TOOLS & RESOURCES FOR SAFER CHEMICALS
Sustainable Chemicals Management Software
A Pure Strategies review of tools for managing chemicals in products
**Sustainable Chemicals Management:**

*involves strategy, product design & supply chain management*

<table>
<thead>
<tr>
<th>Chemicals Strategy</th>
<th>Safer Product Design</th>
<th>Sustainable Chemicals Supply</th>
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<tbody>
<tr>
<td>• Create aspirations/goals/policies</td>
<td>• Assess hazards and alternatives</td>
<td>• Assess supplier risks</td>
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<tr>
<td>• Develop business case</td>
<td>• Create product design guidelines</td>
<td>• Engage and align suppliers</td>
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<tr>
<td>• Establish priority chemicals</td>
<td>• Verification and assurance</td>
<td>• Collaborate with suppliers and stakeholders</td>
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<td>• Enhance transparency and communication</td>
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Sustainable Chemicals Management Software:
set goals, understand requirements, and evaluate vendors

What are the business priorities?
Setting company sustainable chemicals management goals an essential 1st step

What are the key features you should look for?
Focus on software features essential for meeting company goals

What criteria matter to select software and services to meet your needs?
Assess quality of key software features, performance and extent of experience with companies with similar business needs
1. *Inventory Chemical Data* involves collecting detailed data on each chemical

**Inventory materials/chemical ingredients**
- *Composition*
- *CAS#/EC#*
- *% Concentration*
- *Ingredient function or residuals and/contaminants*

**Generate data gap information**
- *Ingredients/materials less than 100%*
- *Ingredients characterized only by % ranges*
- *CAS #s unknown/identified only by class/withheld for CBI*

**Identify articles & homogenous materials by**
- *Weight*
- *Composition*
1. **Inventory Chemical Data**

**Barriers include data gaps and CBI**

**BOMs Gaps**
- ID missing components
- ID missing amounts
- ID improbable combinations
- Routine suppliers queries
- Manage CBI
- Tier 2 & beyond

**Economies/Expertise**
- Retailers
- Textiles
- Toys

Vendor expertise crucial
2. **RSL Inventories**  
*Are important but have limitations*

**Scope of coverage of RSLs**
- National regulations
- Regional/local regulations
- Industry sector - e.g., AAFA, BIFMA)
- Customized RSLs

**RSL Limitations**
- Regulatory lists often lag scientific knowledge of chemical hazards
- Sole reliance on regulatory RSLs may lead to regrettable substitutions

**System for updating**
- System for routine updates
- Frequency of updates (daily, weekly, etc.)

“Bisphenol-A free” products using equally hazardous BPS
3. Hazard Assessment
Can be automated and individualized

Endpoints commonly based
• Globally Harmonized System (GHS)
• EPA Design for the Environment
  • Human health
  • Environment
  • Physical

Automated Hazards
• E.g., CPA’s GreenScreen List
  Translator automates search of >850 authoritative/screening lists.

Vendor Assessments
• Based on scientific research/literature build into the software
• Provide individualized hazard assessments for chemical ingredients

Weighing Hazards
• Value-based weighing of different hazards
4. Exposure Assessment
Comes from a variety of sources

• Assessments evaluate
  - Intrinsic physicochemical characteristics
  - Life cycle & product factors
  - Exposure scenarios derived from public or proprietary databases

Regrettable Substitution
• Perchloroethylene replaced with n-propyl bromide

Exposure Data
• Proprietary data from customers
• Data on consumer exposure to chemicals in consumer products being aggregated by the Dutch research agency, RIVM.

SciVera and Chemical Compliance Systems (CCS)
5. Identify Alternatives
Tools use different schemes

Comparative scoring
• Value based scoring of the relative hazard endpoint scores

Toolboxes of alternatives
• Vendor proprietary
• Sector specific – e.g., Safer Choice/DfE

Chemical Compliance Systems (CCS) has list of “potentially greener chemicals” organized by ~65 categories

DfE’s Safer Chemical Ingredients List: Functional Categories
• Antimicrobial actives
• Chelating actives
• Colorants
• Defoamers
• Enzymes & enzyme stabilizers
• Fragrances
• Oxidants & oxidant stabilizers
• Polymers
• Preservatives & anti-oxidants
• Processing aids & additives
• Solvents
• Specialized industrial chemicals
• Surfactants
• Uncategorized
Five Software Capabilities are key to sustainable chemicals management software

1. Inventory Chemical Data
2. Screen chemicals against RSLs
3. Assess chemicals against hazard endpoints
4. Assess exposure potential
5. Identify less hazardous alternatives

- Not all software tools include all capabilities
- Inventory & some RSL screens essential
- Assess features against chemical management goals
**Software Selection:** Your goals, budget, and sector will influence your selection

Sustainable Chemicals Management Software Selection Process

**Goals**
- Determine business priorities and value

**Requirements**
- Identify software features required and needed budget

**Selection**
- Evaluate and select software provider

What criteria matter to select software and services to meet your needs?

Assess quality of key software features, performance and extent of experience with companies with similar business needs
<table>
<thead>
<tr>
<th>Sustainable Chemicals Management Software Capabilities and Vendor Services</th>
<th>YES</th>
<th>NO</th>
<th>Need more information</th>
<th>Importance for your business (H,M,L)</th>
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<tbody>
<tr>
<td><strong>Depth/detail of chemical data provided by vendor software system &amp; additional services</strong></td>
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<td>Does the software provide sufficient detail in inventory and tracking of relevant chemical ingredient information to meet your company's needs in supply chain transactions and internal management (e.g., ingredient CAS numbers, concentrations, identity &amp; weight of homogeneous materials)?</td>
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<td>Is a wide enough array of regulatory, industry sector or major customer chemical RSLs routinely available as part of the vendor’s software offerings to meet most of your company’s business requirements?</td>
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<td>Does the vendor regularly update changes in included regulatory and/or industry RSLs?</td>
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<td>If vendor regularly updates changes in included RSLs, is frequency of updating at least</td>
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<td>Quarterly?</td>
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