



# How To Interpret Your ToxFMD® Scorecard Hazard Table

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## **INTRODUCTION**

The purpose of this document is to provide supplemental information to aid in the understanding of the colors, symbols, and lettering used in the ToxFMD® Scorecard Hazard Table.

Should you have any additional questions or comments about interpretation of your Formulation's Scorecard or are interested in having your formulation reviewed under ToxServices' ToxFMD® Screened Chemistry Program, please contact Program Manager Kristi Benoy at [kbenoy@toxservices.com](mailto:kbenoy@toxservices.com).

## How to Interpret Your ToxFMD® Scorecard Hazard Table

Chemical Recommendation	Associated Color	Comments	
SCIL Full Green Circle/ Half Green Circle	Green	SCIL Full Green Circle/Half-Green Circle recommendations indicate that the chemical has a toxicity profile that is associated with low hazard. Although SCIL Full Green Circle/Half-Green Circle recommendations share the same color as a GreenScreen® very Low for individual hazard endpoint classification under the GreenScreen® paradigm, the shared used of this color is not intended to illustrate that their hazards are equivalent. Note that certain SCIL chemicals may be irritating to skin or eyes, so appropriate PPE must be worn when handling formulations. #: Some endpoints are not evaluated under the U.S. EPA Safer Choice Program Master Criteria ( <a href="#">U.S. EPA 2012</a> ), Solvent Criteria ( <a href="#">U.S. EPA 2014</a> ), Surfactant Criteria ( <a href="#">U.S. EPA Undated</a> ), or Interim Fragrance Criteria ( <a href="#">U.S. EPA 2015</a> ); therefore, the degree of hazard for chemicals listed on the SCIL ( <a href="#">U.S. EPA 2020</a> ) is not known for these endpoints.	
SCIL Yellow Triangle	Yellow	SCIL Yellow Triangle recommendations indicate that, in general, the chemical has a toxicity profile that is associated with low hazard; however, some hazards may exist. This chemical has been demonstrated to be a safer alternative to other chemicals in the same functional class. Although SCIL Yellow Triangle recommendations share the same color as a GreenScreen® Moderate for individual hazard endpoint classification under the GreenScreen® paradigm, the shared used of this color is not intended to illustrate that their hazards are equivalent. Per ToxFMD® Criteria, if a SCIL-listed yellow triangle ingredient is present in the formulation and the ingredient exceeds 10% in the formulation, the formulation must be used in industrial/institutional applications and the ingredient must serve a critical functional use and be marked for continuous improvement. Note that certain SCIL chemicals may be irritating to skin or eyes; thus, appropriate PPE must be worn when handling formulations.	
Benchmark U, 1, 2, 3, 4, LT-1	Dark Red	Very High (vH)	Hazard levels (Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL)) in <i>italics</i> reflect estimated values, authoritative B lists, screening lists, weak analogues, and lower confidence. Hazard levels in <b>bold</b> are used with good quality data, authoritative A lists, or strong analogues. Group II Human Health (HH) endpoints differ from Group II* HH endpoints as they have 4 hazard scores (i.e., vH, H, M, and L) instead of 3 (i.e., H, M, and L), and are based on single exposures instead of repeated exposures ( <a href="#">CPA 2018</a> ). In the absence of information for the single dose Systemic Toxicity and/or single dose Neurotoxicity endpoints, cells are both grayed and blank (Not Assessed) if there is a hazard score for repeat dose of the corresponding endpoint. Although GreenScreen® Very Low and Moderate recommendations share the same color as SCIL Full/Half Circle and Yellow Triangle chemicals under the SCIL paradigm, the shared used of these colors is not intended to illustrate that their hazards are equivalent.
	Red	High (H)	
	Yellow	Moderate (M)	
	Light Green	Low (L)	
	Green	Very Low (vL)	
	White	Data Gap (DG)	
	Gray	Blank/Not Assessed	
ToxFMD® Acceptable	Light Green	ToxFMD® Acceptable recommendations indicate that the chemical has a toxicity profile that is associated with low hazard. Although ToxFMD® Acceptable recommendations share the same color as a GreenScreen® Low for individual hazard endpoint classification under the GreenScreen® paradigm, the shared used of this color is not intended to illustrate that their hazards are equivalent. #: Some endpoints are not evaluated under the ToxServices' Full Materials Disclosure (ToxFMD) Screened Chemistry® Program; therefore, the degree of hazard for these endpoints is not known.	
ToxFMD® Not Acceptable Low Priority	Light Brown	Doesn't meet ToxFMD® Polymer Criteria but does not meet the ToxFMD® definition of a CMR/PBT OR polymer contains monomer with non-physical hazards that do not meet the ToxFMD® definition of a CMR/PBT at ≥ 0.1% OR residual/impurity at ≥ 0.01% has non-physical hazards that do not meet the ToxFMD® definition of a CMR/PBT. #: Some endpoints are not evaluated under the ToxServices' Full Materials Disclosure (ToxFMD) Screened Chemistry® Program; therefore, the degree of hazard for these endpoints is not known.	
ToxFMD® Not Acceptable High Priority	Brown	Doesn't meet ToxFMD® Polymer Criteria and meets the ToxFMD® definition of a CMR/PBT OR polymer contains monomer that meets the ToxFMD® definition of a CMR/PBT at ≥ 0.1% OR residual/impurity at ≥ 0.01% in the formulation meets the ToxFMD® definition of a CMR/PBT. #: Some endpoints are not evaluated under the ToxServices' Full Materials Disclosure (ToxFMD) Screened Chemistry® Program; therefore, the degree of hazard for these endpoints is not known.	
Cannot Be Assessed	Gray	Insufficient information was obtained from the client and/or supplier to adequately assess the hazards associated with this chemical. Additional information is required.	

# GreenScreen<sup>®</sup> Benchmarks – Organic Chemicals (from CPA 2018)

## Benchmark Criteria for Organic Chemicals

### 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

- Moderate P or Moderate B
- Moderate Ecotoxicity
- Moderate T (Group II or II\* Human)
- Moderate Flammability or Moderate Reactivity



**Use but Still Opportunity for Improvement**

### GREENSCREEN BENCHMARK-2

- Moderate P + Moderate B + Moderate T (Ecotoxicity or Group I, II, or II\* Human)
- High P + High B
- High P + Moderate T (Ecotoxicity or Group I, II, or II\* Human)
- High B + Moderate T (Ecotoxicity or Group I, II, or II\* Human)
- Moderate T (Group I Human)
- Very High T (Ecotoxicity or Group II Human) or High T (Group II\* Human)
- High Flammability or High Reactivity



**Use but Search for Safer Substitutes**

### GREENSCREEN BENCHMARK-1

- PBT = High P + High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II\* Human)]
- vPvB = very High P + very High B
- vPT = very High P + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II\* Human)]
- vBT = very High B + [very High T (Ecotoxicity or Group II Human) or High T (Group I or II\* Human)]
- High T (Group I Human)



**Avoid—Chemical of High Concern**

### GREENSCREEN BENCHMARK-U

Unspecified Due to Insufficient Data

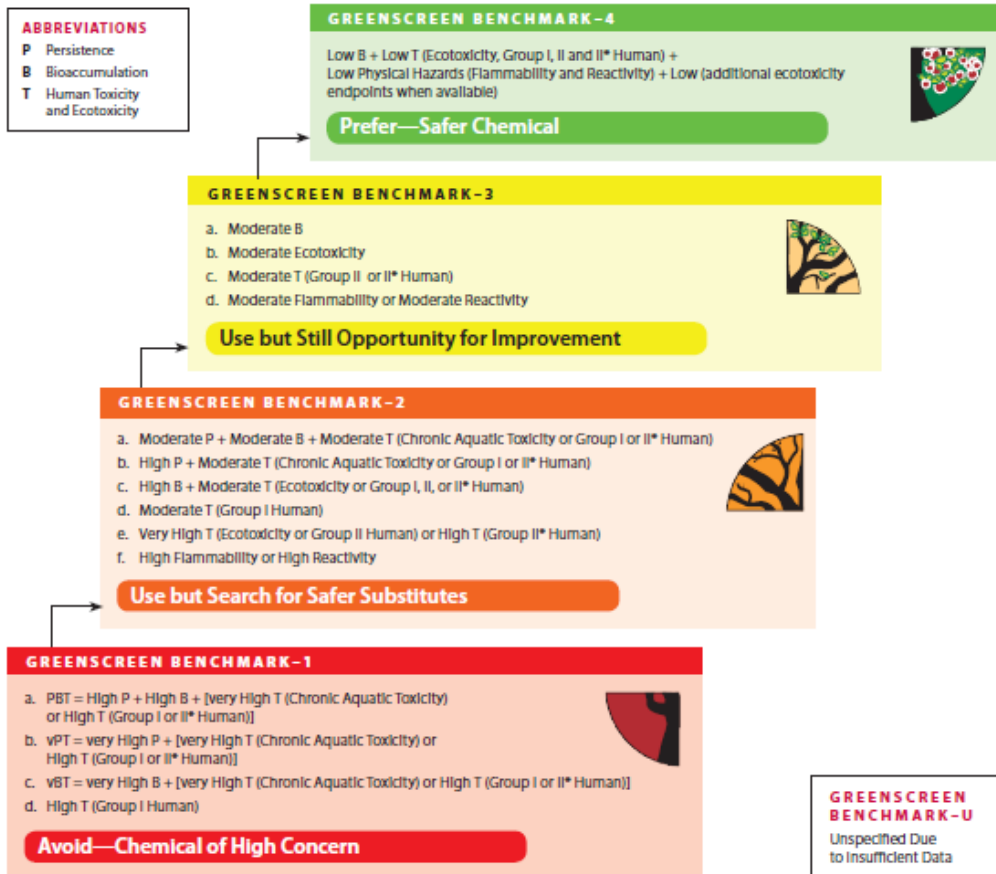
See Section 11.6 for instructions.

**Group I Human** includes Carcinogenicity, Mutagenicity/Genotoxicity, Reproductive Toxicity, Developmental Toxicity (incl. Developmental Neurotoxicity), and Endocrine Activity. **Group II Human** includes Acute Mammalian Toxicity, Systemic Toxicity/Organ Effects-Single Exposure, Neurotoxicity-Single Exposure, Eye Irritation and Skin Irritation. **Group II\* Human** includes Systemic Toxicity/Organ Effects-Repeated Exposure, Neurotoxicity-Repeated Exposure, Respiratory Sensitization, and Skin Sensitization. Immune System Effects are included in Systemic Toxicity/Organ Effects. **Ecotoxicity** includes Acute Aquatic Toxicity and Chronic Aquatic Toxicity.

\* For inorganic chemicals, see "Annex 4: Benchmark Criteria for Inorganic Chemicals."

# GreenScreen® Benchmarks – Inorganic Chemicals (from CPA 2018)

## Benchmark Criteria for Inorganic Chemicals



See Section 12.6 for instructions.

**Group I Human** includes Carcinogenicity, Mutagenicity/Genotoxicity, Reproductive Toxicity, Developmental Toxicity (incl. Developmental Neurotoxicity), and Endocrine Activity. **Group II Human** includes Acute Mammalian Toxicity, Systemic Toxicity/Organ Effects-Single Exposure, Neurotoxicity-Single Exposure, Eye Irritation and Skin Irritation. **Group II\* Human** includes Systemic Toxicity/Organ Effects-Repeated Exposure, Neurotoxicity-Repeated Exposure, Respiratory Sensitization, and Skin Sensitization. Immune System Effects are included in Systemic Toxicity/Organ Effects. **Ecotoxicity** includes Acute Aquatic Toxicity and Chronic Aquatic Toxicity.