Appendix K: Comparing Information on Pesticide Labels and Safety Data Sheets

Introduction

Antimicrobial products are categorized as both a pesticide and a hazardous product and are regulated under two different laws by two different federal agencies. Both of the following agencies govern the requirements for the content of a pesticide’s product health and safety information:


2. The United States Environmental Protection Agency (EPA) specifies content requirements for antimicrobial pesticide labels under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

EPA requires a pesticide label to be the user's guide to applying pesticides to minimize risk and maximize efficacy. The label provides information about how to handle and use pesticide products safely. Pesticide labels are legally enforceable, and all of them carry the statement: “It is a violation of federal law to use this product in a manner inconsistent with its labeling.”1

What are the challenges to interpreting health and safety information for an antimicrobial product?

The product’s health and safety information on an antimicrobial pesticide product’s label and a Safety Data Sheet (SDS) can be inconsistent, and at times can appear to or actually conflict. The inconsistencies in this information can cause confusion under the following circumstances:

1. It can be confusing to the end user if they are trying to use the information to select a safer product.

2. The labels used on secondary containers (e.g., spray bottles) of diluted product may actually refer to the concentrate, not the hazards, of the diluted product. Please see the section in this document called Labels on Secondary Containers of Antimicrobial Products for more information.

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1 Note that EPA does not recommend that other elements of the FIFRA label, such as directions for use, should be included.
What are some of the differences between health information on the SDS and the pesticide information referenced on the same SDS?

Some differences are illustrated below for Purtabs, a disinfectant tab, that is made into a solution:

<table>
<thead>
<tr>
<th>Information in the SDS for the concentrate in tab form:</th>
<th>Pesticide Label Information in the SDS for the concentrate in tab form:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2: Hazards Identification</td>
<td>Section 16: Other Information</td>
</tr>
<tr>
<td>Section 9: Physical/Chemical Properties</td>
<td></td>
</tr>
<tr>
<td>Section 11: Toxicological Information</td>
<td></td>
</tr>
<tr>
<td>Section 16: Other Information</td>
<td></td>
</tr>
<tr>
<td><strong>Signal Word:</strong> WARNING</td>
<td><strong>Signal Word:</strong> DANGER</td>
</tr>
<tr>
<td>pH 5.5 - 6.5 (not corrosive)</td>
<td>CORROSIVE</td>
</tr>
<tr>
<td>• Causes serious eye irritation.</td>
<td>• Causes irreversible eye damage and skin burns.</td>
</tr>
<tr>
<td>• Harmful in contact with skin.</td>
<td>• Harmful if swallowed, inhaled or absorbed through the skin.</td>
</tr>
<tr>
<td>• Harmful if swallowed.</td>
<td></td>
</tr>
<tr>
<td>• Prolonged inhalation may be harmful. May cause irritation to the respiratory system.</td>
<td></td>
</tr>
<tr>
<td><strong>Pictogram</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Exclamation Mark</strong></td>
<td></td>
</tr>
<tr>
<td>• Irritant (skin and eye)</td>
<td></td>
</tr>
<tr>
<td>• Skin Sensitizer</td>
<td></td>
</tr>
<tr>
<td>• Acute Toxicity</td>
<td></td>
</tr>
<tr>
<td>• Narcotic Effects</td>
<td></td>
</tr>
<tr>
<td>• Respiratory Tract Irritant</td>
<td></td>
</tr>
<tr>
<td><strong>Hazardous Materials Information Systems (HMIS) Hazard Ratings</strong></td>
<td>N/A</td>
</tr>
<tr>
<td>Health: 1 (note a corrosive is typically a 3 rating)</td>
<td></td>
</tr>
<tr>
<td>Flammability: 0</td>
<td></td>
</tr>
<tr>
<td>Physical Hazard: 0</td>
<td></td>
</tr>
<tr>
<td><strong>National Fire Protection Association (NFPA) Hazard Ratings</strong></td>
<td>N/A</td>
</tr>
<tr>
<td>Health: 1</td>
<td></td>
</tr>
<tr>
<td>Flammability: 0</td>
<td></td>
</tr>
<tr>
<td>Instability: 0</td>
<td></td>
</tr>
</tbody>
</table>

Why the Confusion?

The confusion is due to the fact that EPA has not adopted OSHA’s HCS GHS criteria; there are differences between EPA’s requirements and OSHA’s requirements related to: classification criteria, hazard statements, pictograms, and signal words.
How did EPA seek to reconcile these potential problems?

To avoid potential inconsistencies between EPA-approved labels for pesticides regulated under FIFRA, and the SDSs that OSHA requires under the HCS, EPA had issued a clarification of its policy. EPA’s recommended guidance is designed to prevent this problem as noted below:

“Generally, every pesticide sold or distributed in the United States must be registered by EPA (FIFRA § 12(a)(1)(A)). In granting a registration, EPA must determine that the pesticide’s “labeling” complies with the requirements of FIFRA (FIFRA § 3(c)(5)(B)). In Section 2(p)(2)(A), FIFRA defines “labeling” to include all written, printed, or graphic matter accompanying the pesticide at any time. One of FIFRA’s requirements for labeling is that it not be false or misleading in any particular.”

EPA’s policy allows SDSs to accompany pesticides so long as they do not obscure or conflict with the labeling approved by EPA.

To provide an adequate explanation in the SDS so the pesticide labeling is not misleading, EPA recommends manufacturers include the following information in the product’s SDS:

- FIFRA label information in the SDS Section 15, “Regulatory Information.”
  
  The recommended information would provide a brief explanation for any differences between the pesticide label information and the SDS information, as well as FIFRA hazard statements (e.g., “fatal if swallowed”), signal word, and symbol (if required).

- EPA also recommends that the following general statement be included in the SDS Section 15:
  
  “This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use. [EPA directs the manufacturer to insert their FIFRA label hazard information]"

Author’s note: Although EPA recommends that any information from the FIFRA label on hazards included in the SDS be in the SDS Section 15, or, for ecological hazards, in SDS Section 12 as noted above, the author’s review of numerous SDSs found that the location and content of this information varies from SDS to SDS and is not always located in the sections recommended by EPA.

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2 EPA, Pesticide Registration (PR) Notice 2012-1, April 20, 2012
3 FIFRA 2(p)(2)(A) EPA, Label Review Manual (for Pesticides), Revised July 2011
What are other important points of note?

- All other aspects of the OSHA Hazard Communication Standard apply to chemical management in the workplace.\(^4\)

- OSHA does not require manufacturers to complete SDS sections 12 (Ecological Information), 13 (Disposal Considerations), 14 (Transport Information), and 15 (Regulatory Information) of the SDS format specified by the HCS GHS.

- EPA does not recommend that other elements of the FIFRA label should be included, such as directions for use.

- FIFRA labels approved by EPA pre-empt OSHA’s label requirements.

- EPA only uses one symbol, the skull and crossbones, for severe acute toxicity and products containing methanol at concentrations above 4%. The GHS uses symbols for all hazard classes (but not all categories).\(^5\)

- EPA’s signal words on labels are different from OSHA’s signal words on labels:

  Signal words indicate a product’s potential for making you sick. Regardless of how many hazards a chemical may have, there will only be one signal word on the label. The signal word for the highest hazard will appear on the label.

  EPA prohibits the use of signal words for environmental or physical hazards;\(^6\) the GHS mandates their use for some categories (e.g., extremely flammable liquids). Other differences are illustrated below:

<table>
<thead>
<tr>
<th>EPA’s Signal Words</th>
<th>OSHA’s Signal Words(^7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Caution” appears on products that are the least harmful to you.</td>
<td>“Warning” is used for the less severe hazards</td>
</tr>
<tr>
<td>“Warning” means a product is more harmful than one with a “Caution” label.</td>
<td>“Danger” is used for the more severe hazards.</td>
</tr>
<tr>
<td>“Danger” means a product is poisonous or corrosive and should be used with extreme care. GHS uses the “danger” signal word and skull and crossbones symbol for chemicals in Categories 1-3 (e.g., oral LD50 of up to 300 mg/kg) and introduces the exclamation point symbol for Category 4.</td>
<td>EPA uses the “danger” signal word and skull and crossbones symbol for chemicals in Categories I and II (e.g., oral LD50 of up to 50 mg/kg).</td>
</tr>
</tbody>
</table>

\(^4\) Massachusetts Department of Labor Standards, Workplace Safety and Health Program

\(^5\) EPA, Chemical Hazard Classification and Labeling: Comparison of OPP Requirements and the GHS

\(^6\) EPA, Chemical Hazard Classification and Labeling: Comparison of OPP Requirements and the GHS

\(^7\) OSHA Brief: Hazard Communication Standard: Labels and Pictograms
Conclusion

Although EPA has sought to minimize inconsistencies between the two sets of requirements for health information, it is obvious from the sample provided above that either there are significant inconsistencies between the information provided for many of the antimicrobial products that are considered to be safer, or the information is too technical for the layperson to interpret. If there are questions based on what appear to be inconsistencies or conflicting or confusing information, contact the manufacturer directly to clarify any concerns. Also, you can consult the EPA publication, *Chemical Hazard Classification and Labeling: Comparison of OPP Requirements and the GHS*, [https://www.epa.gov/sites/default/files/2015-09/documents/ghscriteria-summary.pdf](https://www.epa.gov/sites/default/files/2015-09/documents/ghscriteria-summary.pdf), for a detailed comparison.

Sample Pesticide Label with GHS Modifications for Illustration Purposes Only

See the sample labels provided in EPA document available at [https://www.epa.gov/sites/default/files/2015-08/documents/sample-labels.pdf](https://www.epa.gov/sites/default/files/2015-08/documents/sample-labels.pdf) on the following two pages. They use these sample labels to illustrate what a pesticide label would look like if it was aligned with the GHS. Although EPA developed the label comparison below, a statement on their webpage notes that; “EPA has not adopted GHS for pesticide product classification and labeling. In most cases, GHS hazard statements and pictograms should not appear on pesticide product labels sold and distributed in the United States.”

The following sample labels are for an insecticide pesticide, not an antimicrobial pesticide.

EPA states that:

“Aligning the appropriate hazard communication elements to pesticide products requires knowledge of the product’s toxicity categories. The assumption for toxicity categories of the sample product are as follows:

<table>
<thead>
<tr>
<th>Under Current Office of Pesticide Programs (OPP) Requirements</th>
<th>Under GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acute Inhalation Toxicity: Category III</td>
<td>• Acute Inhalation Toxicity: Category 4</td>
</tr>
<tr>
<td>• Acute Dermal Toxicity: Category IV</td>
<td>• Acute Dermal Toxicity: Unclassified</td>
</tr>
<tr>
<td>• Acute Oral Toxicity: Category IV</td>
<td>• Acute Oral Toxicity: Unclassified</td>
</tr>
<tr>
<td>• Skin Corrosion/Irritation: Category 111</td>
<td>• Skin Corrosion/Irritation: Category 3</td>
</tr>
<tr>
<td>• Eye Damage/Irritation: Category III</td>
<td>• Eye Damage/Irritation: Category 2 B</td>
</tr>
<tr>
<td>• Acute Hazard to the Aquatic Environment: N/A</td>
<td>• Acute Hazard to the Aquatic Environment: Category 3</td>
</tr>
</tbody>
</table>
Pesticide Label

**Home and Garden DUST**

Contains XXX Biological Insecticide
Active ingredient:
XXX .................................................. 0.5%
INERT INGREDIENTS .......................... 99.5%
TOTAL ............................................ 100.0%

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

**PRECAUTIONARY STATEMENTS**
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
Harmful if inhaled. Avoid breathing dust. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**ENVIRONMENTAL HAZARDS**
Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters or rinseate.

**FIRST AID**
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Have product container or label with you when calling a poison control center or doctor or going for treatment.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

For information on this pesticide product (including health concerns, medical emergencies, or pesticide incidents), call the National Pesticide Information Center at 1-800-858-7378

**STORAGE AND DISPOSAL**
Do not contaminate water, food or feed by storage or disposal.
PESTICIDE STORAGE: Pesticide should be stored in the original container in a locked storage area.
PESTICIDE DISPOSAL: If empty: Do not reuse this container. Place in trash or offer for recycling if available. If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

Arlington Agricultural Insecticides, Inc.
Arlington, VA 22202
EPA REG. No. XXX-XXX EPA EST. No. XXX-VA-1 Net Weight 2 lbs (.905 kg)
Appendix K: Comparing Information on Pesticide Labels and Safety Data Sheets

Pesticide Label with GHS Elements
See a very well done illustration and explanation at the Center for Food Security website located at Iowa State University: https://www.cfsph.iastate.edu/Disinfection/Assets/disinfectant_product_label.pdf
Overview - Labels on Secondary Containers of Antimicrobial Products

The following information is provided to help explain another related but separate issue that is potentially misleading. This issue is also a consequence of the label being governed by two different agencies.

A primary container is the original container a product comes in with the manufacturer’s label. A secondary container is any container holding a product which is not the original container supplied by the manufacturer. It is most often used in schools for diluting and applying a product.

EPA does not require labels on secondary containers. OSHA does have requirements that apply to “workplace” labels under the HCS GHS. Please see the OSHA sample workplace label with requirements highlighted at the end of this document.

EPA

- What are EPA’s recommendations for information to be included in OSHA workplace labels on secondary containers?  

  EPA recommends that the applicator identify the material in the secondary container in the event of a spill to ensure that adequate information can be obtained in case of a medical or environmental emergency. EPA recommends that such labels include the following information:

  - The name, address and telephone number of the applicator/pest control firm (if applicable).
  - Product name.
  - EPA registration number.
  - Name and percentage of active ingredient.
  - If the product in the container is diluted, it should be followed by the phrase: “The product in this container is diluted as directed on the pesticide product label.”
  - Signal word and precautionary statements (including First Aid statements) from the registered label unless the registrant has acute toxicity data supporting lesser precautionary statements for the diluted product and alternate directions for the diluted product are indicated on the product label. The secondary container may have reduced precautionary language (if supported by dilution-specific acute toxicity data) but not a reduced signal word.
  - The statement: “Follow the directions for use on the pesticide label when applying this product.”

Note: Information provided in a pesticide label is considered a regulatory requirement governing use of an antimicrobial product. If the product user does not follow these directions, it is considered a violation of the law. Thus, EPA’s recommendation to include this statement on the label reinforces this requirement.

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• What is EPA’s position on manufacturers providing ready-made labels on secondary containers?
  • EPA also allows manufacturers to provide labels to users for secondary containers that are used to apply or temporarily store end-use pesticides, as long as the labels are not inconsistent (i.e., have no other statements that conflict) with the EPA approved pesticide label.

• What is EPA’s position on ingredient information on the workplace label?
  • The percentage of active ingredient listed on the secondary container may reflect the concentrated product, or if known, the percentage of active ingredient in the end-use dilution. Listing the percentage of active ingredient as reflected on the product label and indicating the product has been diluted as directed relieves the user from having to calculate the percentage of active ingredient in the dilute formulation.
  • Such a calculation can be difficult for the average user when the directions for use call for a ratio of product to diluent, (e.g., 1 part product to 64 parts diluent or 5 ounces of product to 128 ounces of diluent), and the directions do not list the percentage of active ingredient in the finished dilution.

• Why is the ingredient information a concern?
  • Some diluted products in secondary containers have manufacturer’s labels with information from the concentrate. Thus, it is important to cross check with the concentrate’s label with the label on the “ready to use” product because the manufacturer may have provided the same label for both the concentration and the dilute. This is important information to distribute with the product for end users to understand the hazard level and precautions for the product.
OSHA Requirements

What are OSHS Workplace Label Requirements on “Primary” Containers?

Hazard Communication Standard Labels
OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). All labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

For more information:
www.osha.gov (800) 321-OSHA (6742)