# Approaches to Identifying Potential Candidate Chemicals for Prioritization: **EPA's Safer Chemical Ingredients List (SCIL)**

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# Outline

- SCIL is a potential resource for low-priority substances
- A look at the database
- Lowest-hanging fruit
- Benefits and caveats

# Why is SCIL a potential source for low-priority substances?

- Lists hundreds of chemicals that EPA has determined are among the safest within their functional classes
- Based on measured and estimated data by hazard endpoint
- Used in products with high consumer and worker exposure
- Includes high-production volume chemicals
- Can complement other proposed prioritization candidate identification approaches, such as:
  - Functional use approaches
  - High-throughput approaches

# Production Volumes of SCIL chemicals

| 2016 CDR Reported Aggregate Production Volume (lbs.) | # SCIL Chemicals |
|---|---|
| >10,000,000 | 192 |
| 1,000,000-10,000,000 | 117 |
| 500,001-1,000,000 | 26 |
| 100,000-500,000 | 47 |
| <100,000 | 60 |
| N/A* | 348 |
| Withheld | 128 |
| *Total* | *918* |

*The following chemical substances are fully exempt from CDR reporting under 40 CFR 711.6: polymers (including any chemical substance that is identified as an enzyme, lignin, polysaccharide, protein, etc.), microogranisms, and naturally occurring substances. Partially exempt chemicals can be found in 40 CFR 711.15(b)(4).

# Safer Chemical Ingredients List (SCIL)

www.epa.gov/saferchoice/safer-ingredients

Chemicals searchable by Name and CAS RN

**Safer Chemical Ingredients List**

- The listed chemicals are safer alternatives, grouped by their functional-use class.†
- Chemicals are marked as a green circle, green half-circle, yellow triangle, or grey square.‡
- This list includes many of the chemicals evaluated through the Safer Choice Program. It does not include confidential chemicals. There may be chemicals not included in this list that are also safer.
- Some of the listed chemicals may not be on the TSCA inventory and therefore may not be authorized/allowed for TSCA uses. Those considering TSCA uses for these chemicals should first determine whether such use is authorized. Chemicals not listed on the TSCA inventory are indicated as such in a pop-up box that appears upon clicking the hyperlinked CAS RN in the table below.

❖ **Please Select**: All Functional Use Classes

❖ **or Select a Functional Use Class**:

- Antimicrobial Actives
- Chelating Agents
- Colorants
- Defoamers
- Emollients
- Enzymes and Enzyme Stabilizers
- Fragrances
- Oxidants and Oxidant Stabilizers
- Polymers
- Preservatives and Antioxidants
- Processing Aids and Additives
- Skin Conditioning Agents
- Solvents

Clear Options

**Chelating Agents**

Note: When a functional use category is selected, the search above will only apply to the chemicals assigned to this functional use. To select a different functional use, please scroll up.

Show 25 entries

| Code | Common Name | CAS Registry Number | Functional Use |
|---|---|---|---|
| | 2-Butenedioic acid (2Z)-, ammonium salt (1:?), homopolymer, hydrolyzed, sodium salts | 181828-06-8 | Chelating Agents |
| | Alanine, N,N-bis(carboxymethyl)-, sodium salt (1:3) | 164462-16-2 | Chelating Agents |
| | Aspartic acid, N-(1,2-dicarboxyethyl)-, tetrasodium salt | 144538-83-0 | Chelating Agents |
| | Citric acid, anhydrous | 77-92-9 | Antimicrobial Actives; Chelating Agents; Processing Aids and Additives |
| | D-Gluconic acid | 526-95-4 | Chelating Agents; Processing Aids and Additives |

# Safer Chemical Ingredients List Color Codes

- **Green circle (605)** - low hazard based on experimental or modeled data.

- **Green half-circle (102)** - expected to be of low hazard based on experimental or modeled data. Additional data would strengthen our confidence in the chemical's status.

- **Yellow triangle (210)** - met Safer Choice Criteria for its functional ingredient class, but may raise some hazard profile issues.

# Safer Chemical Ingredients List

**918** chemicals & **987** listings on SCIL as of November 2017

By functional ingredient classes:

- Antimicrobial Actives (7)
- Chelating Agents (22)
- Colorants (44)
- Defoamers (12)
- Emollients (26)
- Enzymes & Enzyme Stabilizers (30)
- Fragrances (152)
- Oxidant & Oxidant Stabilizers (19)
- Polymers (59)
- Preservatives & Antioxidants (34)
- Processing Aids & Additives (149)
- Skin Conditioning Agents (46)
- Solvents (67)
- Specialized Industrial Chemicals (14)
- Surfactants (282)
- Uncategorized (24)

# Chemical Hazard Endpoints

## Human Health Toxicity

- Acute mammalian toxicity
- Carcinogenicity
- Mutagenicity/ Genotoxicity
- Reproductive and developmental toxicity
- Neurotoxicity
- Repeated dose toxicity
- Respiratory and skin sensitization
- Eye and skin irritation/corrosivity

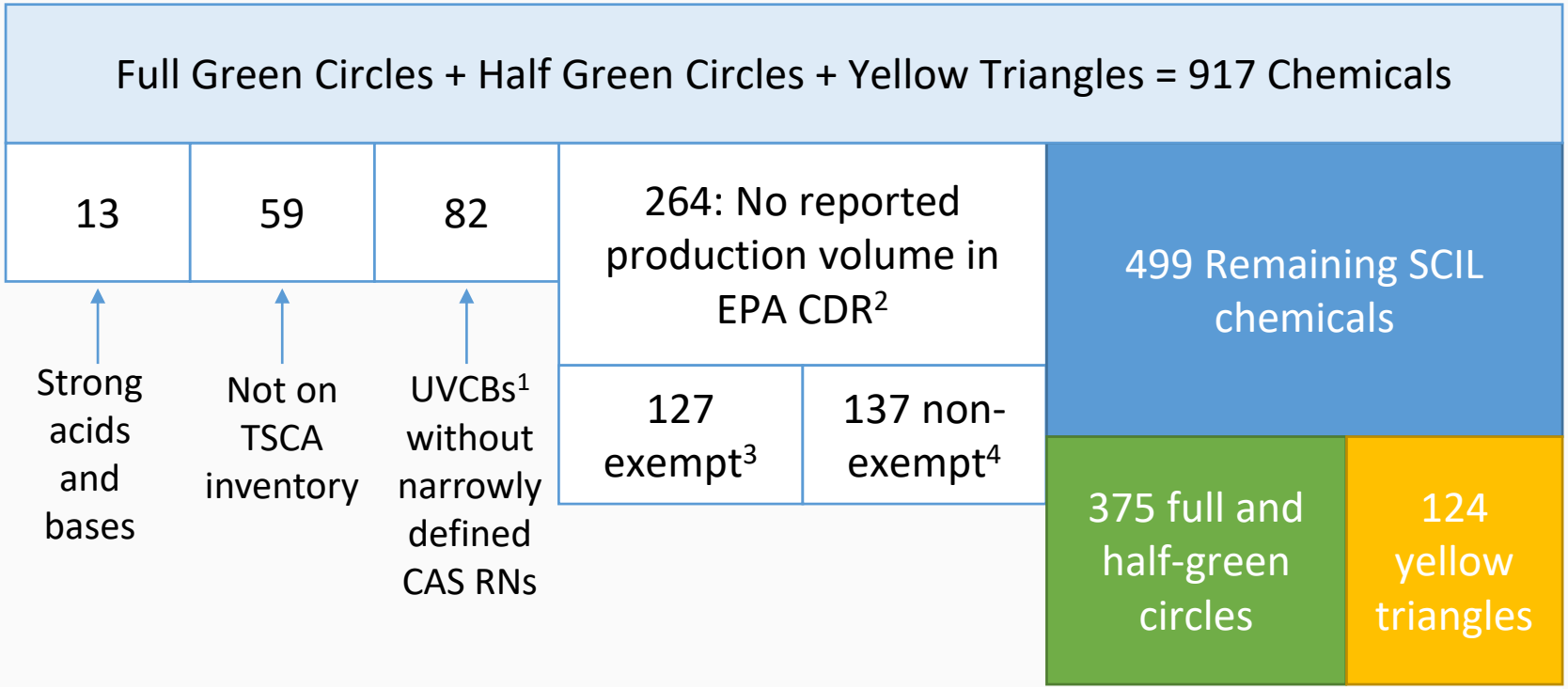
## Environmental Fate & Effects

- Aquatic toxicity
- Environmental persistence
- Bioaccumulation
- Degradation products
- Eutrophication

# Caveats

- To satisfy statutory criteria, during prioritization EPA may have to further investigate, e.g.:
  - Storage near significant sources of drinking water;
  - Conditions of use; and
  - Additional human health and environmental hazard data including consideration for potentially exposed susceptible subpopulations.
- Some SCIL chemicals may not be good candidates for low-priority substance designation.

# One Proposed Approach for Organizing SCIL Chemicals




[1]UVCB: Unknown or Variable compositions, Complex reaction products and Biological materials.
[2]Environmental Protection Agency Chemical Data Reporting Rule under TSCA
[3] Under 40 CFR, Part 711, TSCA data reporting requirements provide chemical classes that are exempt or non-exempt for chemical data reporting. Chemicals exempt under this data reporting rule may still be candidates.
[4]Non-exempt chemicals are either not in production or have production volumes less than 25,000 lbs.

# Benefits of SCIL

- Available EPA resource with low hazard chemicals that are supported by toxicological data
- Includes chemicals that are used in many consumer and industrial/institutional products
- Supported, understood, and used by many stakeholders
- Could complement other approaches by contributing candidate low-hazard chemicals

# Thank you