Introduction

We developed two databases of substances that had both rat acute oral toxicity data and rat acute dermal toxicity data available: one

Evaluation of the Dataset

- Comparison of oral and dermal toxicities for 11 oral and dermal toxicity databases on oral and dermal toxicity

Hazard Classification

- Figures 1

Results

- Comparison of oral and dermal toxicities for 11 oral and dermal toxicity databases on oral and dermal toxicity

Development of the Dataset

- We developed two datasets of substances that had both rat acute oral toxicity and rat acute dermal toxicity data available.

Table 2. Classification of Pesticide Formulations Using EPA Oral Hazard Categories to Predict GHS Dermal Categories

<table>
<thead>
<tr>
<th>Pesticide Formulation</th>
<th>EPA Oral Category</th>
<th>GHS Dermal Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulation A</td>
<td>Category I</td>
<td>Category I</td>
</tr>
<tr>
<td>Formulation B</td>
<td>Category II</td>
<td>Category II</td>
</tr>
<tr>
<td>Formulation C</td>
<td>Category III</td>
<td>Category III</td>
</tr>
<tr>
<td>Formulation D</td>
<td>Category IV</td>
<td>Category IV</td>
</tr>
</tbody>
</table>

Table 3. Classification of Pesticide Formulations Using GHS Oral Hazard Categories to Predict GHS Dermal Categories

<table>
<thead>
<tr>
<th>Pesticide Formulation</th>
<th>GHS Oral Category</th>
<th>GHS Dermal Category</th>
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</thead>
<tbody>
<tr>
<td>Formulation A</td>
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<td>Category II</td>
</tr>
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<td>Category III</td>
</tr>
<tr>
<td>Formulation D</td>
<td>Category IV</td>
<td>Category IV</td>
</tr>
</tbody>
</table>

Figure 3. Distribution of Oral vs. Dermal Data for Pesticide Formulations and Active Ingredients by EPA Hazard Category

Table 4. Classification of Pesticide Active Ingredients Using EPA Oral Hazard Categories to Predict EPA Dermal Categories

<table>
<thead>
<tr>
<th>Pesticide Active Ingredient</th>
<th>EPA Oral Category</th>
<th>EPA Dermal Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient A</td>
<td>Category I</td>
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</tr>
<tr>
<td>Active Ingredient B</td>
<td>Category II</td>
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<td>Category III</td>
<td>Category III</td>
</tr>
<tr>
<td>Active Ingredient D</td>
<td>Category IV</td>
<td>Category IV</td>
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</tbody>
</table>

Figure 4. Comparison of Concordance, Overprediction, and Underprediction of Formulations and Active Ingredients Using EPA or GHS Classification Systems

Table 5. Classification of Pesticide Active Ingredients Using GHS Oral Hazard Categories to Predict GHS Dermal Categories

<table>
<thead>
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<th>GHS Oral Category</th>
<th>GHS Dermal Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient A</td>
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<td>Category I</td>
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<tr>
<td>Active Ingredient B</td>
<td>Category II</td>
<td>Category II</td>
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<tr>
<td>Active Ingredient C</td>
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<td>Category III</td>
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<tr>
<td>Active Ingredient D</td>
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</table>

Table 6. Summary of Concordance, Overprediction, and Underprediction

<table>
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<tr>
<th>Dataset</th>
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<th>Formulation</th>
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</thead>
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<td>20%</td>
<td>90%</td>
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<tr>
<td>Formulation B</td>
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<td>40%</td>
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</tr>
<tr>
<td>Formulation C</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>Formulation D</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Summary

- Both EPA and GHS oral and dermal hazard classifications were based on the LD50 value reported from the in vivo tests (see Creton et al. 2010. Crit Rev Toxicol 40, 50-83.

Conclusions

- Most pesticide formulations and active ingredients had both the dermal hazard assigned Category II and Category III were used for acute dermal toxicity testing. However, for some formulations and active ingredients, the dermal hazard was assigned Category I.

Acknowledgements

- The views expressed above do not necessarily represent the official positions of any federal agency. Since the poster was written as part of the official duties of

References