Antimicrobial Data Requirements
Part 158W and Use Site Index

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Jan Dhonau
What is 158W?

- EPA data requirements for the approval of antimicrobial products, including active ingredients, manufacturing and end use products.
  - These requirements are codified under 40 CFR Part 158W.
- New data tables similar to the data tables for conventional pesticides were created specifically for antimicrobials and anticipated antimicrobial use patterns.
- A document seeking input on SAR approaches to data requirements was published concurrent to the 158W proposed rule.
- Use patterns and exposure/use sites drive data requirements.
- In addition to Part 158W, EPA has published a companion document, the Use Site Index.
Background on the 158W Rulemaking

- The proposed rule was published in the *Federal Register* on October 8, 2008 (73 Fed. Reg. 59382).
- Background on EPA’s response to comments and questions can be found in the public docket: EPA-HQ-OPP-2008-0110-0134[1].
- The new requirements are located in 40 CFR Part 158 Data Requirements For Pesticides Subpart W Antimicrobial Pesticide Data Requirements.
What’s New in 158W?

- Eleven new data requirements.
- Down the drain considerations are required for the first time for antimicrobials.
- Some test methods associated with new requirements are not finalized.
- Potable water rinse is not an automatic re-set of indirect food use to non-food use.
- EPA is soliciting stakeholder feedback and is providing training for the regulated community.
What’s New in 158W?

Toxicology
  1- Developmental Neurotoxicity
  2- Immunotoxicity
Non-target Organisms
Non-target Plant Protector
Applicator Exposure
Post Application Exposure
  3- Soil Residue Dissipation
Environmental Fate
  4- Activated Sludge Respiration Inhibition
  5- Ready Biodegradability
  6- Porous Pot Study
  7- Simulation Test –aerobic sewage treatment: activated sludge units
  8- Simulation Test to Assess the Biodegradability of Chemicals Discharged in Waste Water
  9- Activated sludge sorption isotherm study
10- Photodegradation in Soil
Residue Chemistry
11- Nature of Residue on Surfaces
## Interpreting the Data Tables

<table>
<thead>
<tr>
<th>Guideline No.</th>
<th>Data requirement</th>
<th>Food uses</th>
<th>Nonfood uses</th>
<th>Test substance</th>
<th>Test note No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>870.1100</td>
<td>Acute oral toxicity—rat</td>
<td>R</td>
<td>Swimming pools, aquatic areas, wood preservatives, metal working fluids</td>
<td>MP and TGAI, EP and TGAI</td>
<td>1, 2</td>
</tr>
<tr>
<td>870.1200</td>
<td>Acute dermal toxicity</td>
<td>R</td>
<td>All other nonfood uses</td>
<td>MP and TGAI, EP and TGAI</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>870.1300</td>
<td>Acute inhalation toxicity—rat</td>
<td>R</td>
<td></td>
<td>MP and TGAI, EP and TGAI</td>
<td>2, 4</td>
</tr>
<tr>
<td>870.2400</td>
<td>Primary eye irritation—rabbit</td>
<td>R</td>
<td></td>
<td>MP and TGAI, EP and TGAI</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>870.2500</td>
<td>Primary dermal irritation</td>
<td>R</td>
<td></td>
<td>MP and TGAI, EP and TGAI</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>870.2600</td>
<td>Dermal sensitization</td>
<td>R</td>
<td></td>
<td>MP and TGAI, EP and TGAI</td>
<td>1, 2, 3, 5</td>
</tr>
<tr>
<td>870.2600</td>
<td>Acute neurotoxicity—rat</td>
<td>R, CR</td>
<td></td>
<td>TGAI</td>
<td>6, 11</td>
</tr>
</tbody>
</table>
Interpreting the Data Tables

- Read the foot notes!
- Test substance is determined by product type: Manufacturing Use and End Use.
- Determine the test substance. TGAI, TEP
- CR vs. R?
  - Conditionally required = likely to be required less than 50% of the time versus
  - Required = likely to be required > 50% of the time.
Interpreting the Data Tables

- Indirect Food Uses – Tox data requirements are based on residue defined by above or below 200 ppb.
- 200 parts per billion (ppb). The 200 ppb level was originally used by the Food and Drug Administration with respect to the concentration of residues in or on food for tiering of data requirements for indirect food use biocides. EPA has also adopted this same residue level for determining toxicology data requirements for indirect food uses of antimicrobial pesticides. The 200 ppb level is the concentration of antimicrobial residues in or on the food item.
- By “September 2, 2017, EPA will propose a correction to 40 CFR Part 158W to make the rule’s language as it pertains to the 200 ppb level established in 40 C.F.R. § 158.2230(d) consistent with the U.S. Food and Drug Administration’s use of that same level.”
Twelve Use Patterns

1. Agricultural Premises & Equipment
2. Food Handling/Storage Establishments, Premises and Equipment
3. Commercial, Institutional Premises and Equipment
4. Residential and Public Access Premises
5. Medical Premises and Equipment
6. Human Drinking Water Systems
7. Materials Preservatives
8. Industrial Processes and Water Systems
9. Antifoulant Paints and Coatings
10. Wood Preservatives
11. Swimming Pools and Spas
12. Aquatic Areas
Use Site Index

- USI is guidance for determining use sites associated with the 12 use patterns.
- Defines food use, non-food use and indirect food use.
- Indirect food use is most challenging definition.

“A use is generally considered to be indirect food use if the use involves application of the antimicrobial pesticide in or on a material or article that comes into contact with food and may result in residues in or on food, but the use is not intended for pesticide treatment of food.”

- The USI address: [https://www.epa.gov/sites/production/files/2016-01/documents/usi_for_docket_1_27.pdf](https://www.epa.gov/sites/production/files/2016-01/documents/usi_for_docket_1_27.pdf)
### IV. Use Site Index

#### Food Uses

<table>
<thead>
<tr>
<th>Direct Food Uses</th>
<th>Indirect Food Uses</th>
<th>Nonfood Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Agricultural Premises and Equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Irrigation Systems (Food crops)</td>
<td>- Animal Drinking Water</td>
<td>- Agricultural/Farm Premises/Structures/Buildings/Equipment</td>
</tr>
<tr>
<td></td>
<td>- Animal Premises/Structures/Buildings/Equipment</td>
<td>- Beehives (non-honey producing, such as pollinators)</td>
</tr>
<tr>
<td></td>
<td>- Beehives (honey producing)</td>
<td>- Egg Handling Equipment/Rooms/Washing/Treatments (Hatching)</td>
</tr>
<tr>
<td></td>
<td>- Dairy Farm Milk Handling</td>
<td>- Greenhouses (Nonfood crops)</td>
</tr>
<tr>
<td></td>
<td>- Empty Containers or Equipment to Be Used for Raw Agricultural Commodities</td>
<td>- Irrigation Systems (Nonfood crops)</td>
</tr>
<tr>
<td></td>
<td>- Facilities/Equipment</td>
<td>- Shoe Baths</td>
</tr>
<tr>
<td></td>
<td>- Fish Hatchery Buildings/Areas (Nonaquatic)</td>
<td>- Tobacco Processing Plant Premises/Equipment</td>
</tr>
<tr>
<td></td>
<td>- Food/Feed Storage Premises</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Greenhouses (Food Crops)</td>
<td></td>
</tr>
</tbody>
</table>

| **2. Food Handling/Storage Establishments, Premises and Equipment** | | |
| - Egg Washing Treatments | - Dairies/Cheese Processing Plant Premises/Equipment | - Eating Establishments (Nonfood areas) |
| - Fruit and Vegetable Treatments | - Dishwashing Water | - Food Processing Plant Premises/Equipment (Nonfood) |
| | - Eating Establishments/Equipment/Utensils/Food Handling/Serving Areas | - Hydrostatic Sterilizer Water Systems |
| | - Egg Handling Equipment/Handling Rooms/Packing Plants | - Pasteurizer/Warmer/Cannery/Retort Water Systems |
| | - Feed Mills/Food Processing Plants Premises and Equipment | | |
| | - Food Processing Water Systems | | |
| | - Transportation/Facilities/Barges/Railroad Cars/Commercial Shipping Containers | | |

| **3. Commercial, Institutional and Industrial Premises and Equipment** | | |
| Not Applicable | Not Applicable | - Barber/Beauty Shop Equipment/Instruments |
| | | - Commercial Transportation Vehicles/Facilities |
| | | - Heating, Ventilation, and Air Conditioning (HVAC) Systems |
| | | - Laundry/Laundry Equipment |
| | | - Premises/Equipment |
| | | - Refuse/Solid Waste Transportation Facilities/Handling Equipment |
Examples of rationale include but are not limited to:

- Data and/or rationale used to support FDA food additive regulation or FCN
- Theoretical high-end calculations/modeling demonstrating that there is no reasonable expectation of residues in/on food
- Data/justification of residue removal via a potable water rinse
- Label restrictions limiting exposure to food
- Justification based on product chemistry and/or environmental fate characteristics (i.e., volatility, solubility)
- Residue data
Indirect Food Uses

- What about residues that may come into contact with food?
- Potable water rinse no longer changes indirect food use products to non-food classification.
- Is it just the active or the complete formula?
- Residue Chemistry Requirements Section 2290:
  - Residue chemistry data are not required if no adverse effects (no toxicity endpoints) are associated with dietary exposure to the active ingredient or if theoretical (high-end) dietary exposure estimates combined with the applicable toxicity endpoint result in acute and chronic dietary risks that are below the Agency levels of concern.
- Nature of residue on surfaces Test note 4:
  
  If an antimicrobial pesticide may be applied to a food-contact surface or impregnated into a food-contact material and if theoretical (high-end) estimates of exposure exceed EPA's risk level of concern, then the nature of the residue on surfaces study is required. Protocols must be approved by the Agency prior to the initiation of the study.

- Options for providing a dietary risk assessment are in the USI box but seeking more guidance.
Indirect Food Uses

- IDREAM is one tool that is available: https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/indirect-dietary-residential-exposure-assessment#user
- Several indirect food use scenarios have been submitted to EPA for guidance.
- If in doubt, talk with EPA.
More EPA Guidance

- Nine instructional videos have been developed to help registrants.
  1) Overview
  2) Eco-Tox
  3) HH Toxicology
  4) Residue Chemistry
  5) Occupational and Residential Exposure
  6) Environmental Fate
  7) Textiles and Plastics
  8) Cooling Water Systems
  9) Wood Preservatives

- Additional videos are being tentatively planned by EPA.