WELCOME!

GreenScreen® for Safer Chemicals
Method Introduction for NGOs

July 12, 2016

Presenters today

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Part 1 (July 12) – The GreenScreen Method

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
6. Q&A

Part 2 (July 14) – Applications

Ways in which GreenScreen is being applied:

- Government regulations
- Companies' use in alternatives assessment for safer materials
- Integration into certification and standards
- Campaigners' use of GreenScreen
  - Women's Voices for the Earth
  - Breast Cancer Fund/Cans Not Cancer campaign
  - Natural Resources Defense Council and Coming Clean
- Q&A

How GreenScreen promotes Green Chemistry

1. **The value of chemical hazard assessment and origins of GreenScreen® for Safer Chemicals**
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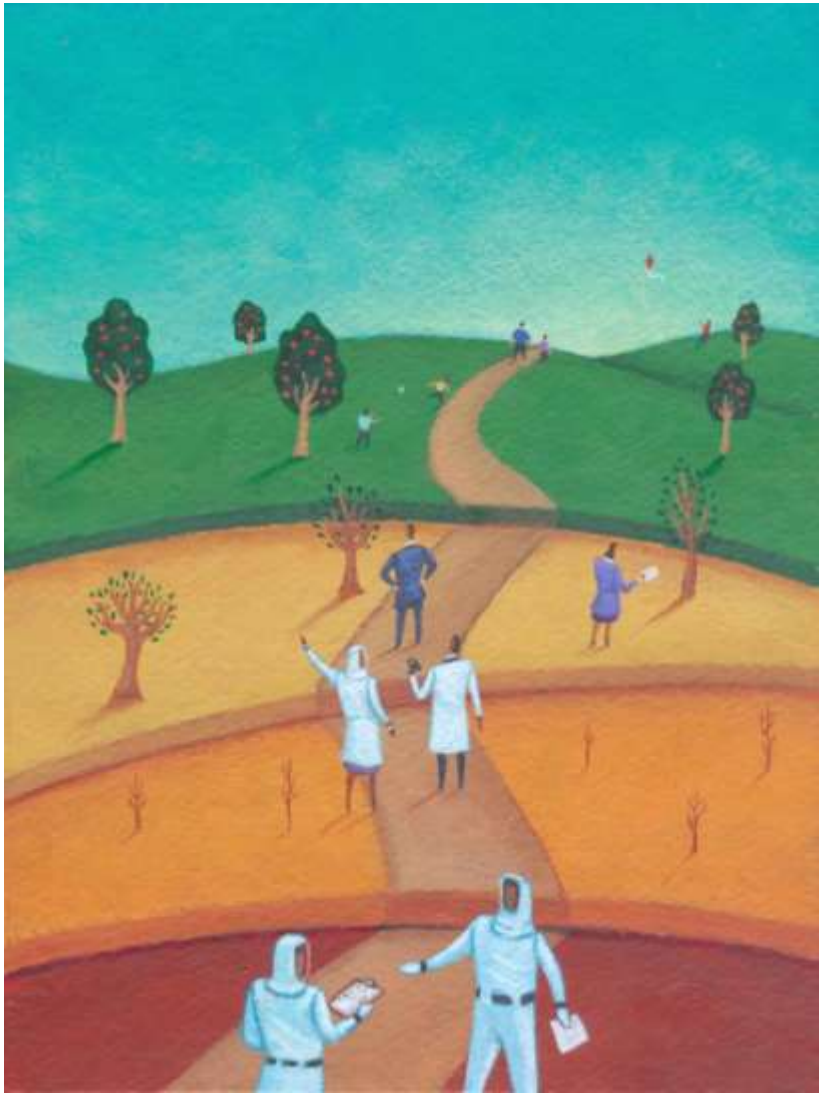
GreenScreen® for Safer Chemicals

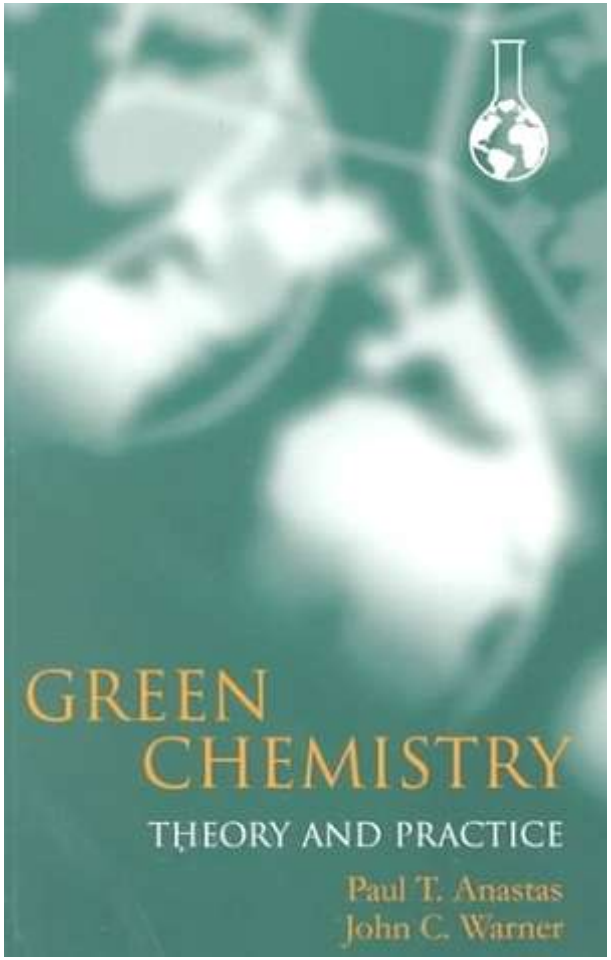


- Is a leading chemical hazard assessment tool that was launched by Clean Production Action in 2007
- It provides a roadmap to green chemistry through five benchmarks
- It drives continuous improvement and innovation to safer chemical use
- The method is publicly available, open and transparent

http://www.greenscreenchemicals.org/

GreenScreen is grounded in key Principles of Green Chemistry: it examines the inherent hazards of chemicals

Green chemistry is "the utilization of a set of principles that ***reduces the use or generation of hazardous substances*** *in the design, manufacture and application of chemical products."*



#3. Less hazardous chemical syntheses

#4. Design safer chemicals and products

#5 Use safer solvents and auxiliaries

#10. Design chemicals and products to degrade after use

#12. Minimize the potential for accidents

GreenScreen is not a Risk Assessment tool
Risk Assessment considers both hazard and exposure.

You can attempt to reduce impacts of a hazardous chemical by controlling or limiting exposure to it by using:

- engineering controls (e.g., vents),
- administrative controls (e.g., limit working hours) and/or
- personal protective equipment (e.g., face masks)

OR you can find inherently safer chemical substitutes

It is better to first reduce or eliminate the hazards of a chemical to reduce risk to people and the environment

Risk is a function of hazard and exposure

Reduce Hazard as a Priority

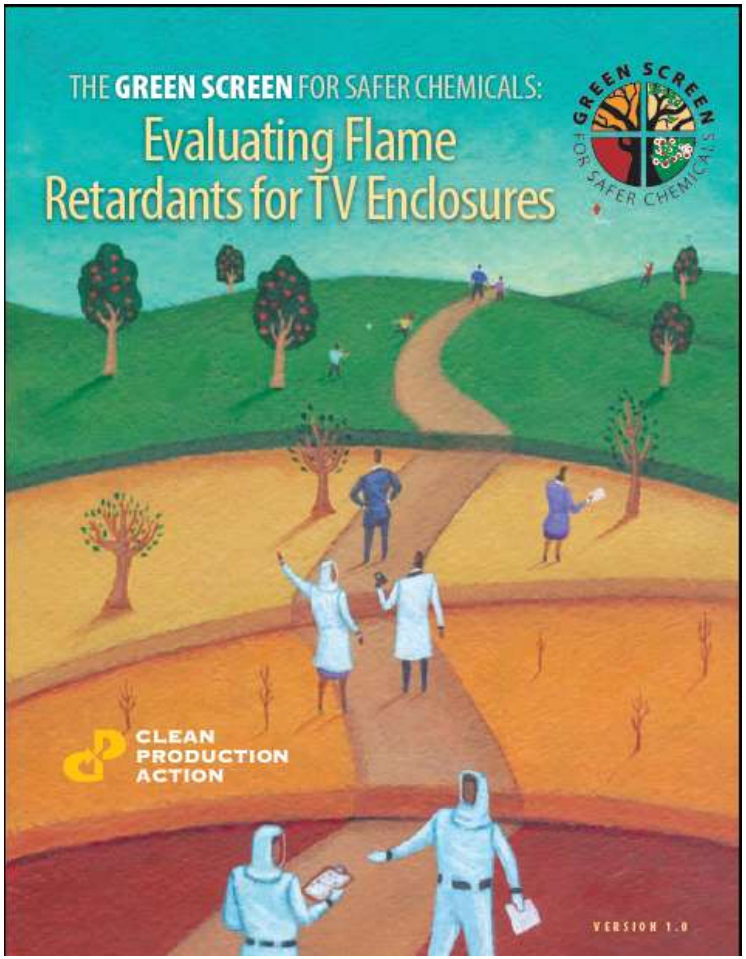
HP values this inherent hazard approach - used GreenScreen to replace PVC cables and chlorinated/brominated flame retardants

"A basic premise of Green Chemistry is that chemical risk is most effectively managed by reducing hazards because exposure controls can and do fail, products are used in unintended ways and end-of-life management of obsolete equipment is often problematic."

-H.A. Holder, P.H. Mazurkiewick, C.D. Robertson, C.A. Wray. Hewlett-Packard's Use of the GreenScreen® for Safer Chemicals. Chemical Alternatives Assessments. Royal Society of Chemistry Publishing. 2013

E-waste end of life fate and dioxin generation is a global concern (POPs)

GreenScreen was launched as campaign support to Deca-BDE controversy (2007)



- Brominated flame retardants (PBDEs) were a major campaign focus
- States were drafting PBDE bills
- Deca-BDE controversy in European Union (bromine industry tried to de-list it from RoHS Directive)
- Bromine industry defending and promoting new halogenated flame retardants

EPA United States Environmental Protection Agency

Furniture Flame Retardancy Partn

Environmental Profiles of Chemical Flame-

Alternatives for Low-D

At this time EPA's Design for Environment program was assessing flame retardants in furniture and had developed a hazard assessment method but there a need for easier decision logic!

L = Low hazard concern
M[1] = Moderate hazard concern
H = High hazard concern
L, M[1], or H = Endpoint assigned using estimated values and professional judgment (Structure Activity Relationships)

N = No
Y = Yes
P = Yes for pure chemical

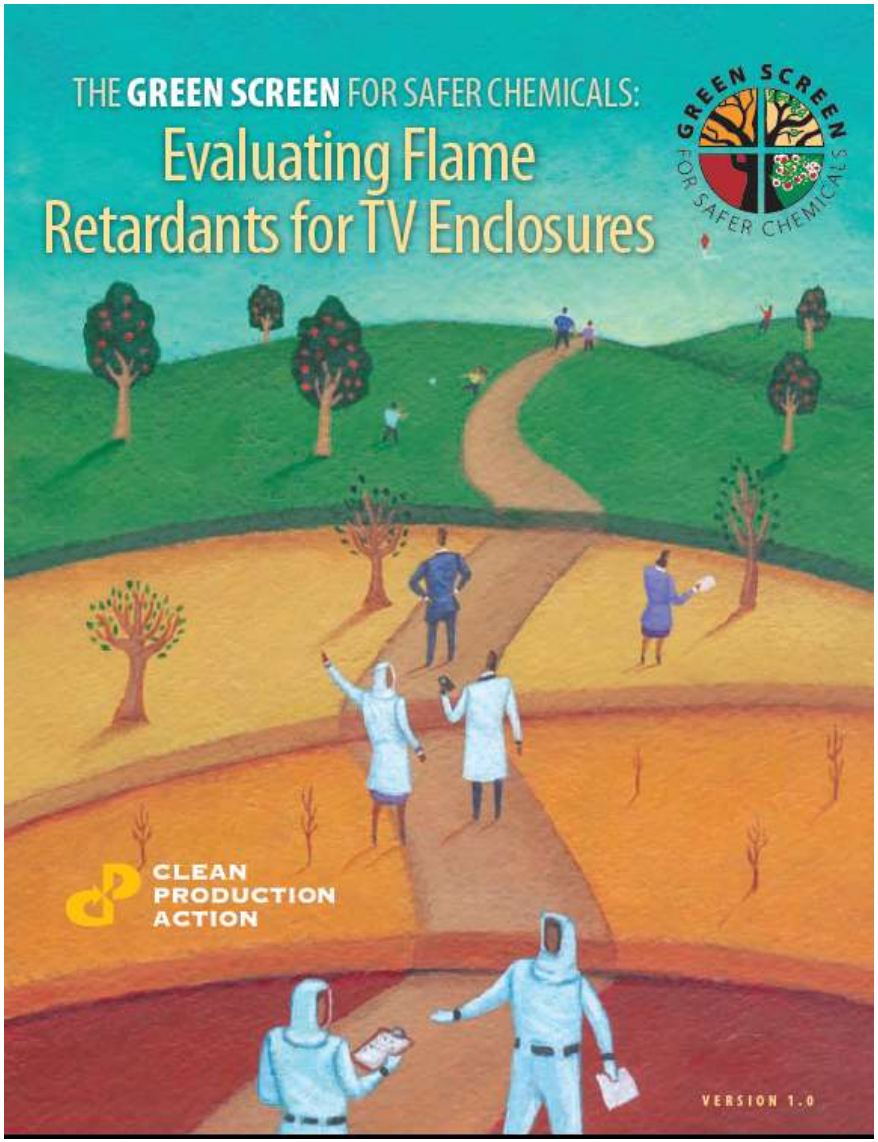
*Ongoing studies may result in a change in this endpoint
▲Persistent degradation products expected[2]

Company	Chemical	% in Formulation[3]	Human Health Effects							Ecotoxicity		Environmental		Potential Routes of Exposure						
														Worker			General Population			
			Cancer Hazard	Skin Sensitizer	Reproductive	Developmental	Neurological	Systemic	Genotoxicity	Acute	Chronic	Persistence	Bioaccumulation	Inhalation	Dermal	Ingestion	Inhalation	Dermal	Ingestion	Aquatic
Albemarle	ANTIBLAZE 180 and ANTIBLAZE 195																			
	Tris(1,3-dichloro-2-propyl)Phosphate CAS # 13674-87-8	95%	M	L	M	M	L	M	M	M	M	M	L	N	Y	Y	N	Y	Y	Y
Albemarle	ANTIBLAZE 182 and ANTIBLAZE 205																			
	Proprietary A Chloroalkyl phosphate (1)		M	L	M	M	L	M	M	M	M	M	L	N	Y	Y	N	Y	Y	Y
	Proprietary B Aryl phosphate		L	L	M*	M*	M	M*	L	H	H	L	M	N	Y	Y	N	Y	N	N
	Triphenyl Phosphate CAS # 115-86-6		L	L	L	L	L	M	L	H	H	L	L	Y	Y	Y	Y	Y	Y	Y
Albemarle	ANTIBLAZE V500																			
	Proprietary C Chloroalkyl phosphate (2)		M	M	M*	M*	L	M	L	M	M	M	L	N	Y	Y	N	Y	Y	Y
	Proprietary B Aryl phosphate		L	L	M*	M*	M	M*	L	H	H	L	M	N	Y	Y	N	Y	N	N
	Triphenyl Phosphate CAS # 115-86-6		L	L	L	L	L	M	L	H	H	L	L	Y	Y	Y	Y	Y	Y	Y
Albemarle	SAYTEX RX-8500																			
	Proprietary D Reactive brominated flame retardant		L	M	L	L	M	M	L	M	M	L▲	L	N	Y	Y	N	N	Y	Y
	Proprietary B Aryl phosphate		L	L	M*	M*	M	M*	L	H	H	L	M	N	Y	Y	N	Y	N	N
	Triphenyl Phosphate CAS # 115-86-6		L	L	L	L	L	M	L	H	H	L	L	Y	Y	Y	Y	Y	Y	Y

https://www.epa.gov/saferchoice/flame-retardants-used-flexible-polyurethane-foam

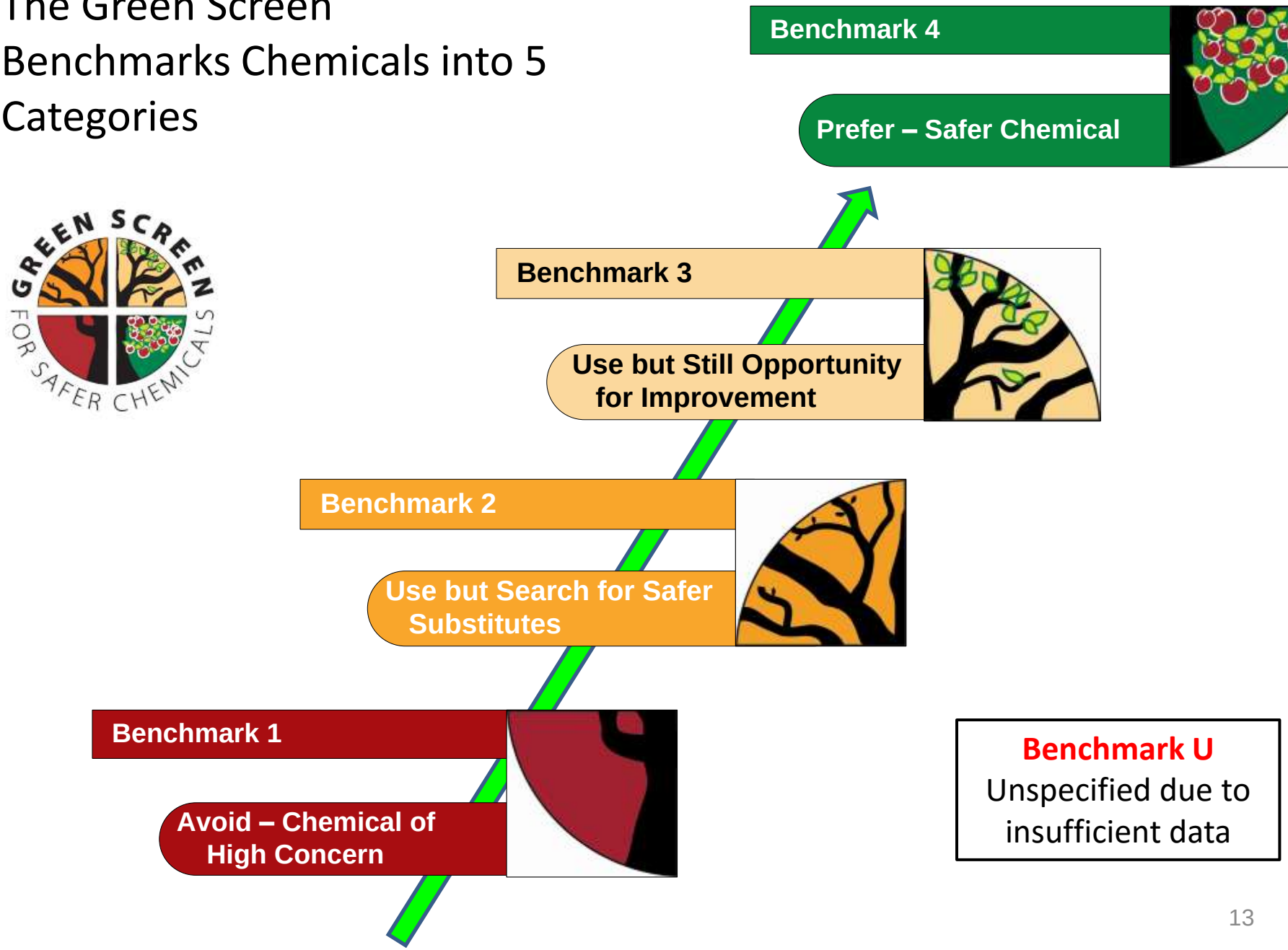
Clean Production Action

enhanced EPA's Design for the Environment approach, introduced a benchmarking method, and then evaluated common flame retardants in TV casings



http://www.greenscreenchemicals.org/resources/entry/greenscreen-evaluating-flame-retardants-for-tv-enclosures

The Green Screen Benchmarks Chemicals into 5 Categories



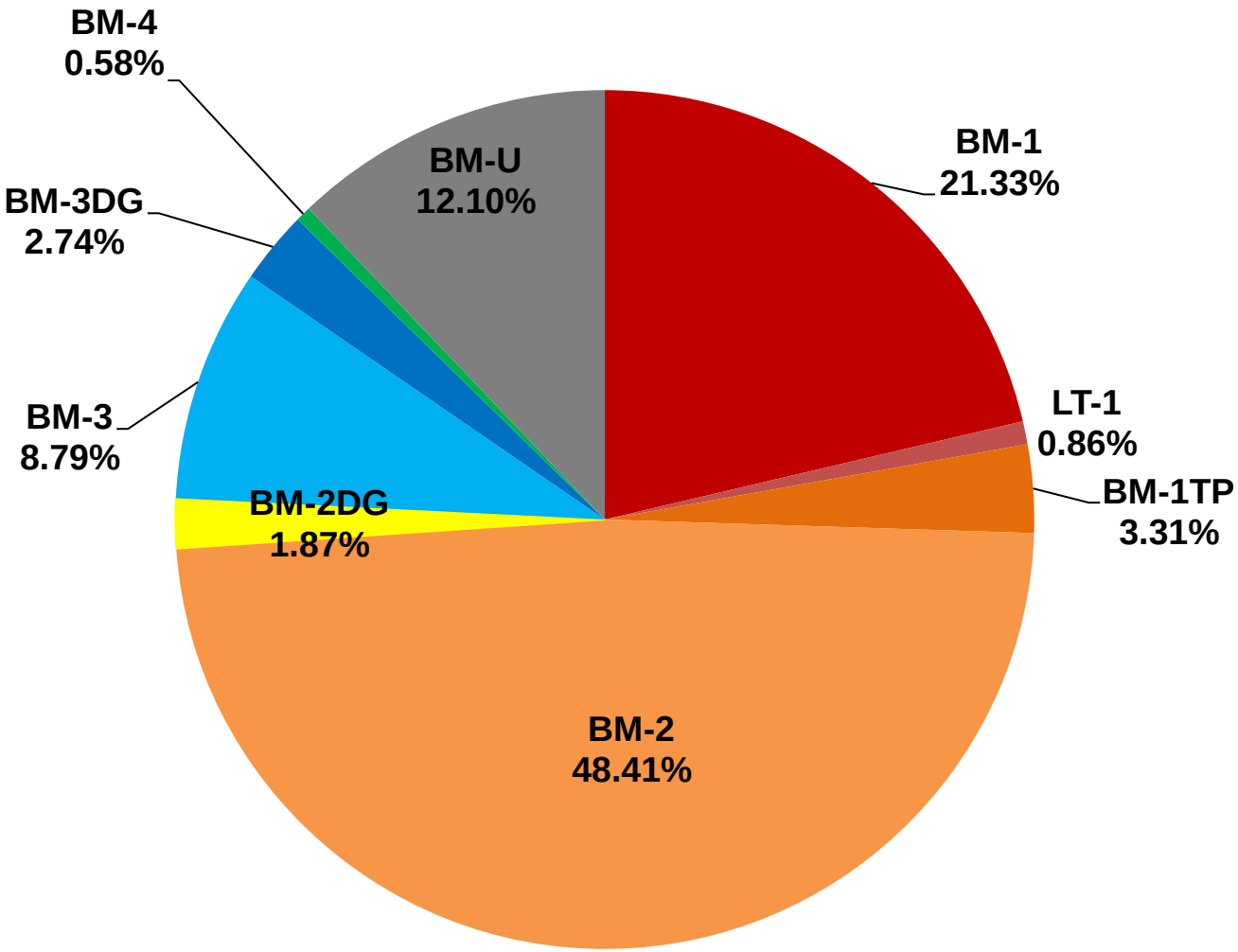
Benchmark U
Unspecified due to insufficient data

Hazard assessment of Deca BDE and another flame retardant used in TV casings resulted in Benchmark 1 outcomes – while RDP was found to be Benchmark 2

Chemical	Reason for Benchmark	Final Benchmark
DecaBDE and its breakdown products	Breakdown products: • ***pentaBDE*** = PBT, vPvB, vPT, vBT, + H-endocrine -- Benchmarks 1(a),(b),(c) • ***octaBDE*** = vPT + H-developmental -- Benchmark 1(c)	Benchmark 1: Avoid - Chemical of High Concern
BPADP (or BAPP) and its breakdown products	Breakdown product (and formulation contaminant): ***bisphenol A*** -- high concern for endocrine disruption -- Benchmark 1(d)	Benchmark 1: Avoid - Chemical of High Concern
RDP and its breakdown products	• Chemical constituents: high persistence or bioaccumulation and moderate or high toxicity (but not for priority effects) -- Benchmarks 2(a), 2(c) • Breakdown product: ***phenol*** -- high toxicity (but not for priority effects) -- Benchmark 2(d)	Benchmark 2: Use but Search for Safer Substitutes

- The availability of a comparatively safer alternative helped states pass Deca-BDE phase out bills
- Great! But it's still only a BM-2 (Use but Search for Safer Alternatives)
- So are there even safer alternatives?

From what we know, about 20% of chemicals assessed using GreenScreen are classified as Benchmark 1; almost half of chemicals screened are Benchmark 2.



The Screening Method

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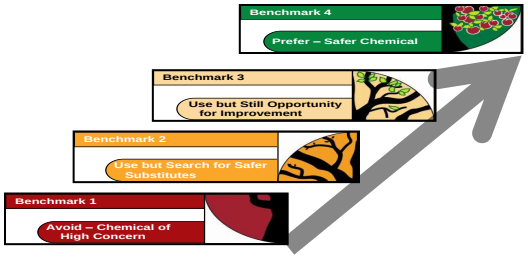
The GreenScreen procedure

1. Assess and classify hazards

Figure 1: GreenScreen® Hazard Ratings for Propylene Glycol

Group I Human					Group II and II* Human									Ecotox		Fate		Physical	
C	M	R	D	E	AT	ST		N		SnS*	SnR*	InS	InE	AA	CA	P	B	Rx	F
						single	repeated*	single	repeated*										
L	L	M	M	DG	L	DG	M	M	DG	L	DG	L	L	L	L	sL	sL	L	L

2. Assign a Benchmark score



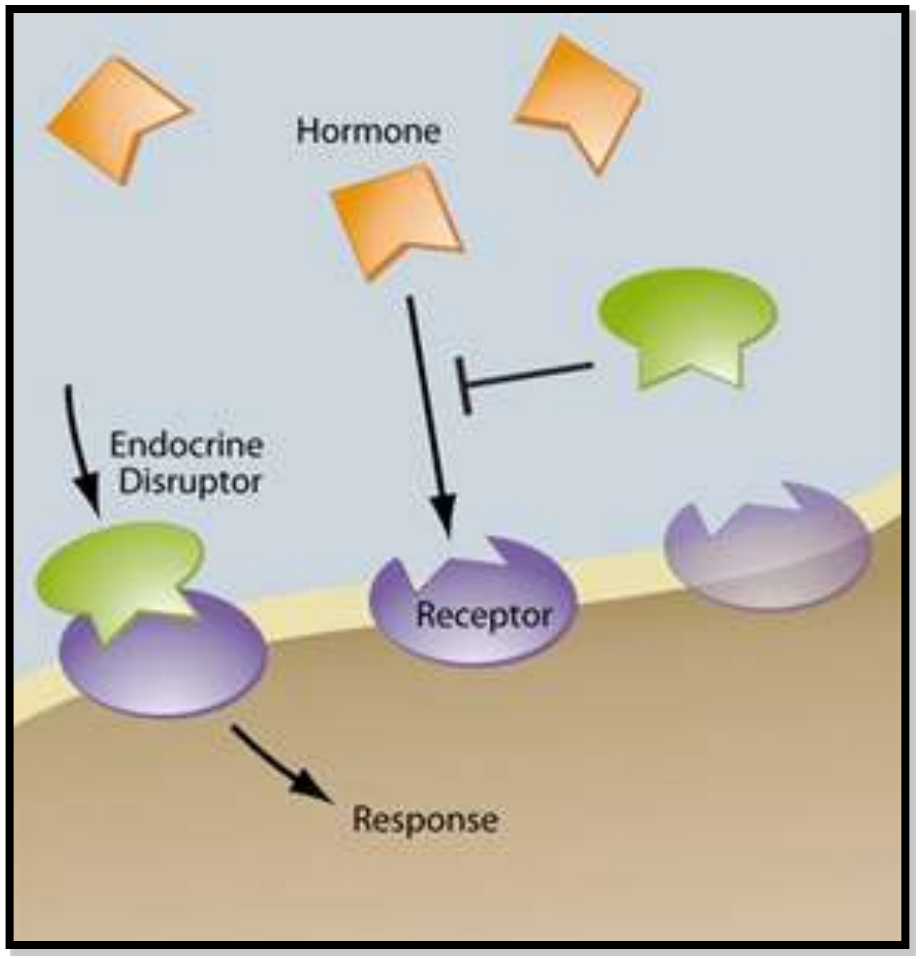
3. Make informed decisions

GreenScreen assesses the hazard of a chemical against 18 Endpoints or categories

Human Health Group I	Human Health Group II and II*	Environmental Toxicity & Fate	Physical Hazards
Carcinogenicity	Acute Toxicity	Acute Aquatic Toxicity	Reactivity
Mutagenicity & Genotoxicity	Systemic Toxicity & Organ Effects	Chronic Aquatic Toxicity	Flammability
Reproductive Toxicity	Neurotoxicity	*Other Ecotoxicity Studies when available*	
Developmental Toxicity	Skin Sensitization	Persistence	
	Respiratory Sensitization		
Endocrine Activity	Skin Irritation	Bioaccumulation	
	Eye Irritation		

How GreenScreen assesses Endocrine Activity (E) of a chemical

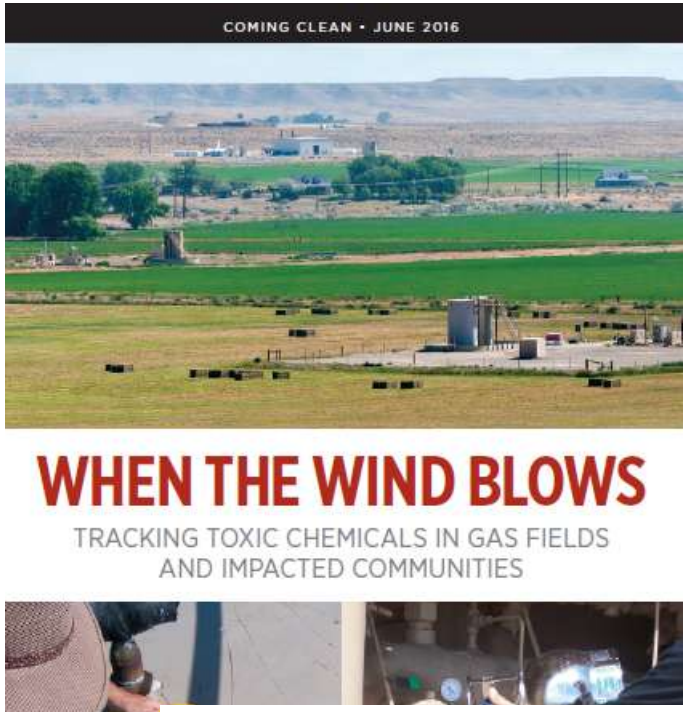
- **<u>Endocrine activity (E):</u>** A change in endocrine homeostasis which may include binding to or altering cell receptors, altering hormone signaling in cells, altering hormone levels, or disrupting hormonally-regulated processes.
- Any evidence of (E) is given an initial hazard assessment of Moderate
- Good evidence of reproductive or developmental toxicity is given a hazard classification of High



Example of a Completed GreenScreen Hazard Summary Table

GreenScreen Hazard Summary Table																			
Group I Human					Group II and II* Human								Ecotox		Fate		Physical	
Carcinogenicity	Mutagenicity	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
						single	repeated *	single	repeated *	*	*								
L	**L**	**L**	**M**	*M*	**L**	**L**	**L**	**vH**	*H*	**L**	DG	**L**	**L**	**H**	**H**	**vL**	**L**	**M**	*L*

These hazard assessment tables are a useful way to summarize chemical hazards



- 14 GreenScreen hazard assessment tables featured in recent Coming Clean report
- http://comingcleaninc.org/wind-blows

Benzene was assigned a **Benchmark Score of 1** ("Avoid—Chemical of High Concern") as it has High Group 1 Human Toxicity (High carcinogenicity (C), mutagenicity (M), reproductive toxicity (R), and developmental toxicity (D)). This corresponds to GreenScreen® benchmark classification 1e in CPA 2011. There are no data gaps.

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*										
H	H	H	H	*M*	L	vH	H	M	H	L	*L*	H	H	H	H	vL	vL	*L*	H

Let’s look in a bit more detail about how a GreenScreen Assessment is done

1. **Assess and classify hazards**
2. Assign a Benchmark score
3. Make informed decisions

To Begin: Identify chemical ingredients and their environmental transformation products (breakdown products) as well

GreenScreen Hazard Summary Table																		
		Human Health Effects											Ecotox.		Fate		P-Chem	
		Priority Effects																
Chemical	CAS #	Carcinogenic	Mutagenic	Reproductive	Developmental	Endocrine Disruption	Neurological	Acute Toxicity	Systemic/Organ Effects	Sensitization (skin or respiratory)	Irritation/Corrosion (skin or eyes)	Immune System	Acute	Chronic	Persistence	Bioaccumulation	Exposivity	Flammability
Chemical Formulation X																		
Chemical Constitutent A																		
Chemical Constitutent B																		
Chemical Constitutent C																		
Transformation Products																		
Transformation Product Y																		
Combustion Byproduct Z																		
Biodegradation product V																		

Once chemical ingredients are identified and listed, then Assess & Classify each chemical's Hazards

1) IDENTIFY

2) RESEARCH Research & collect data.

3) CLASSIFY

4) CONFIDENCE

5) DOCUMENT

Assess & Classify Hazards

1) IDENTIFY

2) RESEARCH

3) CLASSIFY

4) CONFIDENCE

5) DOCUMENT

Based on information collected, next assign a hazard level for each of the 18 endpoints

- Very high (vH)
- High (H)
- Moderate (M)
- Low (L)
- Very low (vL)
- Data gap (DG)

Example: here's how a chemical is given a hazard score for carcinogenicity

Example – Hazard Criteria for Carcinogenicity (C)

FIGURE 2. **Hazard Criteria for Carcinogenicity and Mutagenicity**

	Information Type	Information Source	List Type	High (H)	Moderate (M)	Low (L)
Carcinogenicity (C)	Data	GHS Criteria & Guidance		GHS Category 1A (Known) or 1B (Presumed) for any route of exposure	GHS Category 2 (Suspected) for any route of exposure or limited or marginal evidence of carcinogenicity in animals (See Guidance)	Adequate data available, and negative studies, no structural alerts, and GHS not classified.
	A Lists	US EPA – IRIS Carcinogens (1986)	Authoritative	Group A, B1 or B2	Group C	Group E
		US EPA – IRIS Carcinogens (1996, 1999, 2005)	Authoritative	Known or Likely		Not Likely
		EU – REACH Annex XVII CMRs	Authoritative	Category 1 or 2	Category 3	
		EU – Annex VI CMRs	Authoritative	Carc 1A or 1B	Carc 2	
		EU – GHS (H-Statements)	Authoritative	H350 or H350i	H351	
		EU – R-Phrases	Authoritative	R45 or R49	R40	
		EU – SVHC Authorisation List	Authoritative	Carcinogenic – Banned unless Authorised		
		"GHS – [COUNTRY]* Lists (*Australia, the European Union, Indonesia, Japan, Korea, Malaysia, New Zealand, Taiwan and Thailand)"	Screening	Category 1A or 1B	Category 2	Not Classified
		IARC	Authoritative	Group 1 or 2a	Group 2b	Group 4
		MAK	Authoritative	Carcinogen Group 1 or 2	Carcinogen Group 3A or 3B, 4, or 5	
		US CDC – Occupational Carcinogens	Authoritative	Occupational Carcinogen		
		US NIH – Report on Carcinogens	Authoritative	Known or Reasonably Anticipated		
		CA EPA -- Prop 65	Authoritative	Carcinogen		
	B Lists	US EPA – IRIS Carcinogens (1986)	Authoritative	Group D		
		US EPA – IRIS Carcinogens (1999)	Authoritative	Suggestive Evidence, but not sufficient to assess human carcinogenic potential		
		US EPA – IRIS Carcinogens (2005)	Authoritative	Suggestive evidence of carcinogenic potential		
		IARC	Authoritative	Group 3		
		CA EPA – Prop 65 (with qualifications)*	Authoritative	Carcinogen – specific to chemical form or exposure route		

GreenScreen makes any data gap transparent

GreenScreen Hazard Summary Table																			
Group I Human					Group II and II* Human									Ecotox		Fate		Physical	
Carcinogenicity	Mutagenicity	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
						single	repeated *	single	repeated *	*	*								
L	L	L	M	M	L	L	L	vH	H	L	DG	L	L	H	H	vL	L	M	L

GreenScreen Hazard Summary Table clearly distinguishes unknown hazards

DG

Each hazard 'score' will also show the level of confidence for that designation

Green Screen Hazard Ratings																			
Group I Human					Group II and II* Human									Ecotox		Fate		Physical	
Carcinogenicity	Mutagenicity	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
						single	repeated *	single	repeated *	*	*								
L	**L**	**L**	**M**	*M*	**L**	**L**	**L**	**vH**	*H*	**L**	DG	**L**	**L**	**H**	**H**	**vL**	**L**	**M**	*L*

<u>Level of Confidence</u>:

- **Bold = High confidence**
- *Italics = Low confidence*

Once the hazard levels are assigned for each endpoint and a hazard table is filled out for that chemical, you…

1. Assess and classify hazards

2. **Assign a Benchmark score**

3. Make informed decisions

Apply Benchmark Criteria

GreenScreen® for Safer Chemicals v1.3
GreenScreen Benchmarks™

ABBREVIATIONS
- P Persistence
- B Bioaccumulation
- T Human Toxicity and Ecotoxicity

GREENSCREEN BENCHMARK–4

Low P* + Low B + Low T (Ecotoxicity, Group I, II and II* Human) + Low Physical Hazards (Flammability and Reactivity) + Low (additional ecotoxicity endpoints when available)

Prefer—Safer Chemical

GREENSCREEN BENCHMARK–3

a. Moderate P or Moderate B
b. Moderate Ecotoxicity
c. Moderate T (Group II or II* Human)
d. Moderate Flammability or Moderate Reactivity

Use but Still Opportunity for Improvement

GREENSCREEN BENCHMARK–2

a. Moderate P + Moderate B + Moderate T (Ecotoxicity or Group I, II, or II* Human)
b. High P + High B
c. High P + Moderate T (Ecotoxicity or Group I, II, or II* Human)
d. High B + Moderate T (Ecotoxicity or Group I, II, or II* Human)
e. Moderate T (Group I Human)
f. Very High T (Ecotoxicity or Group II Human) or High T (Group II* Human)
g. High Flammability or High Reactivity

Use but Search for Safer Substitutes

GREENSCREEN BENCHMARK–1

a. PBT = High P + High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]
b. vPvB = very High P + very High B
c. vPT = very High P + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]
d. vBT = very High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]
e. High T (Group I Human)

Avoid—Chemical of High Concern

GREENSCREEN BENCHMARK–U
Unspecified Due to Insufficient Data

Example: Benchmark 1 has five criteria against which a chemical's hazards are compared; if any of these criteria are met then that chemical is a Benchmark 1 chemical

GREENSCREEN BENCHMARK–1

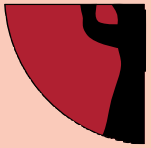
a. PBT = High P + High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]

b. vPvB = very High P + very High B

c. vPT = very High P + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]

d. vBT = very High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II* Human)]

e. High T (Group I Human)



Avoid—Chemical of High Concern

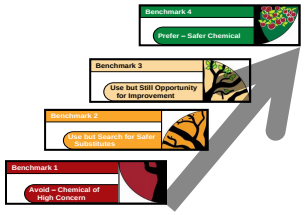
a. **PBT** = high Persistence + high Bioaccumulation + high Toxicity

b. **vPvB** = very Persistent + very Bioaccumulative

c., d. **vPT** or **vBT** = (very Persistent or very Bioaccumulative) + Toxic

e. **high Human Toxicity** for any "priority effect"

Assign a Benchmark Score



1) Apply Benchmark Criteria

Benchmark U
Unspecified due to insufficient data

2) **Analyze Data Gaps and any information on a chemical's transformation products**

Before assigning a final Benchmark score it is important to analyze the data gaps and transformation products of that chemical.

A chemical's preliminary benchmark score might be modified because of its type and number of **Data Gaps**

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	repeat*	single	repeat*										
L	L	L	DG	DG	L	M	M	L	L	L	DG	L	M	L	L	M	L	L	M

Preliminary Benchmark 3

+

Fails Benchmark 3 Data Requirements (DG in Developmental endpoint)

=

Benchmark 2_{DG}

A chemical's preliminary benchmark score might be modified because of its **transformation products**

Preliminary BM score

Deca bromodiphenyl ether

Benchmark 2

Final BM score

Deca bromodiphenyl ether

Benchmark 1_{TP}

Deca-BDE is assigned a Preliminary Benchmark 2 score but consideration of its transformation products results in a final Benchmark 1 score

How does GreenScreen assess Mixtures & Products?

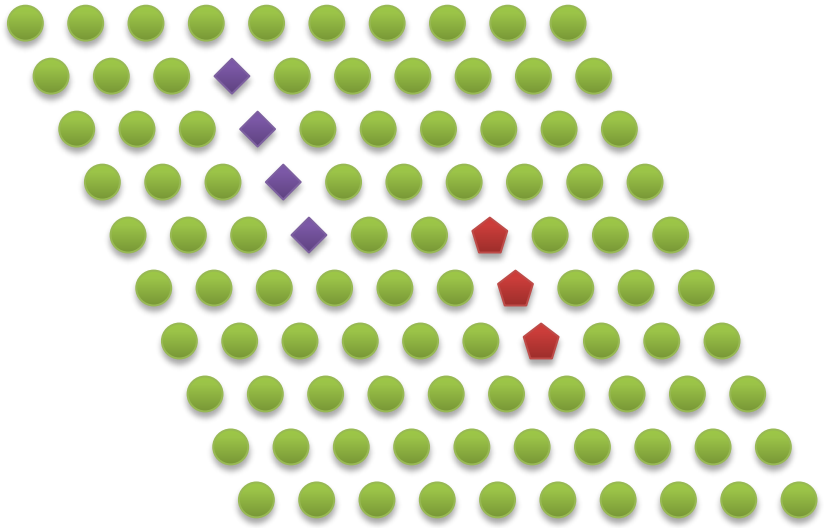
Intentionally added ingredients

ALL

≥ 0 PPM

Impurities

≥ 100 PPM



GreenScreen: Mixtures & Products Results and Reporting Requirements

No overall Benchmark score

Promotes transparency

Each ingredient:
Chemical name and CAS#

Each ingredient:
Benchmark score

Product:
% at each Benchmark

Chemical	CAS	% by weight	Benchmark	Benchmark by %
Calcium carbonate	1317-65-3	34%	4	34%
Acetone	67-64-1	20%	2	20%
Petroleum distillates	64742-89-8	20%	1	46%
Toluene	108-88-3	20%	1	
Dichloromethane	75-09-2	5%	1	
Methyl ethyl ketone	78-93-3	1%	1	

Once the final Benchmark score is decided, you…

1. Assess and classify hazards

2. Assign a Benchmark score

3. **Make informed decisions**

Make Informed decisions

Some data gaps might not be acceptable on a case-by-case basis based on known product use and expected routes of exposure.

e.g., While lack of data on *skin irritation* may be sufficient to achieve a *Benchmark 3*, it would not be an acceptable data gap when selecting a chemical for use in a *skin lotion*.

Getting chemicals assessed and finding GreenScreen reports

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
6. Q&A

You can hire a Licensed GreenScreen Profiler

http://www.greenscreenchemicals.org/professionals/profilers

ToxServices LLC

www.toxservices.com

NSF International

www.nsf.org

SciVera LLC

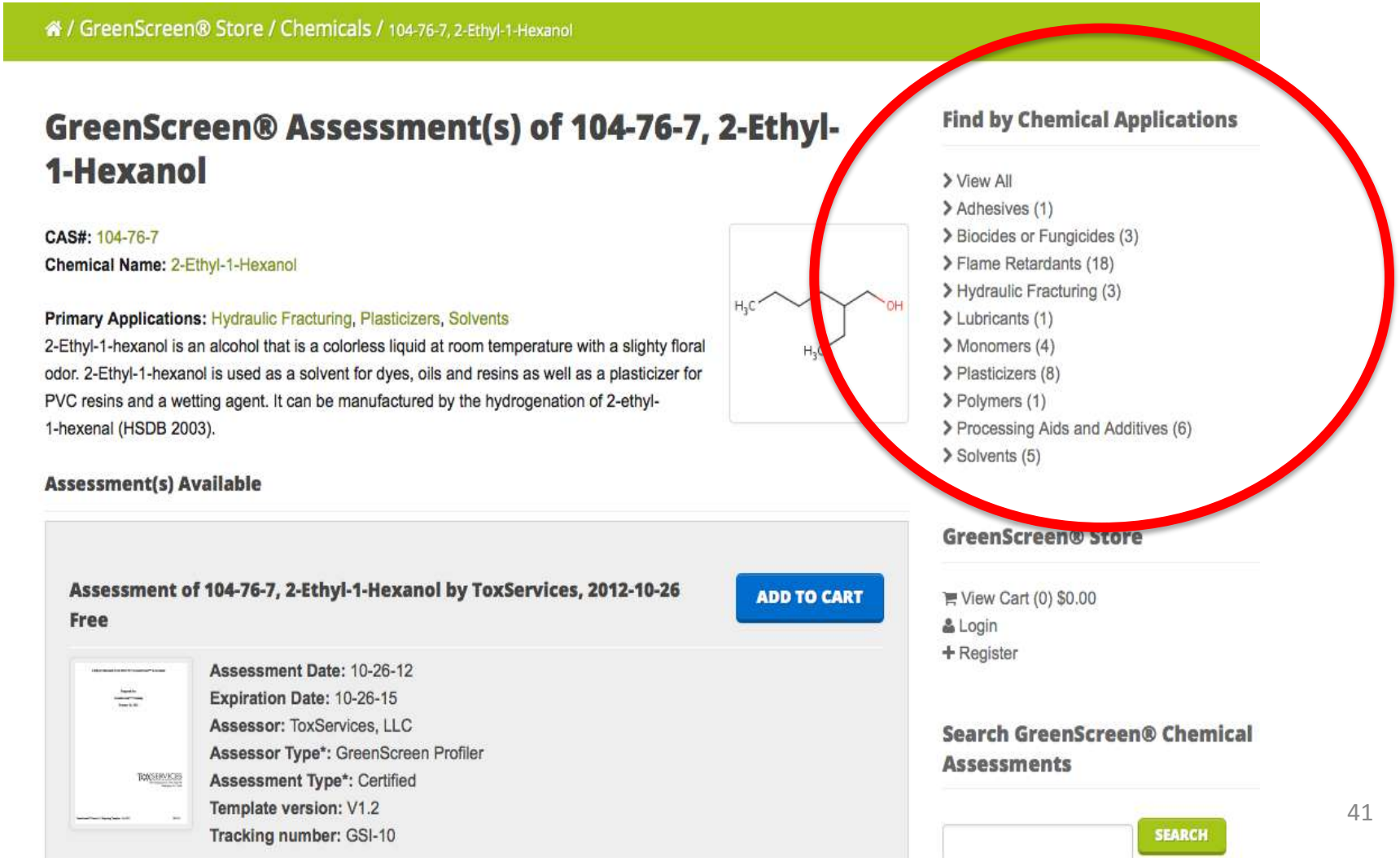
www.scivera.com/services.php

Gradient

https://gradientcorp.com/

Download Certified Assessments from the GreenScreen Store

http://www.greenscreenchemicals.org/gs-assessments/chemicals



The GreenScreen List Translator

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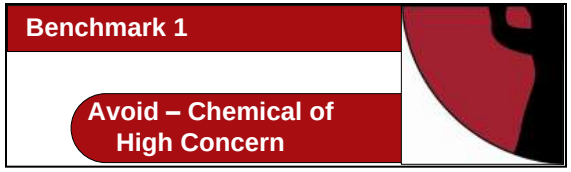
The Green Screen List Translator – a quick way to identify chemicals of high concern



- The List Translator is a great way to quickly identify and prioritize action on chemicals of high concern
- It assesses a chemical's hazards using list-based information only
- The absence of a chemical on a list does not mean that a chemical is safe!

LT-1: 'Likely to be a GreenScreen Benchmark 1'

LT-P1: 'Possibly a GS Benchmark 1 because it is on screening lists only; its presence on different lists may have a range of different hazard scores; further research is needed

LT-UNK: information provided is insufficient to determine this chemical's hazards; further research is needed

http://www.greenscreenchemicals.org/method/greenscreen-list-translator

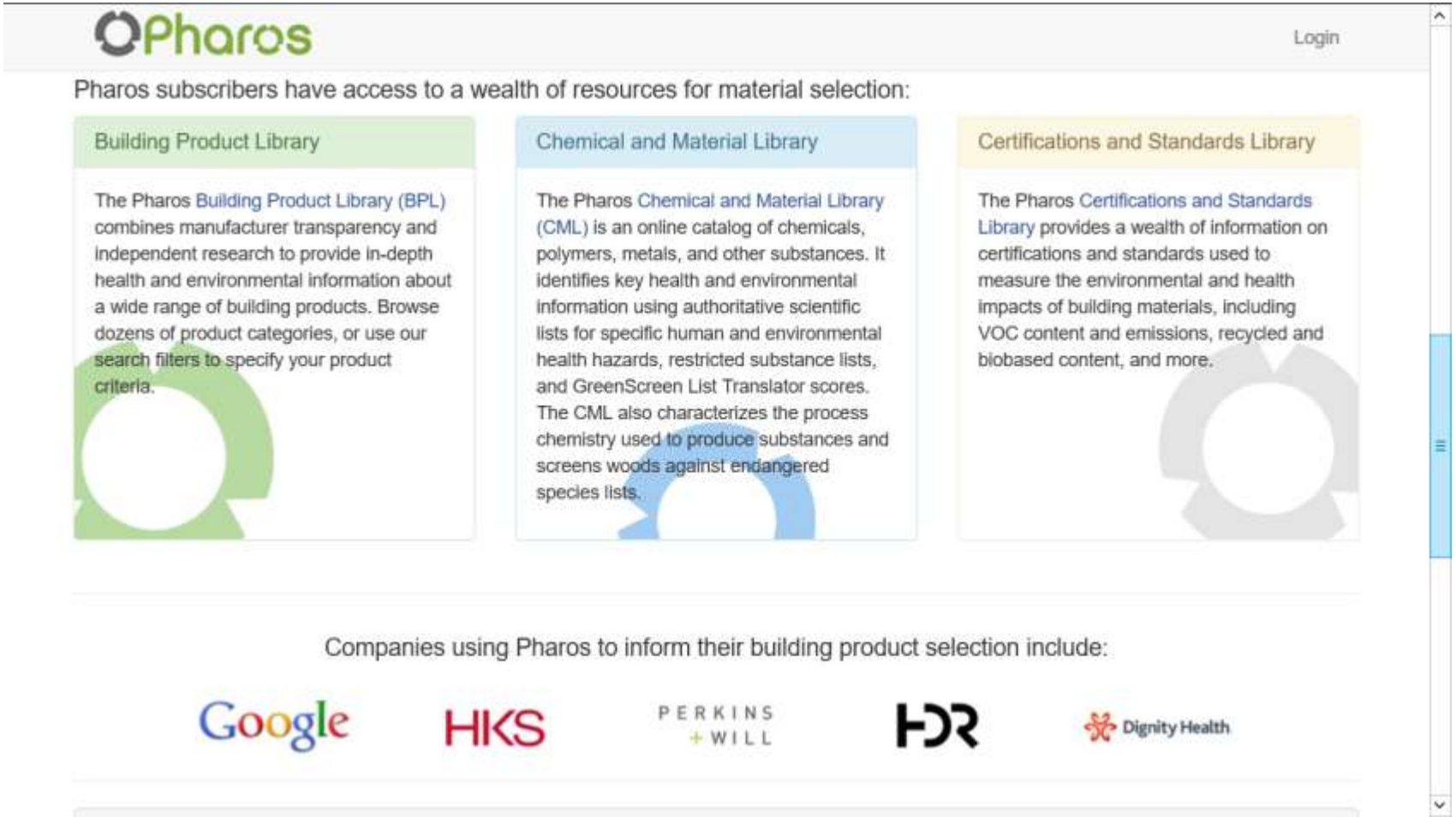
GreenScreen Tools Comparison

Attribute	GreenScreen	GreenScreen List Translator
*Score	GreenScreen Benchmark	List Translator
Expertise	Significant	Minimal
Time	Significant	Minimal
Identifies	Safer Hazardous Poorly understood	Hazardous
Analysis	Measured Data Estimated Data Lists	Lists
Transformation Products	Yes	No
Data gaps	Yes	No

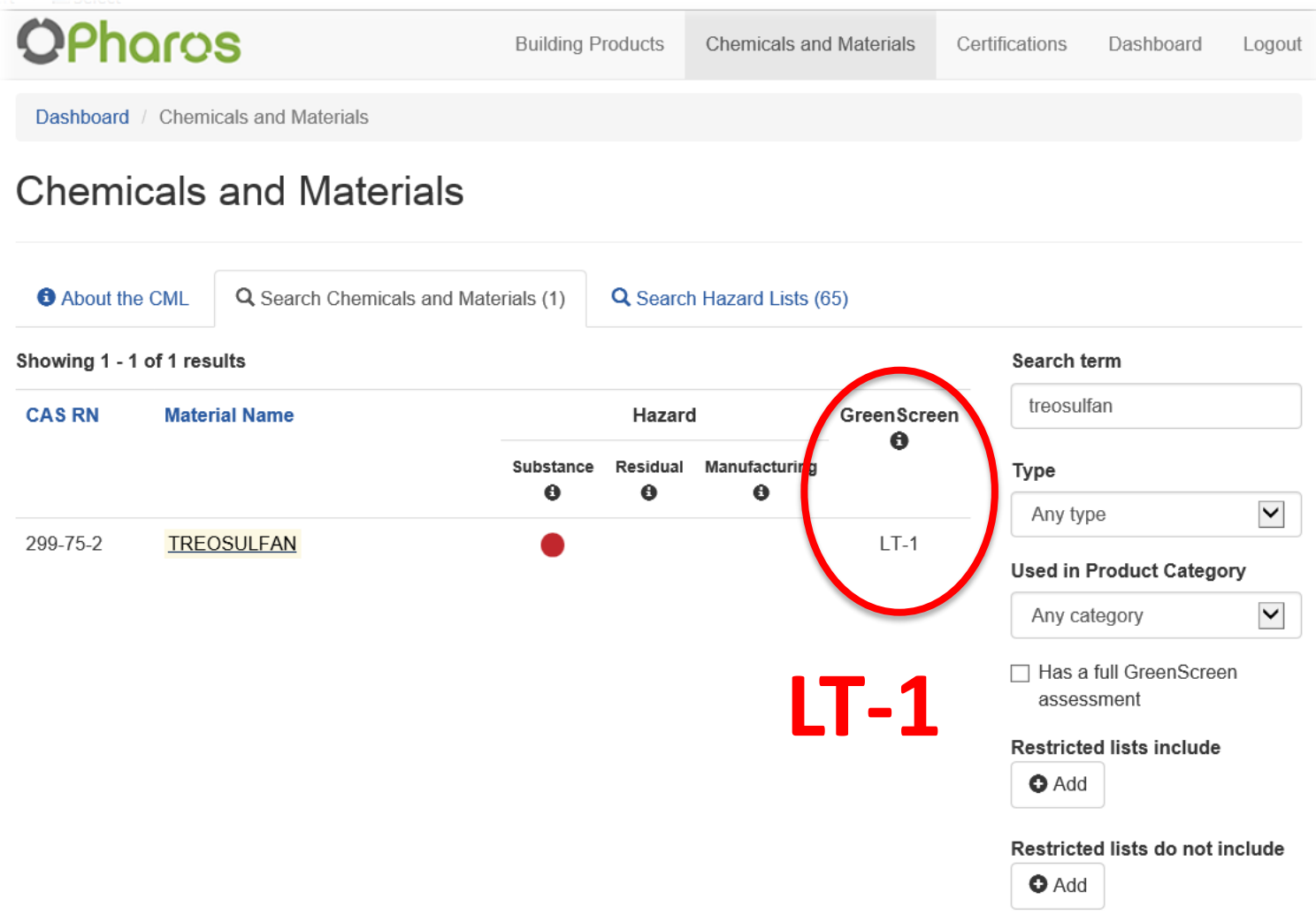
***A Benchmark score always trumps a List Translator score.**

Healthy Building Network's Pharos tool has automated the GreenScreen List Translator

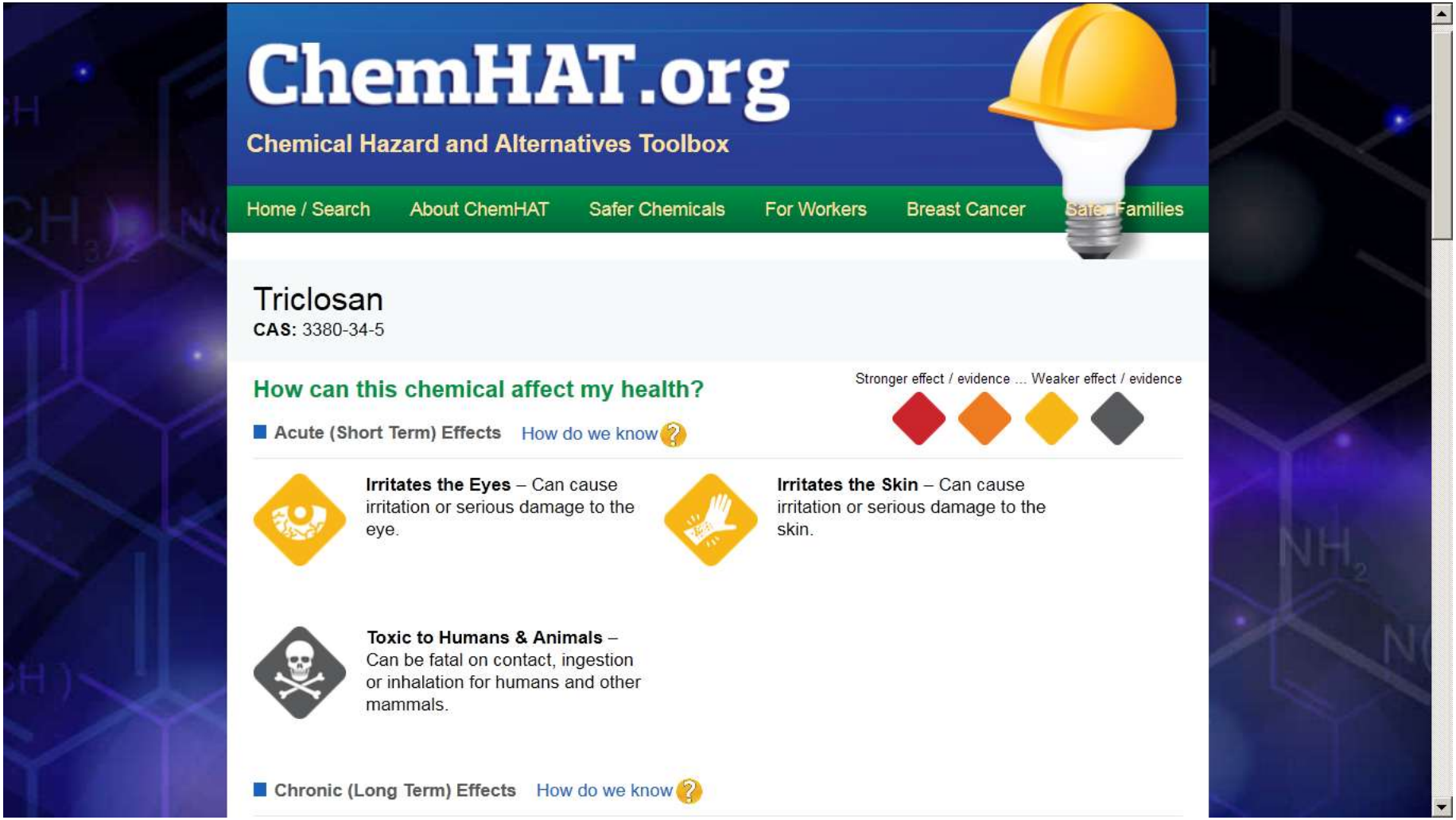
www.pharosproject.net



Search for a chemical to see its LT score then select Hazard Tab for more list-based hazard info



Another on-line (free) tool: Chemhat.org Builds on Pharos framework



So how has the ACC responded?

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The American Chemistry Council's position on GreenScreen

November 14, 2014

ACC'S VALUE CHAIN OUTREACH INITIATIVE

VINYL INSTITUTE ANNUAL MEETING

American Chemistry Council

ACC watching market de-selection of chemicals

ACC strategy:

Tools: Debunk Hazard-only Approach; Promote Alternatives

Hazard Tools Assessed

GreenSuite
Monitor. Measure. Report. Reward.

GreenWERCS™
A Formulation Profiling Tool

Design for the Environment U.S. EPA

GREEN SCREEN FOR SAFER CHEMICALS

SciVera
Better Science. Better Products.

Chemicals Analyzed

Caffeine

Citric Acid

Ethylene Glycol

Glycolic Acid

Dibutyl Phthalate

Benzios-thiaxolinone

Hexabromo-cyclododecane

Q1 2015 Headline


No confidence in chemical regulation
Advocate government use of consensus & choice in sustainability standards
TSCA Reform/RC Product Safety Code
Government adoption of private sustainability standards
Public interest group anti-chemical pressure
Shine a light on standards' attributes
Engage directly with retailers, corporate influencers, associations, activist groups
Veil of consensus/ green marketing
Easy to use red lists
Engage in standards development
Menu of science & risk-based solutions
Proliferation of private "sustainability" standards
Walmart
Save money. Live better.
CLEAN PRODUCTION ACTION
KAISER PERMANENTE

Thank You! Questions?

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