**GreenScreen® Assessment for [*Chemical Name (CAS #)*]**

**Method Version: GreenScreen® Version 1.3[[1]](#footnote-1)**

**Assessment Details[[2]](#footnote-2):**

|  |  |
| --- | --- |
| **Assessment Type:** |  |
| **Assessment Prepared By:** |  |
| **Assessment Prepared For:** |  |
| **Date Assessment Completed:** |  |
| **Assessment Expiration Date:** |  |
| **Assessor Type:**  (Licensed GreenScreen Profiler or equivalent, Authorized GreenScreen Practitioner or Unaccredited) |  |

**Confirm application of the *Disclosure and Assessment Rules and Best Practice*[[3]](#footnote-3):** (List disclosure threshold and any deviations)

**Chemical Name (CAS #):**

**Also Called:**

**Suitable analogs or moieties of chemicals used in this assessment (CAS #’s):**

**Chemical Structure(s):**

\*Note: Include chemical structure(s) of all suitable analogs (and/or moieties) used in the assessment.

**Notes related to production specific attributes[[4]](#footnote-4):**

**For Inorganic Chemicals and relevant particulate organics (*if not relevant, list NA*)**

**Define Properties:**

1. Particle size (e.g., silica of respirable size)
2. Structure (e.g., amorphous vs. crystalline)
3. Mobility (e.g., water solubility, volatility)
4. Bioavailability

**For Polymeric Materials: (*delete this section if not a polymeric material*)**

**Identify Monomers and Corresponding Properties**

1. % of Each Monomer
   1. Monomer 1
   2. Monomer 2
   3. Monomer 3
2. Are the monomers blocked? (Y/N)
3. Molecular Weight (MW) of polymeric material
4. % of polymeric material with
   1. MW <500
   2. MW <1,000
5. % Weight Residual Monomers
6. Solubility/Dispersability/Swellability
7. Particle size
8. Overall charge of polymeric material
9. Identify constituents and residual concentrations of
   1. Catalysts
   2. Processing aids
10. Identify any monomers, oligomers, catalysts or processing aids classified as Benchmark 1 according to the hazard identification lists in the GreenScreen List Translator.

**For Surfactants: (*delete this section if not a surfactant*)**

1. Supplier, Tradename(s)
2. Ethoxylated or propoxylated?
   1. Report 1,4-Dioxane level
   2. # EO Units
   3. # PO Units
   4. EO/PO ratio
3. Identify preservatives and amount

**Identify Applications/Functional Uses:**

**(e.g., Cleaning product, TV casing)**

1.

2.

**GreenScreen Benchmark Score and Hazard Summary Table:[[5]](#footnote-5),[[6]](#footnote-6),[[7]](#footnote-7),[[8]](#footnote-8) [***Chemical name*] was assigned a Benchmark Score of [*#*] based on ... [*add rationale*].



Note: Hazard levels (Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL)) in *italics* reflect estimated values, authoritative B lists, screening lists, weak analogues, and lower confidence. Hazard levels in **BOLD** font are used with good quality data, authoritative A lists, or strong analogues. Group II Human Health endpoints differ from Group II\* Human Health endpoints in that they have four hazard scores (i.e., vH, H, M and L) instead of three (i.e., H, M and L), and are based on single exposures instead of repeated exposures.

**Environmental Transformation Products and Ratings[[9]](#footnote-9):**

**Identify feasible and relevant environmental transformation products** **(i.e., dissociation products, transformation products, valence states)** **and/or moieties of concern**[[10]](#footnote-10)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Functional Use** | **Life Cycle Stage** | **Transformation Pathway** | **Environmental**  **Transformation Products** | **CAS #** | **Feasible and Relevant?** | **GreenScreen List Translator Score or GreenScreen Benchmark Score** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Introduction**

**Hazard Classification Summary Section:**

**For all hazard endpoints:**

* **Search all GreenScreen Specified Lists. Report relevant results either in each hazard endpoint section or attach to the end of the report.**
* **Always indicate if suitable analogs or models were used.**
* **Attach modeling results (See Appendix C).**
* **Include all references either in each hazard endpoint section or at the end of the report.**

**Group I Human Health Effects (Group I Human)**

**Carcinogenicity (C) Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for carcinogenicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Mutagenicity/Genotoxicity (M) Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for mutagenicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Reproductive Toxicity (R) Score (H, M, or L):**

[*Chemical name*] was assigned a score of [*Score*] for reproductive toxicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Developmental Toxicity incl. Developmental Neurotoxicity (D) Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for developmental toxicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Endocrine Activity (E) Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for endocrine activity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Group II and II\* Human Health Effects (Group II and II\* Human)**

*Note: Group II and Group II\* endpoints are distinguished in the v1.3 Benchmark system (the asterisk indicates repeated exposure). For Systemic Toxicity and Neurotoxicity, Group II and II\* are considered sub-endpoints. When classifying hazard for Systemic Toxicity/Organ Effects and Neurotoxicity endpoints, repeated exposure results are required and preferred. Lacking repeated exposure results in a data gap. Lacking single exposure data does not result in a data gap when repeated exposure data are present (shade out the cell in the hazard table and make a note). If data are available for both single and repeated exposures, then the more conservative value is used.*

**Acute Mammalian Toxicity (AT) Group II Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for acute mammalian toxicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Systemic Toxicity/Organ Effects incl. Immunotoxicity (ST)**

**(ST-single) Group II Score (single dose: vH, H, M or L);**

[*Chemical name*] was assigned a score of [*Score*] for systemic toxicity/organ effects based on single exposure [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**(ST-Repeated) Group II\* Score (Repeated dose: H, M, L):**

[*Chemical name*] was assigned a score of [*Score*] for systemic toxicity/organ effects based on repeated exposure [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Neurotoxicity (N)**

**(N-single) Group II Score (single dose: vH, H, M or L)**

[*Chemical name*] was assigned a score of [*Score*] for neurotoxicity based on single exposure [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**(N-Repeated) Group II\* Score (Repeated dose: H, M, L):**

[*Chemical name*] was assigned a score of [*Score*] for neurotoxicity based on repeated exposure [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

Clearly indicate exposure route: (e.g., oral, inhalation, dermal)

**Skin Sensitization (SnS) Group II\* Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for skin sensitization based on [*describe results relative to criteria*]. Include EC3 potency scores (LLNA result).

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Respiratory Sensitization (SnR) Group II\* Score (H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for respiratory sensitization based on [*describe results relative to criteria*]. Include EC3 potency scores (LLNA result).

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Skin Irritation/Corrosivity (IrS) Group II Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for skin irritation/corrosivity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Eye Irritation/Corrosivity (IrE) Group II Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for eye irritation/corrosivity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Ecotoxicity (Ecotox)**

**Acute Aquatic Toxicity (AA) Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for acute aquatic toxicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Indicate which species were used.

Summary, value and references

**Chronic Aquatic Toxicity (CA) Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for chronic aquatic toxicity based on [*describe results relative to criteria*].

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Indicate which species were used.

Summary, value and references

**Environmental Fate (Fate)**

**Persistence (P) Score (vH, H, M, L, or vL):**

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

[*Chemical name*] was assigned a score of [*Score*] for persistence based on [*describe results relative to criteria*].

.

Summary, value and references

**Bioaccumulation (B) Score (vH, H, M, L, or vL):**

[*Chemical name*] was assigned a score of [*Score*] for bioaccumulation based on [*describe results relative to criteria*]. Indicate which species and if a suitable analog or models were used.

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Physical Hazards (Physical)**

**Reactivity (Rx) Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for reactivity based on [*describe results relative to criteria*].

Indicate which species and if a suitable analog or models were used.

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**Flammability (F) Score (vH, H, M or L):**

[*Chemical name*] was assigned a score of [*Score*] for flammability based on [*describe results relative to criteria*]. Indicate which species and if a suitable analog or models were used.

* Authoritative and Screening Lists
  + *Authoritative:*
  + *Screening:*
* Source
  + Data
* Source
  + Data

Summary, value and references

**References** (may be provided under each hazard endpoint or at the end of document)

# APPENDIX A: Hazard Benchmark Acronyms

**(alphabetical order)**

**(AA) Acute Aquatic Toxicity**

**(AT) Acute Mammalian Toxicity**

**(B) Bioaccumulation**

**(C) Carcinogenicity**

**(CA) Chronic Aquatic Toxicity**

**(D) Developmental Toxicity**

**(E) Endocrine Activity**

**(F) Flammability**

**(IrE) Eye Irritation/Corrosivity**

**(IrS) Skin Irritation/Corrosivity**

**(M) Mutagenicity and Genotoxicity**

**(N) Neurotoxicity**

**(P) Persistence**

**(R) Reproductive Toxicity**

**(Rx) Reactivity**

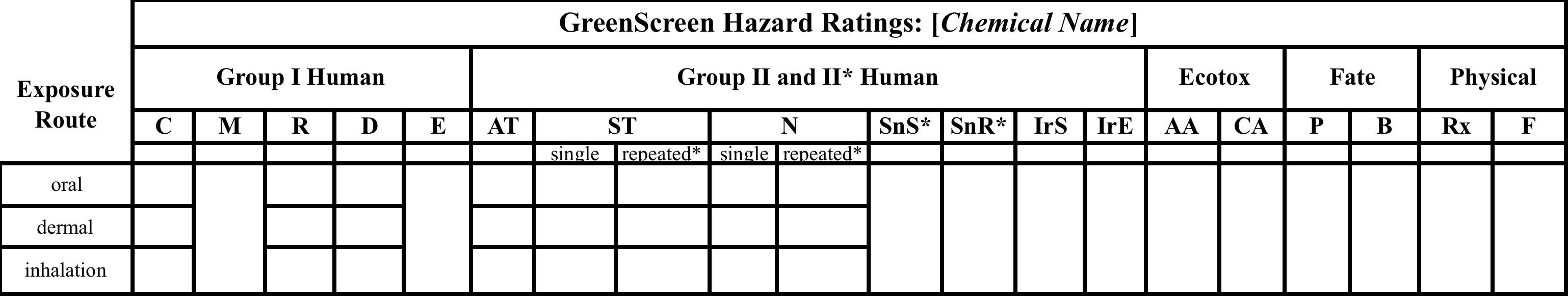
**(SnS) Sensitization- Skin**

**(SnR) Sensitization- Respiratory**

**(ST) Systemic/Organ Toxicity**

**Appendix B**

**Optional Hazard Summary Table**



**Appendix C**

**Modeling Results**

**Attach:**

* **EPISuite Results for Chemical Name (CAS #)**
* **ECOSAR Results for Chemical Name (CAS #)**
* **Other**

1. Use GreenScreen® Hazard Assessment Guidance (Guidance) v1.3 [↑](#footnote-ref-1)
2. **Assessment Type**: GreenScreen reports are either “UNACCREDITED” (by unaccredited person), “AUTHORIZED” (by Authorized GreenScreen Practitioner), “CERTIFIED” (by Licensed GreenScreen Profiler or equivalent) or “CERTIFIED WITH VERIFICATION” (Certified or Authorized assessment that has passed GreenScreen Verification Program); **Assessment Prepared By**: Licensed GreenScreen Profilers must provide name of organization; Authorized GreenScreen Practitioners must provide their name; **Assessment Prepared For**: Optional for Licensed GreenScreen Profilers, mandatory for Authorized Practitioners; **Date Assessment Completed**: Assessments by Licensed GreenScreen Profilers require quality control tracked via internal documentation; **Assessment Expiration Date**: Assessments expire three years from the date of completion. [↑](#footnote-ref-2)
3. See GreenScreen Guidance v1.3. [↑](#footnote-ref-3)
4. Note any composition or hazard attributes of the chemical product relevant to how it is manufactured. For example, certain synthetic pathways or processes result in typical contaminants, by-products or transformation products. Explain any differences between the manufactured chemical product and the GreenScreen assessment of the generic chemical by CAS #. [↑](#footnote-ref-4)
5. See Appendix A for a glossary of hazard endpoint acronyms. [↑](#footnote-ref-5)
6. See Appendix B for alternative GreenScreen Hazard Summary Table (Classification presented by exposure route). [↑](#footnote-ref-6)
7. For inorganic chemicals only, see GreenScreen Guidance v1.3 Section 13. (Exceptions for Persistence) [↑](#footnote-ref-7)
8. For Systemic Toxicity and Neurotoxicity, repeated exposure data are preferred. Lack of single exposure data is not a Data Gap when repeated exposure data are available. In that case, lack of single exposure data may be represented as NA instead of DG. See GreenScreen Guidance v1.3 Section 8.2.1. [↑](#footnote-ref-8)
9. See GreenScreen Guidance v1.3 Section 12. [↑](#footnote-ref-9)
10. A moiety is a discrete chemical entity that is a constituent part or component of a substance. A moiety of concern is often the parent substance itself for organic compounds. For inorganic compounds, the moiety of concern is typically a dissociated component of the substance or a transformation product. [↑](#footnote-ref-10)