Imidacloprid | 2019 Cycle 10

Substance Overview

Imidacloprid is a neonicotinoid pesticide used to control a variety of indoor and outdoor insects. Neonicotinoids are broad spectrum insecticides used on agricultural fields, gardens, pets, and in homes. Neonicotinoid pesticides are similar to nicotine in their structure. They are specifically designed to act on the nicotine receptors in insects, resulting in paralysis and death.

Recommendations

Wisconsin does not currently have an NR140 Groundwater Quality Public Health Enforcement Standard for imidacloprid.

DHS recommends an enforcement standard of 0.2 micrograms per liter (µg/L) for imidacloprid. The recommended enforcement standard is based on a study in 2017 that found that imidacloprid affected weight gain and glucose regulation in male mice.

DHS recommends that the NR140 Groundwater Quality Public Health Preventive Action Limit for imidacloprid be set at 10% of the enforcement standard because recent studies have shown that imidacloprid can cause mutagenic, teratogenic, and interactive effects at high levels.

Health Effects

What we know about the health effects of imidacloprid comes from studies with laboratory animals. Animals that swallowed large amounts of imidacloprid for long periods of time had thyroid, neurological, reproductive, and glucose regulation problems.

The EPA has classified imidacloprid as having evidence of non-carcinogenicity, meaning that it does not cause cancer in animal studies. Some studies have shown that imidacloprid can cause teratogenic effects in animals. Recent studies have shown that high levels of imidacloprid can cause mutagenic effects in mice and can have interactive effects with arsenic in rats.

<table>
<thead>
<tr>
<th>Current Standards</th>
<th>Recommended Standards</th>
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<tbody>
<tr>
<td>Enforcement Standard:</td>
<td>N/A</td>
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<tr>
<td>Preventive Action Limit:</td>
<td>N/A</td>
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<tr>
<td>Year:</td>
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<tr>
<td>Enforcement Standard:</td>
<td>0.2 µg/L</td>
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<tr>
<td>Preventive Action Limit:</td>
<td>0.02 µg/L</td>
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Wisconsin Department of Health Services
References


This document is a summary of the Scientific Support Document for the Cycle 10 Recommended Groundwater Standard for this substance. The recommendations in this summary were developed in accordance with Chapter 160, Wis. Stats.