# WELCOME!

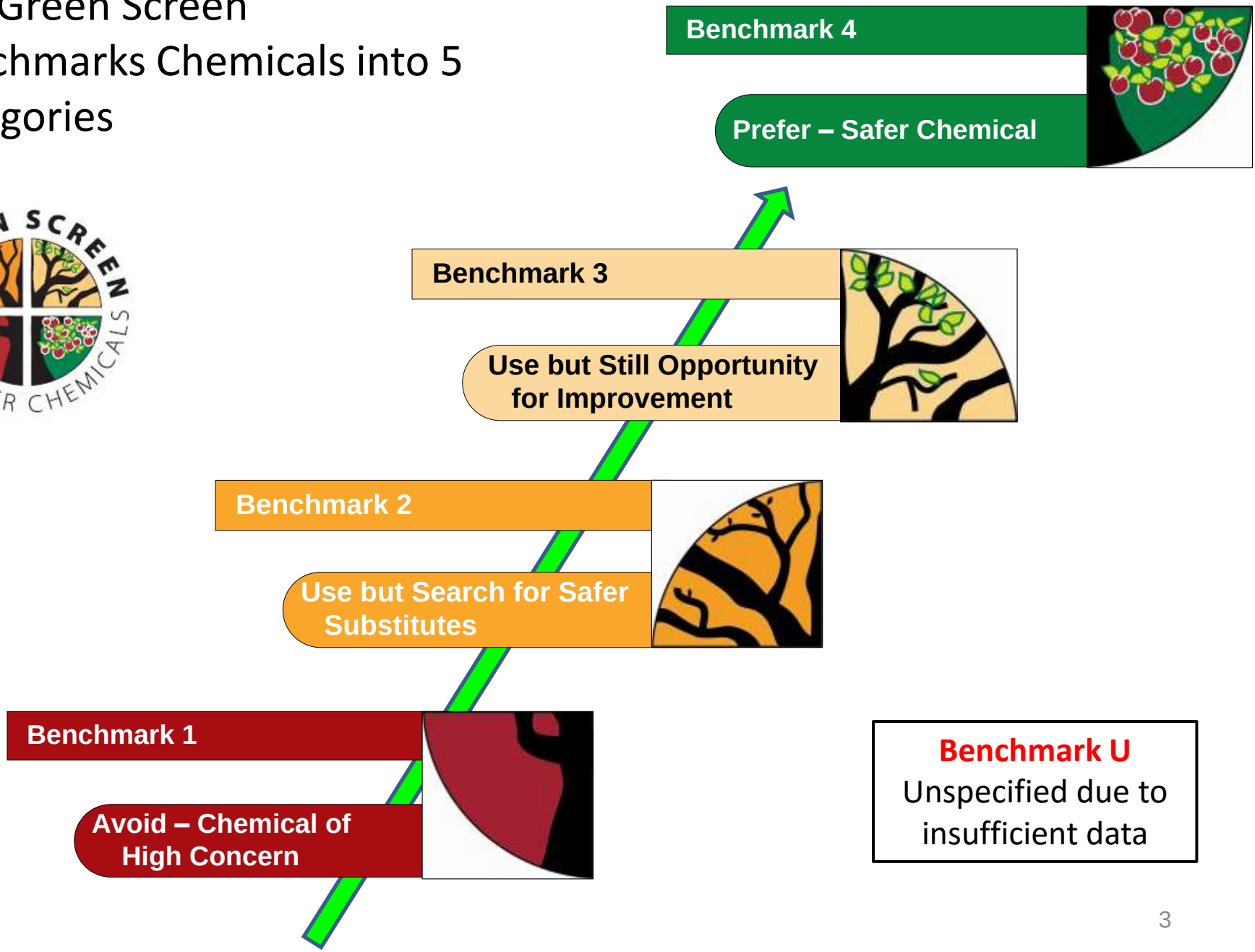

**GreenScreen® for Safer Chemicals**
**Applications and Campaign Use by NGOs**
**July 14, 2016**

# Part 1: The GreenScreen Method

On Tuesday (July 12) we gave an overview of the GreenScreen Method and we learned:

1. The value of chemical hazard assessment and origins of GreenScreen® for Safer Chemicals
2. How GreenScreen 'works': how it assesses chemical hazards and how it benchmarks chemicals
3. How do I get a chemical assessed and where do I find GreenScreen reports?
4. The GreenScreen List Translator and ChemHAT: online tools to quickly identify chemicals of concern
5. Response of American Chemistry Council to GreenScreen

# The Green Screen Benchmarks Chemicals into 5 Categories




**Benchmark U**
Unspecified due to insufficient data

# Part 2 (July 14) – GreenScreen Applications

Today we will present ways in which GreenScreen is being applied in:

1. Government regulations and guidance

2. Companies' use in alternatives assessment for safer materials

3. Integration into certification and standards

4. Campaigners' use of GreenScreen

   - Women's Voices for the Earth
   - Breast Cancer Fund/Cans Not Cancer campaign
   - Natural Resources Defense Council and Coming Clean

# Presenters Today






1. Bev Thorpe, Clean Production Action

2. Alexandra Scranton and Sarada Tangirala, Women's Voices for the Earth

3. Janet Nudelman:-- Breast Cancer Fund/Cans Not Cancer Campaign

4. Jennifer Sass:-- NRDC and Coming Clean

# GreenScreen Uses

http://www.greenscreenchemicals.org/practice

## State Regulations


## Software Tools

Pharos

## Alternatives Assessment

INTERSTATE CHEMICALS CLEARINGHOUSE


GREENSCREEN® FOR SAFER CHEMICALS

## Materials Procurement
## Product Development
## Corporate Policies

hp

GC3 Green Chemistry & Commerce Council

ZDHC

STAPLES

GARMON chemicals & fashion

THE ITALIAN JOB

pinfa Phosphorus, Inorganic & Nitrogen Fl

## Standards, Scorecards and Ecolabels

Health Product Declaration Collaborative™

cradle to cradle

GreenCircle CERTIFIED

U.S. GREEN BUILDING COUNCIL LEED USGBC

TCO DEVELOPMENT

# GS is a popular support in alternative assessment initiatives by regulatory bodies

1. **Government regulations and guidance**
2. Companies' use in alternatives assessment for safer materials
3. Integration into certification and standards
4. Campaigners' use of GreenScreen


- Women's Voices for the Earth
- Breast Cancer Fund/Cans Not Cancer campaign
- Natural Resources Defense Council and Coming Clean

Maine.gov

California Department of Toxic Substances Control

- Maine's Regulation of Chemicals Use in Children's Products is prioritizing chemicals of high concern in consumer products for substitution
- GreenScreen® is endorsed as a good substitution assessment tool

http://www.maine.gov/dep/safechem/

- GreenScreen and GreenScreen List Translator are listed as support tools for the state's Safer Consumer Products Program.
- Program requires companies to do an Alternatives Analysis plus specific actions to make the product safer.

http://www.dtsc.ca.gov/SCP/AlternativesAnalysisGuidance.cfm



Washington State used GreenScreen® as an alternatives assessment tool for Deca-BDE in television casings and upholstery - a state wide ban on products containing PBDEs achieved in 2011.

WA Senate Bill 5181 states that alternatives to high priority flame retardant chemicals in upholstery or children's products can be evaluated using GreenScreen and cannot be a Benchmark 1 or Benchmark U.

# European Chemical Agency promotes GreenScreen as an important tool in the substitution toolbox

ECHA
EUROPEAN CHEMICALS AGENCY

1. Know your substances and needs
2. Search for alternatives
3. Assess, compare and select
4. Test, implement and improve
5. Inform your supply chain


**Related links**

- OECD Substitution toolbox
  A compilation of resources relevant to chemical substitution and alternatives assessments
- PRIO
  The Swedish Chemicals' Agency's tool to facilitate the assessment of health and environmental risks
- Clean Production Action's (CPA) GreenScreen® for Safer Chemicals
  Comparative chemical hazard assessment (CHA) that can be used to identify chemicals of high concern and safer alternatives
- Column model
  A practical tool to identify alternative substances

How do I do it?

# Alternative Assessment Guides featuring GreenScreen

- OECD Substitution and Alternatives Assessment Toolkit
- National Research Council: Framework to Guide Selection of Chemical Alternatives
- Transitioning to Safer Chemicals: A Toolkit for Employers and Workers
- Interstate Chemicals Clearing House: Alternatives Assessment Guide

# GS is a popular chemical hazard assessment tool with company leaders

1. Government regulations and guidance

2. **Companies' use in alternatives assessment for safer materials**

3. Integration into certification and standards

4. Campaigners' use of GreenScreen

   - Women's Voices for the Earth
   - Breast Cancer Fund/Cans Not Cancer campaign
   - Natural Resources Defense Council and Coming Clean

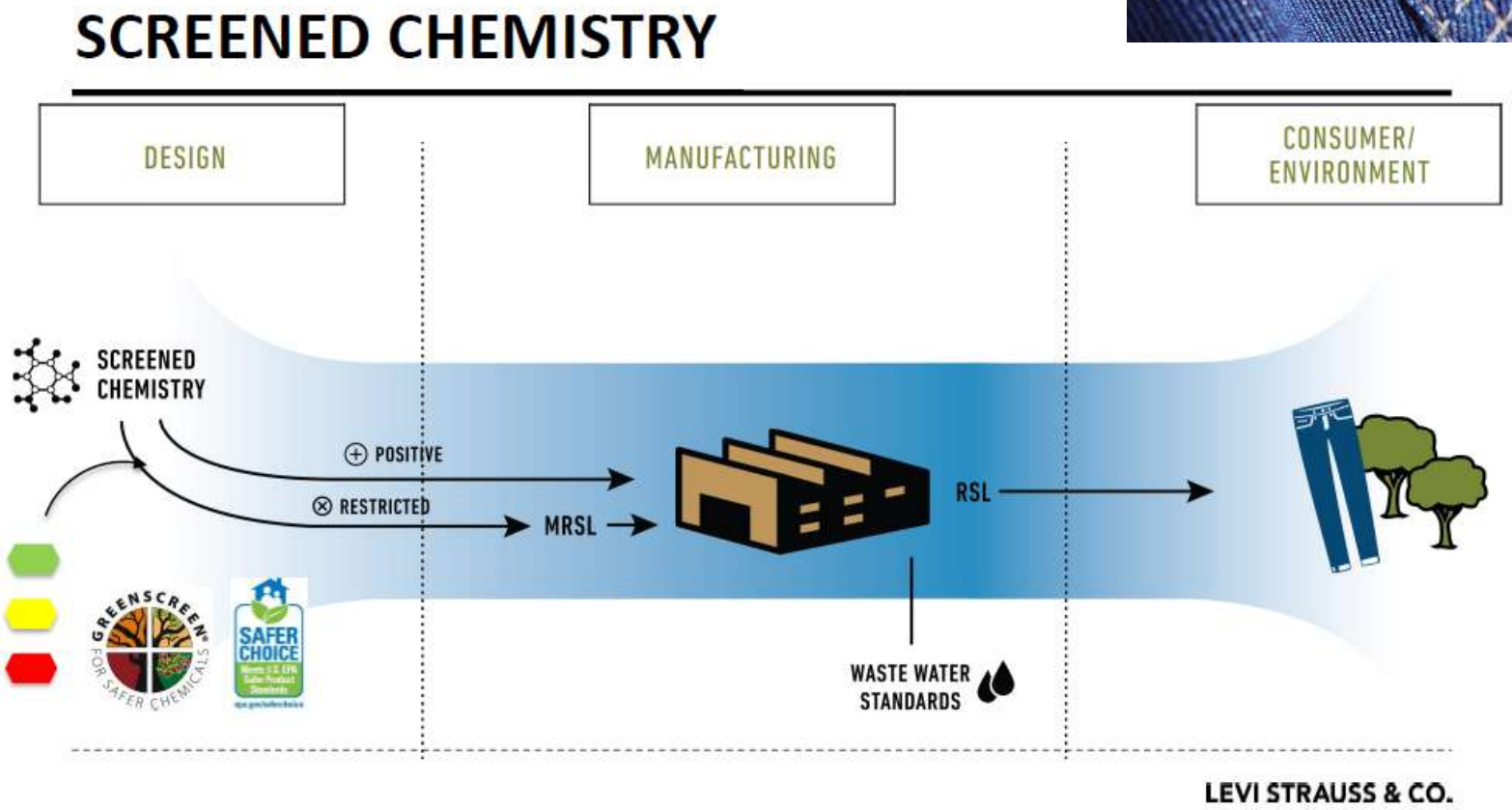
- As part of Nike sustainability initiatives, the GreenScreen® is used to assess the hazards of chemicals used in products.


http://www.greenscreenchemicals.org/static/ee_images/uploads/resources/NIKE_Inc.-SustainableBusinessReport.pdf

# Garmon, textile chemical manufacturer, reformulating to ‘no BM-1’ chemicals

Textile finishes with no Benchmark 1 chemicals use logo

# Levis Strauss & Co incorporates GS for ongoing improvement to preferred chemicals



# HP was an early adopter of GS

- HP's material specification and approved material list use GreenScreen criteria
- No BM-1 chemicals stipulated in communication to suppliers – began with powercords and flame retardants
- 75 million Powercords changed from PVC to PVC/BFR free in 2011 and process ongoing
- HP seeing innovation and reformulation in supply chain

# Standards promoting BM-2 or higher chemical use in products

1. Government regulations and guidance

2. Companies' use in alternatives assessment for safer materials

3. **Integration into certification and standards**

4. Campaigners' use of GreenScreen

   - Women's Voices for the Earth
   - Breast Cancer Fund/Cans Not Cancer campaign
   - Natural Resources Defense Council and Coming Clean

# US Green Building Council promotes chemical disclosure and chemically safer building products

- As of Nov 2013, the U.S. Green Building Council is including the toxicity of chemicals in materials as part of their LEED certification

- Companies that disclose and screen out hazardous chemicals using the GreenScreen can earn points under their Materials and Resources credits.

- http://www.greenscreenchemicals.org/practice/leed


CLEAN PRODUCTION ACTION

# Using GS to identify safer flame retardant chemicals in electronics

- TCO Certified now incorporating GreenScreen to promote safer flame retardants in electronic products
- Companies who meet GS BM-2 or higher are put on TCO's Certified Accepted Substances List
- http://tcodevelopment.com/news/greenscreen-for-safer-chemicals-faq/

# Using GreenScreen in campaign strategies

1. Government regulations and guidance
2. Companies' use in alternatives assessment for safer materials
3. Integration into certification and standards
4. **Campaigners' use of GreenScreen**

   - Women's Voices for the Earth
   - Breast Cancer Fund/Cans Not Cancer campaign
   - Natural Resources Defense Council and Coming Clean

WOMEN'S VOICES FOR THE EARTH

OUR HEALTH. OUR FUTURE. TOXIC FREE.

# GALAXOLIDE

- A synthetic musk, a commonly used fragrance ingredient. Its use is on the rise in the U.S.
- Hormone disruptor that may break down the body's defenses against other toxic chemical exposures
- Galaxolide is widely used by cleaning and personal care product companies and can be found in many products including surface cleaners, laundry products, air fresheners, cosmetics and perfumes.
- Fragrance disclosure is necessary to determine presence of Galaxolide in products

***Galaxolide is identified by the CAS # 1222-05-5 and is also known by the synonyms:*** *1,3,4,7,8-hexahdro-4,6,6,7,8,8,-hexamethyl-cyclopenta[g[-benzopyran (HHCB) and its INCI name, hexamethylindanopyran.*

WOMEN'S VOICES FOR THE EARTH

OUR HEALTH. OUR FUTURE. TOXIC FREE.

# THE NEED FOR GREENSCREEN®

- In 2008, the EU determined Galaxolide does not meet criteria for being a substance classified as PBT, and that no further risk reduction measures were necessary.
- In 2014, the US EPA assessment of Galaxolide found it to be moderately persistent and bioaccumulative and toxic to aquatic organisms, but determined that unless environmental concentrations increase by factor of 1 to 2 orders of magnitude, risk concerns were not indicated.
- We needed to prove the human health harms posed by Galaxolide.

WOMEN'S VOICES FOR THE EARTH

OUR HEALTH. OUR FUTURE. TOXIC FREE.

## GreenScreen® Hazard Ratings for HHCB (Galaxolide)

| Group I Human | | | | | Group II and II* Human | | | | | | | | | Ecotox | | Fate | | Physical | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | M | R | D | E | AT | ST | | N | | SnS* | SnR* | IrS | IrE | AA | CA | P | B | Rx | F |
| | | | | | | single | repeated* | single | repeated* | | | | | | | | | | |
| *L* | **L** | DG | *L* | *M* | **L** | *L* | **L** | **L** | DG | **L** | DG | *M* | *L* | **vH** | **vH** | *H* | **H** | *L* | **L** |

**Abbreviations:**

C = Carcinogenicity
M = Mutagenicity
R = Reproductive toxicity
D = Developmental toxicity
E = Endocrine activity

AT = Acute mammalian toxicity
SnR = Respiratory sensitization
IrS = Skin irritation
IrE = Eye irritation
AA = Acute aquatic toxicity

ST = Systemic toxicity
N = Neurotoxicity
SnS = Skin sensitization
CA = Chronic aquatic toxicity
P = Persistence

B = Bioaccumulation
Rx = Reactivity
F = Flammability

Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL), Data Gap (DG)

**The GreenScreen® assigned Galaxolide a score of Benchmark 1—chemical of highest concern whose use is recommended to be avoided.**

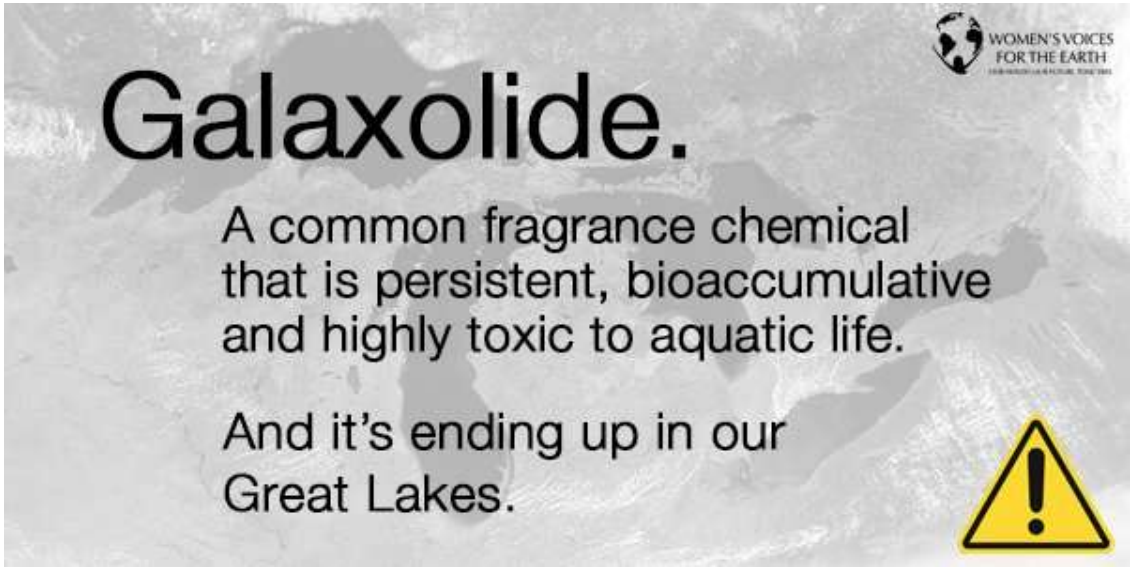
- Benchmark 1 assignment is due to Galaxolide's high persistent, bioaccumulative and aquatic toxicity properties. This means that Galaxolide does not break down easily in the environment, builds up over time, and is highly toxic to fish and other aquatic creatures.
- The GreenScreen® also noted a moderate human health hazard for endocrine disruption. This means that Galaxolide may interfere with hormones and other chemical signals in the body which can result in developmental, reproductive, metabolic, brain, and behavior problems.

WOMEN'S VOICES FOR THE EARTH

OUR HEALTH. OUR FUTURE. TOXIC FREE.

# RELEASED GREENSCREEN® FINDINGS

- Issued joint press release with Clean Water Action Michigan about GreenScreen findings and the need for SCJ & other cleaning product companies to eliminate Galaxolide
- Co-released Greenscreen® results with 14 organizations through actions, blogs and social media
- Published a list of SCJ products containing Galaxolide
- Reached out to SCJ to discuss, once again, the importance of eliminating all synthetic musks




**Why are we targeting SC Johnson?**

- Galaxolide contamination in the Great Lakes– levels in Lakes Erie & Ontario are doubling every 8-16 years
- SC Johnson headquartered in Racine, WI, on shores of Lake Michigan
- SCJ is 1 of 6 companies named by EPA importing this high production volume chemical

WOMEN'S VOICES FOR THE EARTH

OUR HEALTH. OUR FUTURE. TOXIC FREE.

## NEXT STEPS

- Sign-on letters to SC Johnson to eliminate Galaxolide
  - Scientists
  - Organizations
- Petitions
  - WVE, TakePart.com, Clean Water Action (MI), Healthy Legacy Coalition (MN)
- SCJ's Greenlist™ chemical screening process
  - How did Galaxolide get through?

# Janet Nudelman

BREAST CANCER FUND

PREVENTION STARTS HERE.

Cans Not Cancer GreenScreen Challenge

BPA-FREE

Cans Not Cancer

BREAST CANCER FUND

CLEAN PRODUCTION ACTION

# Cans Not Cancer
# GreenScreen Challenge

- Use the GreenScreen® for Safer Chemicals to help your company better understand – and communicate to the public -- about the safety of your BPA-alternative can lining.

- Value = Reduced business risk and increased information and assurance that the BPA alternative you're using – or considering using - has been comprehensively screened with the most up to date hazard information.

# Nat'l brands that were asked to participate in our GreenScreen Challenge

- Amy's Kitchen
- Annie's Homegrown
- Campbells
- ConAgra
- Del Monte Foods
- Eden Organic
- General Mills
- Hain Celestial
- Hormel Foods
- H.J. Heinz
- J.M. Smucker
- McCormick & Company
- Nestlé

http://www.greenscreenchemicals.org/practice/gs-challenge

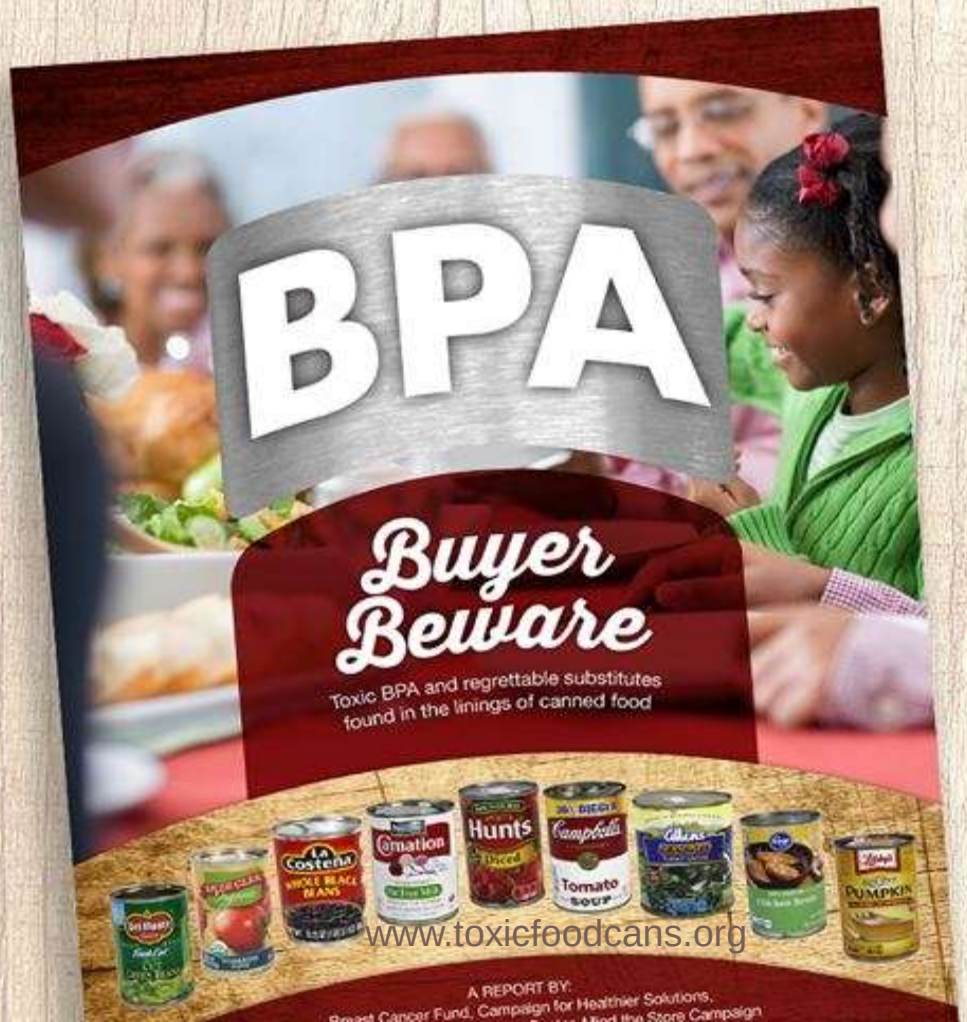
# What we learned from Manufacturers that declined our invitation to take the GreenScreen challenge

- Securing information about the identity and/or full chemistry of BPA alternatives is challenging for manufacturers, especially smaller manufacturers with limited market share.

- The problem: Upstream suppliers are holding a tight grip on the information manufacturers need to achieve the level of transparency the public wants regarding ingredient disclosure and safety information.

- The solution: Move upstream in our dialogue to include can manufacturers and can lining suppliers. The entire canned food industry supply chain needs to value and promote consumer right to know, informed substitution and transparency.

# IS BPA IN YOUR FOOD CANS? NEW REPORT SAYS YES!



# National brands, grocery stores, big box retailers and dollar stores should take these steps:

1. Commit to eliminating and safely substituting BPA from all food packaging, replacing it with safer alternatives, and establishing public timelines and benchmarks for the transition.
2. Conduct and publicly report on the results of "alternatives assessments," using the GreenScreen® for Safer Chemicals or a similar third-party tool for assessing the safety of can linings.
3. Label all chemicals used in can liners, including BPA or BPA alternatives; and demand that their suppliers of canned food linings fully disclose safety data, so as to provide a higher level of transparency to consumers.
4. Adopt comprehensive chemical policies to safely replace other chemicals of concern in products and packaging.

**Can-lining suppliers need to see themselves as part of the solution by publicly disclosing the chemical composition of their can linings and ensuring that the final materials have been rigorously assessed for their impacts on environmental and human health.**

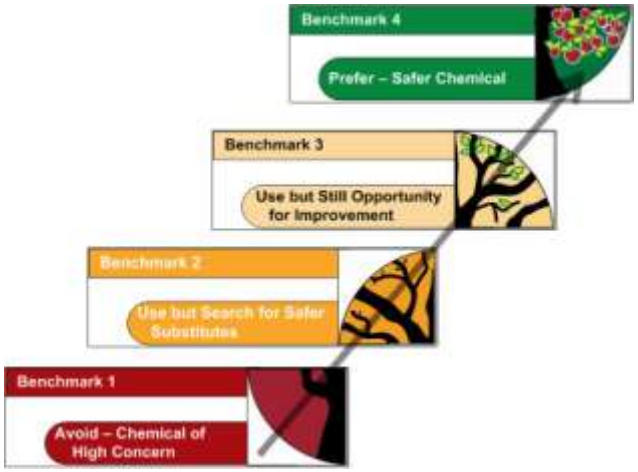
# Valspar is now working with CPA's GreenScreen Program to assess its new can lining material

- "Valspar is preparing GreenScreens on their new technology platform polymers as part of a comprehensive alternatives' assessment, both to communicate what is known about these technologies from a hazard perspective and to participate in the effort to adapt the approach to assessing polymeric materials."
  - Technical Director, Valspar April 26, 2016

# Successful Use of a Modified GreenScreen Tool to Conduct a Screening-Level Comparative Hazard Assessment of Conventional Silver and Two Forms of Nanosilver

Jennifer Sass, Lauren Heine, Elizabeth Crowe

A Coming Clean Project

# Why we used GreenScreen

Increased concern for potential health and environmental impacts of chemicals, including nanomaterials, in consumer products is driving demand for greater transparency.

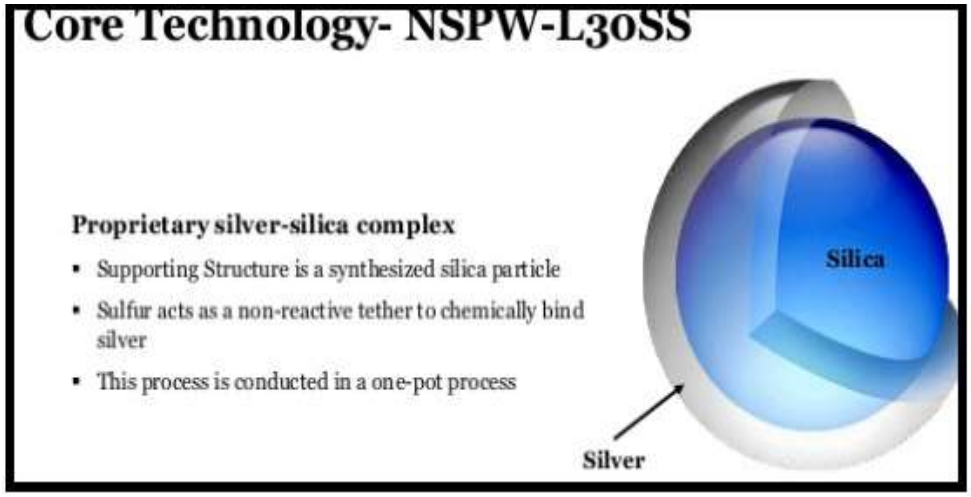
To meet this demand, information is needed about what substances are in the products, whether they are hazardous, and how they compare to ingredients in similar products.

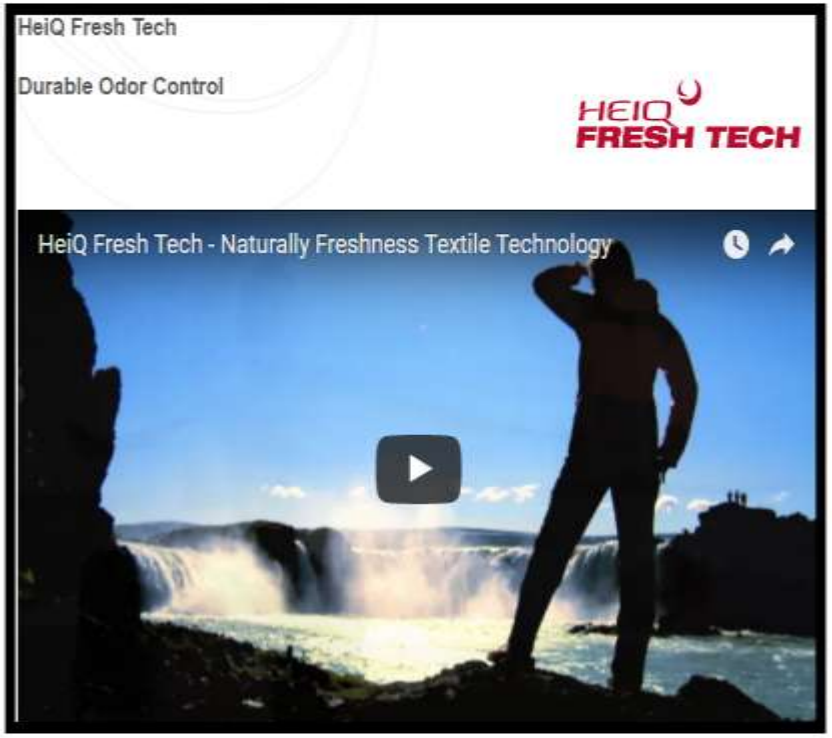
Conventional silver and two nanosilver products are registered by EPA. Both nanosilver products – one called AGS-20 and subsequently a second called Nanosilva - were approved as antimicrobials for use on textiles, through the conditional registration provisions of FIFRA.

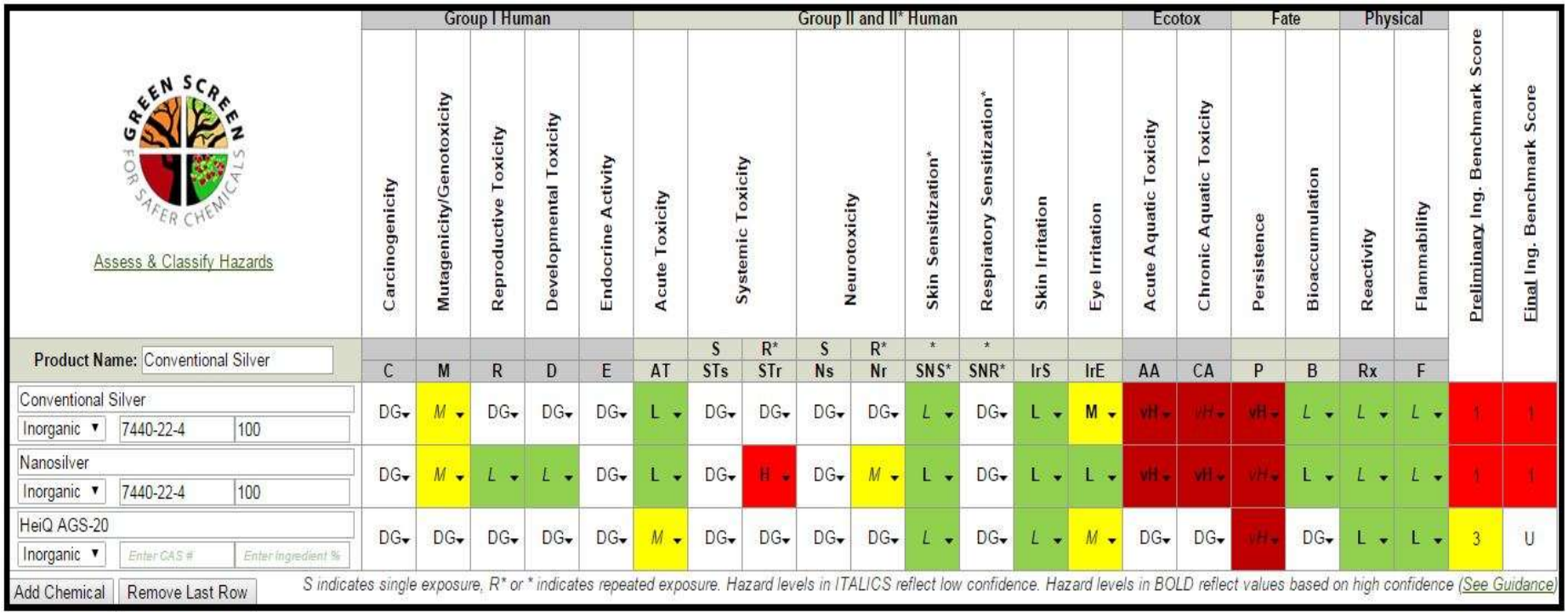
There are other products on the market with nanosilver, but they have not gone through the legally-required registration and approval process.

# Nanosilver is the most frequently used nanomaterial in consumer products.

Among other things, Nanosilva is proposed to be incorporated into textiles, plastic films, sheets, slabs, and molded parts, meaning it can end up in consumer products such as footwear, sportswear, uniforms, and auto parts, floor coverings, outdoor furniture, decking, and house siding.





Assess & Classify Hazards

| | Group I Human | | | | | Group II and II* Human | | | | | | | | | Ecotox | | Fate | | Physical | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Carcinogenicity | Mutagenicity/Genotoxicity | Reproductive Toxicity | Developmental Toxicity | Endocrine Activity | Acute Toxicity | Systemic Toxicity | | Neurotoxicity | | Skin Sensitization* | Respiratory Sensitization* | Skin Irritation | Eye Irritation | Acute Aquatic Toxicity | Chronic Aquatic Toxicity | Persistence | Bioaccumulation | Reactivity | Flammability | Preliminary Ing. Benchmark Score | Final Ing. Benchmark Score |
| Product Name: Conventional Silver | C | M | R | D | E | AT | S STs | R* STr | S Ns | R* Nr | * SNS* | * SNR* | IrS | IrE | AA | CA | P | B | Rx | F | | |
| Conventional Silver<br>Inorganic 7440-22-4 100 | DG | *M* | DG | DG | DG | L | DG | DG | DG | DG | *L* | DG | L | M | vH | *vH* | vH | *L* | *L* | *L* | 1 | 1 |
| Nanosilver<br>Inorganic 7440-22-4 100 | DG | *M* | *L* | *L* | DG | L | DG | H | DG | *M* | *L* | DG | L | L | vH | vH | *vH* | L | *L* | *L* | 1 | 1 |
| HeiQ AGS-20<br>Inorganic Enter CAS # Enter Ingredient % | DG | DG | DG | DG | DG | *M* | DG | DG | DG | DG | *L* | DG | *L* | *M* | DG | DG | vH | DG | L | L | 3 | U |

Add Chemical | Remove Last Row

*S indicates single exposure, R* or * indicates repeated exposure. Hazard levels in ITALICS reflect low confidence. Hazard levels in BOLD reflect values based on high confidence (See Guidance)*

**GreenScreen findings: Conventional silver and low-soluble nanosilver were assigned the highest possible hazard score (Benchmark 1) and the silica-silver nanocomposite could not be assessed due to data gaps (Benchmark U).**

The differences in data gaps and in hazard profiles support the argument that each silver form should be considered unique and subjected to hazard assessment to inform regulatory decisions and decisions about product design and development.


# Nanosilver health impacts

- The extremely potent ecotoxicity of nanosilver has raised concern about it entering the wastewater stream during washing and laundering of treated textiles, with some studies showing that as much as half of imbedded nanosilver can be lost from treated textiles during a single wash cycle.

- Whole animal studies of rats exposed to nanosilver via inhalation for ninety days reported compromised lung function and lung inflammation, as well as cellular changes in the kidney and liver. The inhaled nanosilver released silver ions that entered the bloodstream and was then distributed to all major organs and tissues including the kidney, liver, and brain. Once in organs and tissues, in vitro cellular studies report that nanosilver causes DNA damage, genotoxicity and oxidative stress leading to apoptotic cell death.

# Update

- The recent NIOSH Bulletin on the Health Effects of Occupational Exposure to Silver Nanomaterials concludes that there are risks of lung and liver effects including lung inflammation, above the OSHA PEL (10 ug/m3 8 hr TWA).

- Because of the health concerns associated with uses of nanosilver with direct human contact, the NIH has initiated a clinical trial to examine the potential impacts of nanosilver inhalation on human lung function.

ChemicalWatch
GLOBAL RISK & REGULATION NEWS

Home | News | Briefing | Events & training | Directory | Jobs | Consorti

**Groups sue US EPA over antimicrobial nanosilver approval**

10 August 2015 / Biocides, Nanomaterials, United States

Three NGOs have mounted a legal challenge to the US EPA's decision to conditionally approve the use of the antimicrobial nanosilver pesticide product Nanosilva in plastics and textiles.

The groups are the:

» Natural Resources Defense Council (NRDC);
» Center for Food Safety (CFS); and
» International Center for Technology Assessment (Icta).

They have filed petitions urging the US Court of Appeals for the Ninth Circuit to set aside the EPA's order granting Nanosilva conditional registration.

The NRDC contends that the agency granted the registration without having all the toxicity data it needed to assess the product's potential harm to humans and the environment.

# Thank you!
# Our speakers are happy to take questions

1. Bev Thorpe, Clean Production Action
2. Alexandra Scranton and Sarada Tangirala, Women's Voices for the Earth
3. Janet Nudelman:-- Breast Cancer Fund/Cans Not Cancer Campaign
4. Jennifer Sass:-- NRDC and Coming Clean