Hazard Assessment using GreenScreen® for Safer Chemicals

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BizNGO Conference
December 8, 2016
Hazard Assessment using GreenScreen®

- Built on precedent frameworks
- Evaluates intrinsic hazards for 18 human health & environmental endpoints
- Provides criteria to assign hazard levels
- Decision logic used to arrive at single score

Facilitate communication regarding chemical hazards
Support alternatives assessment - avoid regrettable substitutions
Provide roadmap towards use of safer chemicals
## Using Hazard Lists to Facilitate Process

### GREENSCREEN LIST TRANSLATOR
**VERSION 1.3 (1e) SPECIFIED LISTS**
**Last Updated: June 2016**

<table>
<thead>
<tr>
<th>ID</th>
<th>Abbreviation</th>
<th>CPA List Type</th>
<th>List Name</th>
<th>Associated GreenScreen Hazard Endpoints</th>
<th>URL and/or Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>IARC</td>
<td>Authoritative A and B</td>
<td>International Agency for Research on Cancer (IARC), Substances Reviewed in IARC Monographs and Supp.</td>
<td>Carcinogenicity</td>
<td>Lists provided at the link below reference the relevant IARC monograph volume or supplement. Substances may be listed by CAS number, name or collectively as a substance group.</td>
</tr>
</tbody>
</table>

### GreenScreen Supporting List Information

<table>
<thead>
<tr>
<th>ID</th>
<th>List</th>
<th>Sublist Category</th>
<th>Green Screen Hazard</th>
<th>List Type</th>
<th>A or B</th>
<th>Hazard Range</th>
<th>Display in Hazard Box (See Notes)</th>
<th>List Translator Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>152</td>
<td>G&amp;L – Neurotoxic Chemicals</td>
<td>Neurotoxic</td>
<td>Neurotoxicity-Any Exposure</td>
<td>Screening</td>
<td>B</td>
<td>vH, H, or M</td>
<td>UNK</td>
<td>UNK</td>
</tr>
<tr>
<td>153</td>
<td>IARC</td>
<td>Group 1 – Agent is Carcinogenic to humans</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>A</td>
<td>H</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>154</td>
<td>IARC</td>
<td>Group 2a – Agent is probably Carcinogenic to humans</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>A</td>
<td>H</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>155</td>
<td>IARC</td>
<td>Group 3 – Agent is not classifiable as to its carcinogenicity to humans</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>B</td>
<td>H, M or L</td>
<td>UNK</td>
<td>UNK</td>
</tr>
<tr>
<td>156</td>
<td>IARC</td>
<td>Group 4 – Agent is probably not carcinogenic to humans</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>A</td>
<td>L</td>
<td>L</td>
<td>UNK</td>
</tr>
<tr>
<td>157</td>
<td>IARC</td>
<td>Group 2b – Possibly carcinogenic to humans</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>A</td>
<td>M</td>
<td>M</td>
<td>UNK</td>
</tr>
<tr>
<td>158</td>
<td>MAK</td>
<td>Carcinogen Group 1 – Substances that cause cancer in man</td>
<td>Carcinogenicity</td>
<td>Authoritative</td>
<td>A</td>
<td>H</td>
<td>H</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: The above table provides a snapshot of a section from the document. For a comprehensive understanding, refer to the full document.*
Value of List-Based Scoring

- Common framework for identifying chemicals of high concern
- Rules-based approach allows automation, quick screening, scaling
- First step on journey to replacing hazardous substances in products manufactured, specified, or purchased
- Proactive chemicals management (beyond regulatory compliance)
- Facilitates supply chain communication

List Translator
Score
LT-1 ≈ Benchmark-1
List Translator Applications

valspar®
Prioritize chemicals for phase out

HPD
Provide transparency on chemical hazards
Recognition for product optimization

Google
Set material specification or purchasing requirements

Ø ZDHC
Establish RSLs or mRSLs

Set scope for chemical footprinting
Value of Comprehensive Assessments

• Provides in-depth analysis needed when making product design or re-design decisions
• Flags data gaps and considers environmental transformation products
• Supports generation of “positive lists” of chemicals
GreenScreen Applications

Google
Set material specification or purchasing requirements

LEVI STRAUSS & CO.
Supplier communication, generate preferred list of chemicals

Provide transparency on chemical hazards
Recognition for product optimization

Demonstrate leadership through product certifications

Inform chemical replacement, avoid regrettable substitutions
Scaling Hazard Assessment

Many chemicals characterized
Information widely used to guide chemical selection and management decisions