC Content: N/A

Third Party Verified ✓

EXP. 01 OCT 2018

VOC Emissions: CDPH Compliant

Declaration Status

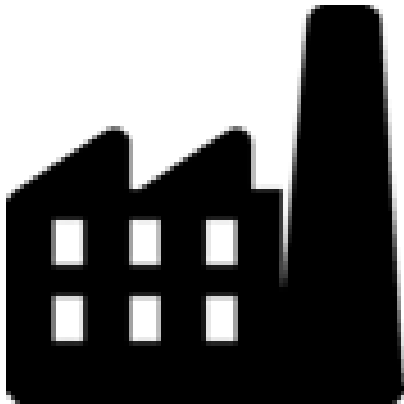
LBC Red List Free

LBC Compliant

Declared

MANUFACTURER CLAIMS VERIFIED BY WAP Sustainability
INTERNATIONAL LIVING FUTURE INSTITUTE™ declareproducts.com

The Milliken and Universal Story



Milliken[™]

 **UNIVERSAL**[®]
FIBERS

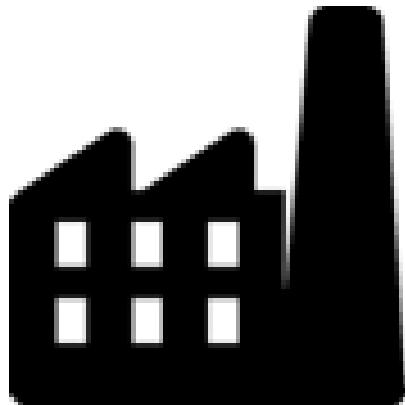
**52 Tier 1
Supplier**

**25 Tier 1
Supplier**

S

S

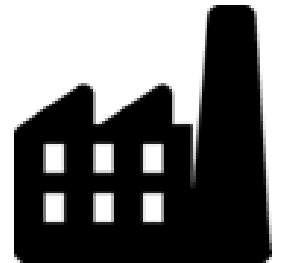
The Milliken and Universal Story



Milliken

**52 Tier 1
Supplier**

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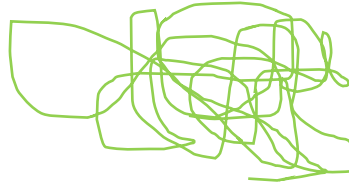


**UNIVERSAL
FIBERS**

**25 Tier 1
Supplier**

S

Declare.



Clean Building (continued)

- 1. Ask for it**
- 2. Smell test it** (or ask for 3PV)
- 3. Purchase because of it or**
- 4. Discuss it** (Bad Ingredient)



Sustainability

A Clean Build of Health

100+ Year Commitment

Milliken™

Milliken.

Who we are

You come into contact with a Milliken product up to 50 times a day



52 manufacturing facilities:

Located in the U.S, U.K, Belgium, France, China and Australia.

5 Continents:

Sales and service operations throughout the Americas, Europe, Asia, & Australia.

Milliken's over 7,000 associates work to create entirely new customer experiences, build for the future and create products that do good for the world.

A strong foundation of safety forms an integral part of who we are.

Milliken has been recognized as one of the Safest Companies in America 3 Consecutive Times by EHS Today®

Milliken is the 1st 3 time winner resulting in an inaugural induction into America's Safest Companies Hall of Fame.

Recognized for 15 consecutive years.



A strong foundation of quality, ethics & environmental responsibility forms an integral part of who we are.



Milliken has been recognized as one of the World's Most Ethical Companies by *Ethisphere*[™] Magazine every year since the first list in 2007. Now 12 consecutive years.





Milliken Flooring Global Sustainability Review

February 25, 2016



Products that Do Good



Responsible Manufacturing



Doing Good in the World



Why?

Milliken Flooring Global Sustainability Review

February 25, 2016



Products that Do Good



Responsible Manufacturing



Doing Good in the World

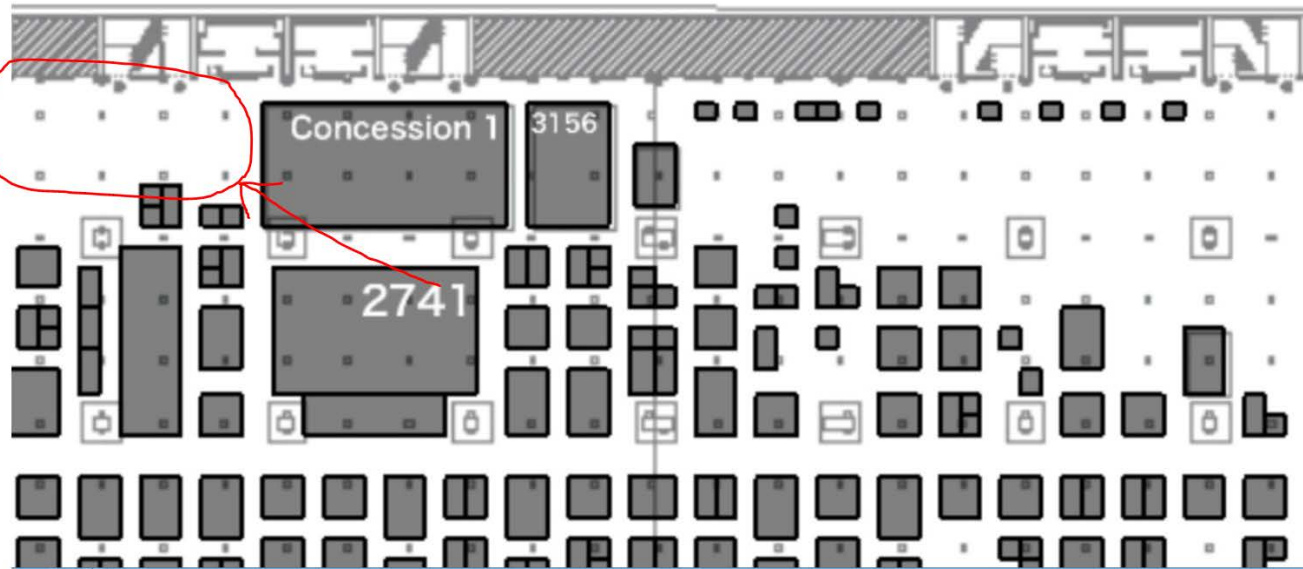


Value Chain Chemical Management (VCCM) System Greenbuild 2015 - Washington, DC

Done

Expo Hall

When?





How?

1. Engagement of Suppliers

1. Pilot 2 Suppliers → **NO**

2. Direct Disclosure of Ingredients

1. US – 52 Suppliers
2. ROW – 108 Suppliers → **NO**
(80%)

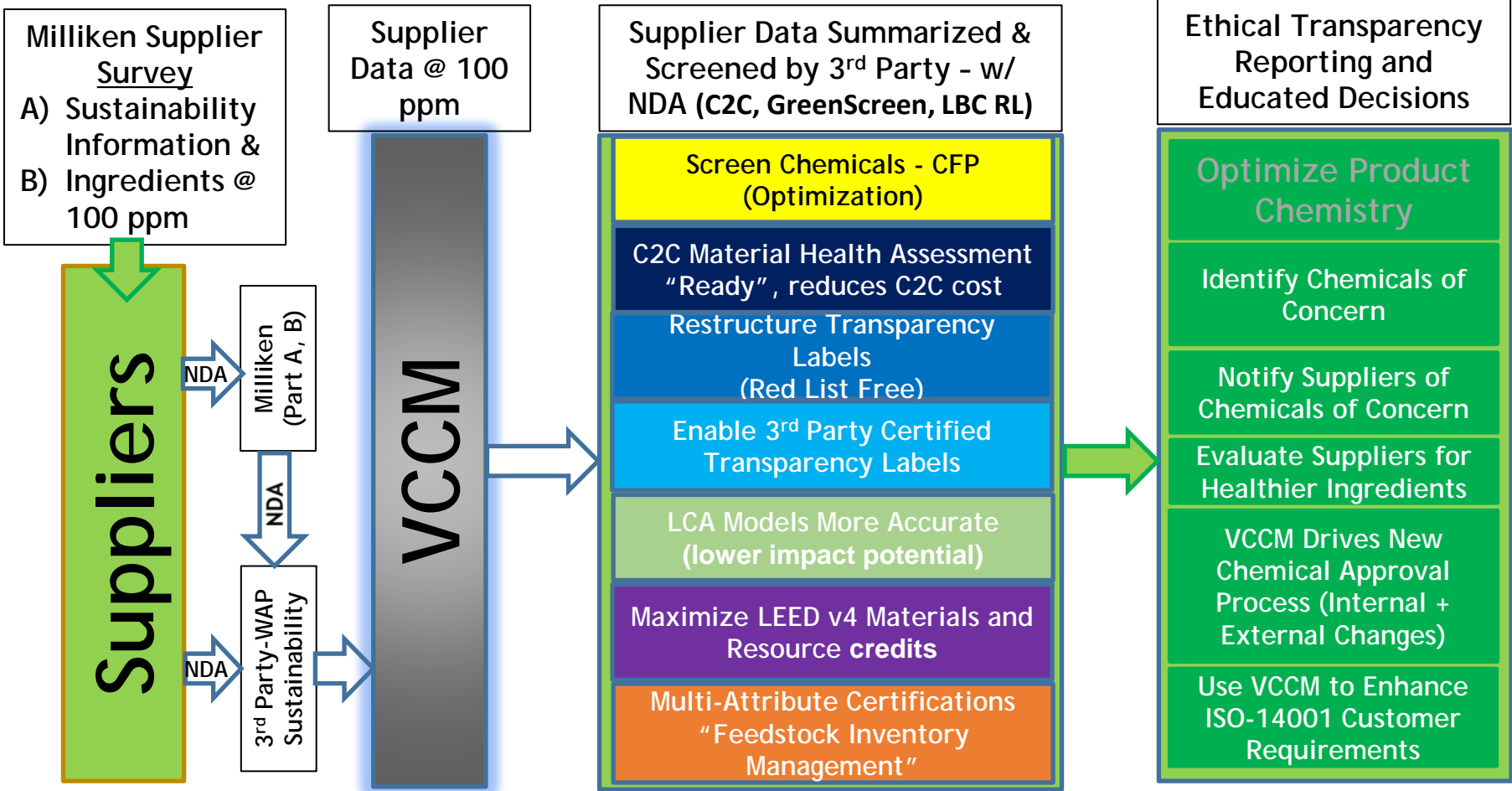
3. 60 days = 2+ years

1. Building Supplier Trust (Universal Fibers Example)
2. 2 Remaining suppliers...Get onboard or Get out

4. Results:

1. Declare® Labels – 3rd Party Verified, Red List Free
2. Cradle to Cradle – Materials Health +
3. Health Product Declarations, 3rd Party Verified
4. Chemical Footprint Project

Value Chain Chemical Management System (VCCM)



Global 3rd Party Verified Red List Free Declare

“Before” Label

Declare.

Modular Carpet with Nylon 6 Face and ES Polyurethane Cushion Backing
Milliken & Company
 Final Assembly: LaGrange, Georgia, USA
 Life Expectancy: 15-20 Years
 End of Life Options: Takeback Program, Salvageable/Reusable in its Entirety

Ingredients:
 Celceram Filler, Nylon 6, Calcium Carbonate, Polyurethane, Bitumen, Styrene Butadiene Latex, Polypropylene, Polyethylene Terephthalate, Alkylated Cycloaliphatic Hydrocarbons, Fiberglass, Zinc Pyrithione, Propylene/Acrylic Acid Copolymer, Topical Stain Release: Proprietary (<1%)*

*LBC Temp Exception I10-E4 Proprietary Ingredients

Living Building Challenge Criteria:
 MKN-2002 VOC Content: N/A
 EXP: 07/01/2017
 VOC Emissions: CDPH Compliant
Declaration Status:
 LBC Red List Free
 LBC Compliant
 Declared

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Living Building Challenge Criteria:
 MKN-0014 VOC Content: N/A
 EXP: 01 JAN 2019
 VOC Emissions: CDPH Compliant
Declaration Status:
 LBC Red List Free
 LBC Compliant
 Declared

MANUFACTURER CLAIMS VERIFIED BY WAP SUSTAINABILITY INTERNATIONAL LIVING FUTURE INSTITUTE™

Strategic Marketing Managerkkkk

- **Living Building Challenge Imperative 11**

- Requires manufacturers disclose product ingredients at 100 ppm to ensure that they are free of Red List chemicals and materials
- A complete list of ingredients ensures that project teams are specifying materials that are Red List Free or comply with a Red List exception

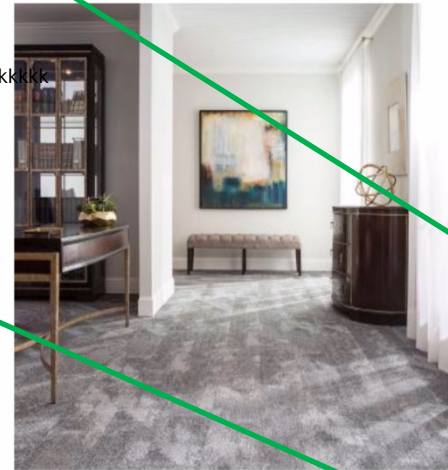
- **Living Building Challenge Imperative 14**

- Manufacturer and raw material location help teams source local products that support regional economies

Modular Carpet Tile with Solution Dyed Nylon 6,6 Fiber



Milliken



PRODUCT DESCRIPTION:

Modular Carpet with Solution Dyed Nylon 6,6 Face Fiber with Underscore or Comfort Plus Backing.

Declare.

Modular Carpet Tile with Solution Dyed Nylon 6,6 Fiber
Milliken & Company
 Final Assembly: LaGrange, GA, USA
 Life Expectancy: 15 Years
 End of Life Options: Recyclable (100%)

Ingredients:
 Backing: Aluminosilicate, Bitumens, Polyethylene Terephthalate/Polybutylene Terephthalate, Calcium Oxide, Polypropylene, Styrene-Butadiene-Vinylidene Chloride Based Polymer, Styrene-Butadiene Copolymers, Fiberglass, Hydrocarbons, c6-20, Polymers, Hydrogenated, Potassium Oxide, 2-Propenoic Acid, Polymer with 1-Propene, Nylon 6, Salt of Polycarboxylic Acid, Antimony Oxide (Trioxide), Stearic Acid; Face Fiber: Poly[imino[1,6-Dioxo-1,6-Hexanedyl]imino-1,6-Hexanedyl], Polymer, Polycaprolactam Thermoplastic Resin, Caprolactam, Carbon Black; Cushion: Calcium Carbonate, Oxirane, Methyl-, Polymer with Oxirane, Ether with 1,2,3-Propanetriol (3:1), 4,4'-Methylenediphenyl Diisocyanate, Quartz, Polymethylenepolyphenyl Polyisocyanate, Glycerol Ethoxylated / Propoxylated, Copolymer, Diethylene Glycol, Oxirane, Methyl-, Polymer with Oxirane, Ether with 1,2-Propandiol (2:1), Benzene, 1-Isocyanato-2-((4-Isocyanatophenyl)methyl)-, Benzene, 10-13-Alkyl Derivs, Siloxanes and Silicones, Diethyl Hydroxy-Terminated, Ethoxylated Propoxy-Terminated, Poly(Oxy-1,2-Ethanedyl), Alpha-Phenyl-Omega-(Dodecylory)-, Compd. with 2,2,2-Trifluoroethyl(Ethanol), (Eo 2-8 Mol), Benzene, 1,1'-Methylenebis[2-Isocyanato-, Benzenamine, 1-Phenyl-, Reaction with 2,2,2-Trifluoroethyl(Ethanol), Ethanol, 2,2,2-Trifluoroethylbis(Oxy)Terminated Polyols

Living Building Challenge Criteria:
 MKN-0013 VOC Content: N/A
 EXP: 01 OCT 2018
 VOC Emissions: CDPH Compliant
Declaration Status:
 LBC Red List Free
 LBC Compliant
 Declared

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Thank You!!