



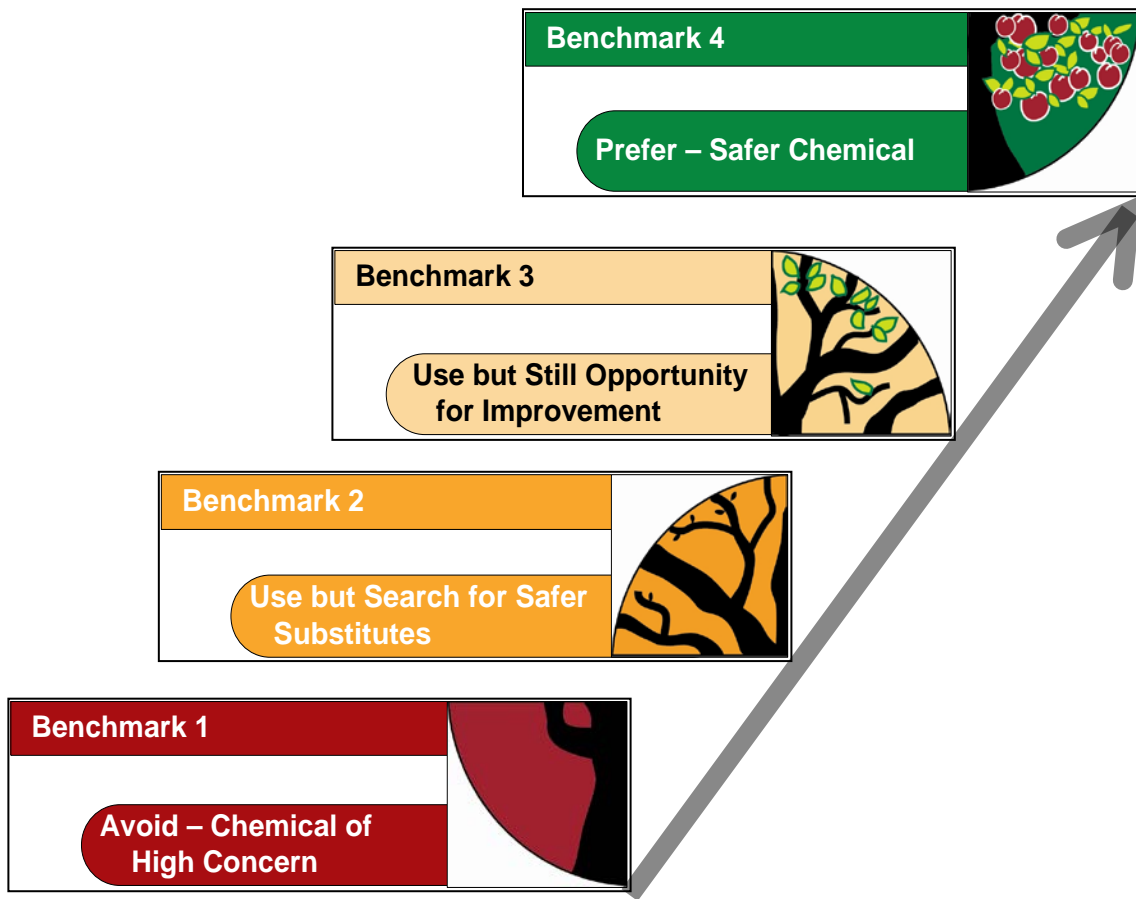
# Hazard Assessment using GreenScreen<sup>®</sup> for Safer Chemicals

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# Hazard Assessment using GreenScreen<sup>®</sup>



- Built on precedent frameworks
- Evaluates intrinsic hazards for 18 human health & environmental endpoints
- Provides criteria to assign hazard levels
- Decision logic used to arrive at single score

*Facilitate communication regarding chemical hazards*  
*Support alternatives assessment - avoid regrettable substitutions*  
*Provide roadmap towards use of safer chemicals*

# Using Hazard Lists to Facilitate Process


## GREENSCREEN LIST TRANSLATOR VERSION 1.3 (1e) SPECIFIED LISTS

Last Updated: June 2016

ID	Abbreviation	CPA List Type	List Name	Associated GreenScreen Hazard Endpoints	URL and/or Reference <sup>1</sup>
16	G&L – Neurotoxic Chemicals	Screening B	Grandjean & Landrigan, List of 201 Chemicals Known to be Neurotoxic in Humans.	Neurotoxicity and Developmental Toxicity (includes Developmental Neurotoxicity)	Grandjean, P & PJ Landrigan, "Developmental neurotoxicity of industrial chemicals," Lancet, v368: 2167-2178, 2006 (first link). Grandjean, P & PJ Landrigan, "Neurobehavioural effects of developmental toxicity," The Lancet Neurology, V13: 330–38, published 2014 (second link). <a href="http://www.ncbi.nlm.nih.gov/pubmed/17174709">http://www.ncbi.nlm.nih.gov/pubmed/17174709</a> <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4418502">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4418502</a>
17	IARC	Authoritative A and B	International Agency for Research on Cancer (IARC), Substances Reviewed in IARC Monographs and Supp	Carcinogenicity	Lists provided at the link below reference the relevant IARC monograph volume or supplement. Substances may be listed by CAS number, name or collectively as a substance group.

ID	Abbreviation	CPA List Type	List Name	Associated GreenScreen Hazard Endpoints	GreenScreen Supporting List Information			GreenScreen List Translator					
					ID	List	Sublist Category	Green Screen Hazard	List Type	A or B	Hazard Range	Display in Hazard Box (See Notes)	List Translator Score
18	MAK	Authoritative A and B	MAK Germ Toxic Annu Class Work		152	G&L – Neurotoxic Chemicals	Neurotoxic	Neurotoxicity-Any Exposure	Screening	B	vH, H, or M	UNK	UNK
					153	IARC	Group 1 – Agent is Carcinogenic to humans	Carcinogenicity	Authoritative	A	H	H	1
					154	IARC	Group 2a – Agent is probably Carcinogenic to humans	Carcinogenicity	Authoritative	A	H	H	1
					155	IARC	Group 3 – Agent is not classifiable as to its carcinogenicity to humans	Carcinogenicity	Authoritative	B	H, M or L	UNK	UNK
					156	IARC	Group 4 – Agent is probably not carcinogenic to humans	Carcinogenicity	Authoritative	A	L	L	UNK
					157	IARC	Group 2b – Possibly carcinogenic to humans	Carcinogenicity	Authoritative	A	M	M	UNK
					158	MAK	Carcinogen Group 1 – Substances that cause cancer in man	Carcinogenicity	Authoritative	A	H	H	1

# Value of List-Based Scoring



List Translator  
Score  
LT-1  $\approx$   
Benchmark-1

- Common framework for identifying chemicals of high concern
- Rules-based approach allows automation, quick screening, scaling
- First step on journey to replacing hazardous substances in products manufactured, specified, or purchased
- Proactive chemicals management (beyond regulatory compliance)
- Facilitates supply chain communication

# List Translator Applications

The logo for Valspar, featuring the word "valspar" in a lowercase, red, sans-serif font with a registered trademark symbol.

Prioritize chemicals for phase out



Provide transparency on chemical hazards  
Recognition for product optimization

The multi-colored logo for Google, with the letters "G", "o", "o", "g", "l", "e" in blue, red, yellow, blue, red, and green respectively.

Set material specification or  
purchasing requirements

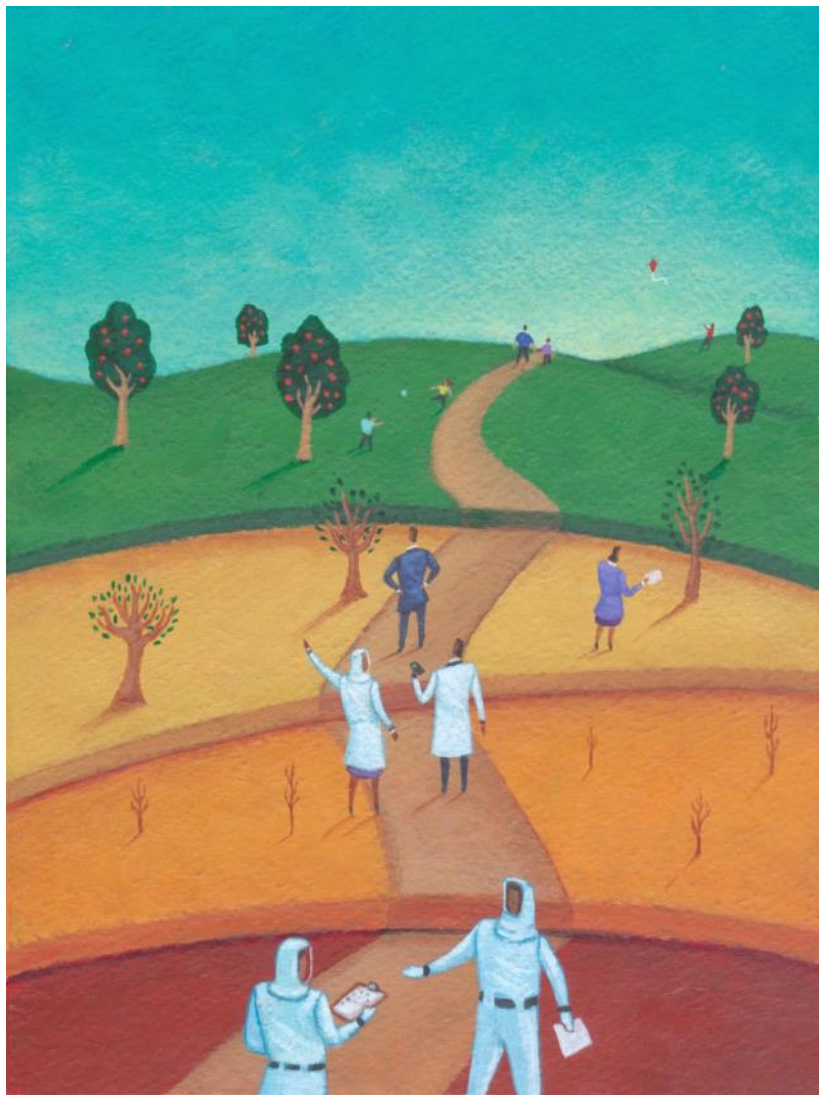


Set scope for chemical  
footprinting

The logo for Zero Discharge of Hazardous Chemicals (ZDHC), featuring a large "Ø" symbol followed by "ZDHC" in bold, and the text "Zero Discharge of Hazardous Chemicals" below.

Establish RSLs or mRSLs

# Value of Comprehensive Assessments



- Provides in-depth analysis needed when making product design or re-design decisions
- Flags data gaps and considers environmental transformation products
- Supports generation of “positive lists” of chemicals

# GreenScreen Applications



Set material specification or purchasing requirements



Provide transparency on chemical hazards  
Recognition for product optimization

**LEVI STRAUSS & CO.**

Supplier communication,  
generate preferred list of  
chemicals



**LIVING  
PRODUCT  
CHALLENGE™**

Demonstrate leadership through  
product certifications



Inform chemical replacement,  
avoid regrettable substitutions



# Scaling Hazard Assessment



*Many chemicals characterized  
Information widely used to guide chemical selection  
and management decisions*