



## GreenScreen® for Safer Chemicals

Diseases of our modern age are increasingly linked to toxic chemicals in the environment. Chemicals are routinely used in consumer products and in the workplace where they escape into surrounding air, water, and soil, posing direct exposure and risks and accumulating in the food chain. Humans and wildlife are now internally contaminated with hundreds of synthetic chemicals, many of which are known to be hazardous. As awareness grows, individuals and companies increasingly want to know how to identify and use safer chemicals.

Clean Production Action developed GreenScreen® for Safer Chemicals as a publicly available and transparent chemical hazard screening method to help move our society quickly and effectively toward the use of greener and safer chemicals. GreenScreen allows users to evaluate chemicals based on their inherent hazards—for example, to determine if they are linked to cancer, are toxic to fish, or are persistent in the environment—and to promote continuous improvement toward safer chemicals. GreenScreen pulls together all the best information on chemical hazards to identify chemicals of high concern and assess safer alternatives to better inform:

- procurement,
- product design and development,
- standards, and
- policies.

### How it Works

GreenScreen sets out four benchmarks on the path to safer chemicals, with each benchmark defining progressively safer chemicals (see Figure 1). It builds on the 12 Principles of Green Chemistry and the US EPA's Design for the Environment (DfE) alternatives assessment method, which consolidates the available data on a chemical's inherent characteristics—including human health effects, environmental fate and toxicity, and safety—into a table of hazard endpoints each ranked as high, moderate or low (see Table 1).

From there, the hazard evaluations are further consolidated into a single benchmark that provides an easy means for comparing chemicals. GreenScreen also addresses the hazards posed by a chemical when it breaks down in the environment. By using GreenScreen, companies can rank chemicals and understand why some alternatives are more or less preferable. This helps them make more informed decisions, reduce their business risk, and promote innovation.

### Identifying Chemicals of High Concern (Benchmark 1)

An important value of GreenScreen is that Benchmark 1 clearly defines the criteria for chemicals of high concern to human health and the environment consistent with global regulations like REACH. These include:

- carcinogens,
- reproductive, developmental and neurodevelopmental toxicants,
- mutagens,
- persistent, bioaccumulative, and toxic chemicals (PBTs),
- very persistent and very bioaccumulative chemicals (vPvBs), and
- endocrine disruptors.

Many users first run their chemicals through the GreenScreen List Translator™ via an online tool that checks if a chemical appears on any of the 650 internationally recognized lists and sub-lists of high hazard chemicals. This is a relatively quick and valuable first step in identifying a chemical of high concern and targeting a chemical for substitution. A full GreenScreen assessment, on the other hand, is comprehensive and provides *all* the human health and environmental data that is known about a chemical based on 18 hazard endpoints. GreenScreen assessments also identify data gaps for a chemical. If a chemical has too many data gaps it is given a classification of Benchmark U—Undetermined. This allows companies to understand the business risk they are taking in using poorly characterized chemicals in their products and underscores why full information from their suppliers is necessary.

### Businesses, certification bodies, and governments are increasingly using GreenScreen

- Walmart promotes the use of GreenScreen tools to its suppliers.
- Hewlett Packard (HP) requires GreenScreen assessments for hazardous chemical replacements.
- Levi Strauss & Co. uses GreenScreen to assess chemical hazards and promote innovation in their supply chain.
- U.S. Green Building Council now offers credits for using GreenScreen in LEEDv4.
- Eight U.S. states recommend GreenScreen as a preferred hazard assessment method for alternatives assessment.
- TCO Certified for IT products will only allow flame retardants that are Benchmark 2 or higher on their Accepted Substances List.
- Apple uses GreenScreen to adopt safer chemicals at its final assembly facilities.



*“The more you know about what you are putting into your products, the more likely you are to make better choices in product development.”*  
Jonathan Plisco, PolyOne

### Screening Chemicals at HP

HP, an early adopter of GreenScreen, uses it to assess alternatives when replacing a restricted substance. GreenScreen enables HP to identify better materials, not just those

that are minimally acceptable. As part of a larger integrated alternatives assessment, HP uses GreenScreen to do initial hazard screening and deselect certain options early in the process. HP began using GreenScreen as part of an initiative to make all of its power cords PVC-free. By requesting their suppliers to reformulate alternatives that score Benchmark 2 or higher, HP ensures that it has not substituted PVC for a more toxic material.

### Integrating GreenScreen into U.S. Green Building Council LEED accreditation

To help minimize the impacts buildings have on human health, LEED credits are now being offered for products that have no Benchmark 1 chemicals after being screened through either the GreenScreen List Translator or a full GreenScreen assessment. By integrating GreenScreen assessments into LEED, building materials containing safer products will increasingly become popular.

*Learn more about our training opportunities, GreenScreen Certified™ products, method documents, and case studies at [www.greenscreenchemicals.org](http://www.greenscreenchemicals.org).*

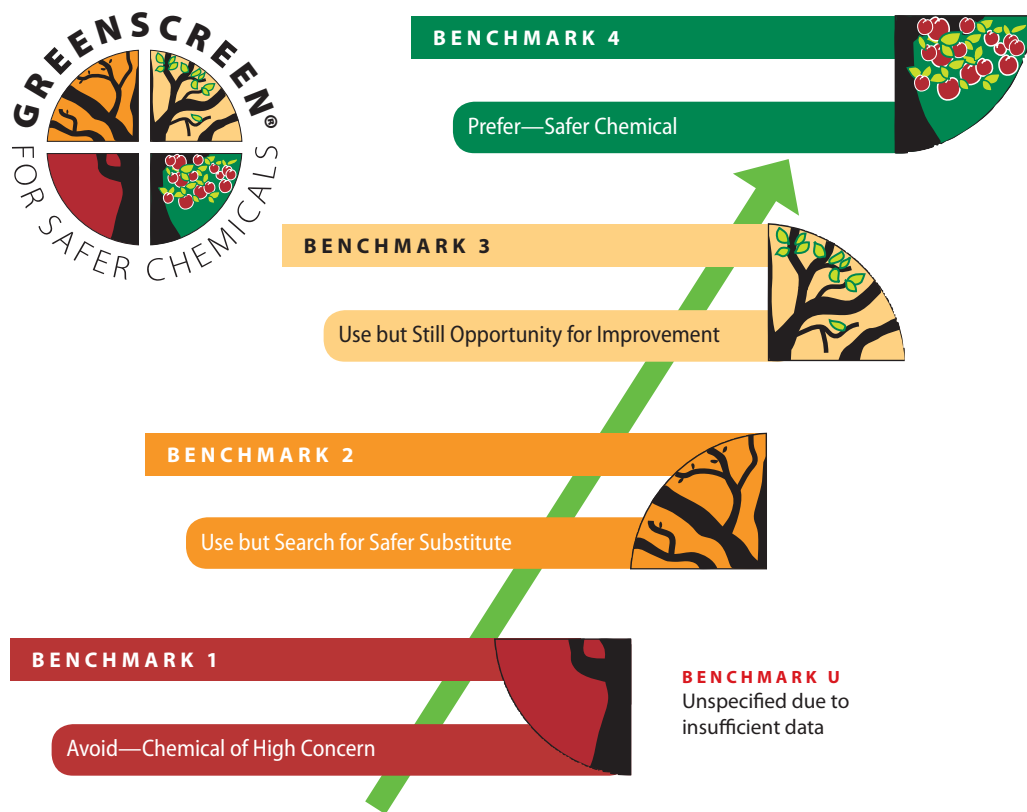
### GreenScreen Hazard Summary Table™ for Benzene, a Benchmark 1 Chemical

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

C	Carcinogenicity	SnR	Respiratory Sensitization	SnS	Skin Sensitization	vH	Very High
M	Mutagenicity/Genotoxicity	IrS	Human Skin Irritation/Corrosivity	CA	Chronic Aquatic Toxicity	H	High
R	Reproductive Toxicity	IrE	Human Eye Irritation/Corrosivity	P	Persistence in the Environment	M	Medium
D	Developmental Toxicity	AA	Acute Aquatic Toxicity	B	Bioaccumulation in the Environment	L	Low
E	Endocrine Activity	ST	Human Systemic Toxicity	Rx	Physical Reactivity	vL	Very Low
AT	Human Acute Toxicity	N	Neurotoxicity	F	Flammability	DG	Data Gap

Group II and Group II\* endpoints are distinguished in the v 1.4 Benchmark system (the asterisk indicates repeated exposure).

FIGURE 1. GreenScreen Benchmarks



**GreenScreen is an essential hazard assessment tool used to raise market demand for and availability of safer alternatives to chemicals of concern and accelerate the transition to a safer chemicals economy.**

**BENCHMARK U**  
Unspecified due to insufficient data

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