MEMORANDUM


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TO: Amy S. Rispin, Chief
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and

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THRU: Charles L. Trichilo, Ph.D., Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

In response to the Chlorpyrifos Registration Standard of February 29, 1984, Dow Chemical Company responded on April 6, 1985, by submitting product chemistry data cited in the Standard as data gaps for their manufacturing-use product (MUP), Dursban 30 S EC Insecticidal Concentrate®.

Chlorpyrifos is the common name for the insecticide 0,0-diethyl O-(1,2,5-trichloro-2-pyridyl)phosphorothioate. Technical chlorpyrifos is manufactured by Dow Chemical Company. Dow apparently formulates several intermediate products known as manufacturing-use products (MUP). Dow also sells technical chlorpyrifos to several other companies for formulating intermediate products (MUP's), or end-use products, several of which are registered with the EPA.
Detailed data gaps cited in table B of the Standard, for MUP comprise all data requirements under Series 61 and 62 of the Product Chemistry Guidelines, Subdivision D. The table did not list data requirements under Series 63, because at that time (February 29, 1984), Residue Chemistry Branch did not address the physical and chemical characteristics of the MUP's. Data under Series 63 are now being processed by the Residue Chemistry Branch.

In our discussion below, we will list the data gap required under the corresponding section in the product chemistry requirements of Part III, Pesticide Registration: Data Requirements for Pesticide Registration, Final Rule (40 CFR Part 158, 49 FR 42856, October 24, 1984) followed by Dow's response and our comments.

Series 61: Product Identity and Composition

§61-1 Product Identity and Disclosure of Ingredients

Dow's Response

Dursban 30 SEC Insecticidal Concentrate®, EPA Reg. No. 464-559, is a solution of [redacted] in a formulation containing a minimum assay of 30% chlorpyrifos 10,6-diethyl (3,5,6-trichloro-2-pyridyl)phosphorothionate. Dursban 30 SEC is a manufacturing-use product, produced by Dow Chemical Company that may be used for formulation of other manufacturing-use products or end-use products. A copy of the on page Confidential Statement of Formula is included in p. 1 of the Confidential Appendix, Attachment 2 of this review.

NCB Comments

No additional information is required under §61-1.

§61-2 Description of Beginning Materials and Manufacturing Process

Dow's Response

a. Beginning materials: reported by Dow in one page, a copy of which is attached in p. 2 of the Confidential Appendix, Attachment 2 of this review.

b. Manufacturing process: reported by Dow in one page, a copy of which is attached in p. 3 of the Confidential Appendix, Attachment 2 of this review.

c. Changes in beginning materials or manufacturing process: No changes in the beginning materials or manufacturing process were reported.
RCB Comments

Dow Company complied with data requirements under §61-2 of the Product Chemistry Guidelines, Subdivision D.

§61-3 Discussion of Formation of Impurities

Dow's Response

Dursban 30 SEC Insecticidal Concentrate is a manufacturing-use product containing 30% chlorpyrifos, Reg. No. 464-559. It is formulated by Dow Company by dilution of their manufacturing-use product (see page 3 of the Confidential Appendix, Attachment 2 of this review). Therefore, the nature of the impurities in both manufacturing-use product and Dursban 30 SEC, is expected to be identical. These impurities were reported by Dow under product chemistry data gaps. Dow Company reported that since Dursban 30 SEC is a no new impurities are introduced from the active ingredient. (See page 3 of the Confidential Appendix, Attachment 2.)

RCB Comments

Dow Chemical Company complied with data requirements under §61-3.

Series 62: Analysis of Certification of Product Ingredients

§62-1 Preliminary Analysis

Dow's Response

The analysis included in this submission is for five randomly selected production batches of the manufacturing-use product, Dursban 30 SEC, sampled during 1981. Samples were analyzed for chlorpyrifos per g using Dow's method No. 26054 (OA No. 1566) with a resulting upper and lower limits of respectively. The analysis included determination of the inert with a resulting upper and lower limits as shown on page 3 of the Confidential Appendix, Attachment 2 of this review.

Data on intentionally added ingredients were previously discussed by S. Malak in connection with
RCB Comments

No additional information is required under §62-1.

§62-2 Certification of Limits

Dow's Response

The manufacturer has given the upper and lower certification of limits for chlorpyrifos per se at [REDACTED] respectively. The upper and lower limits of the intentionally added ingredients as well as the upper limit of the inert associated with [REDACTED] which are the same as those in Durabane 30 SEC (Reg. No. 464-559), were all reported by Dow Company as could be seen on page 3 of the Confidential Appendix, Attachment 2 of this review.

RCB Comments

No additional information is required under §62-2.

§62-3 Analytical Methods for Enforcement of Limits

Dow's Response

The analytical method employed for the determination of chlorpyrifos per se in the manufacturing-use product, Durabane 30 SEC is Dow's method No. 23954 (QA No. 1666), entitled "Durabane 30 SEC Insecticidal Concentrate; February, 1981."

Dow's method No. MIL-AM-81 (QA No. 2349) is used for determination of the impurities in which are the same as those in 30 SEC.

RCB Comments

No additional information is needed under §62-3.
Series 63: Physical and Chemical Characteristics

**ECB's Response**

The physical and chemical characteristics for the manufacturing-use product, Durban 30 SCC, required under this series were reported as follows:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-2 Color</td>
<td>Amber</td>
</tr>
<tr>
<td>63-3 Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>63-4 Odor</td>
<td>Mild aromatic</td>
</tr>
<tr>
<td>63-7 Specific Gravity</td>
<td>1.09</td>
</tr>
<tr>
<td>63-12 pH</td>
<td>4.5</td>
</tr>
<tr>
<td>63-14 Oxidizing/Reducing</td>
<td>N/A</td>
</tr>
<tr>
<td>63-15 Flashpoint</td>
<td>129 °F</td>
</tr>
<tr>
<td>63-16 Explosibility</td>
<td>N/A</td>
</tr>
<tr>
<td>63-17 Storage Stability</td>
<td>2 years at 25 °C</td>
</tr>
<tr>
<td>63-18 Viscosity</td>
<td>97 cps at 20 °C</td>
</tr>
<tr>
<td>63-19 Miscibility</td>
<td>Not miscible with oils</td>
</tr>
<tr>
<td>63-20 Corrosion</td>
<td>Noncorrosive to stainless steel Corrosive to copper and brass</td>
</tr>
</tbody>
</table>

**ECB Comments**

No additional information is required under section 63.

**Conclusions and Recommendations**

1. Product chemistry data requirements for chlorpyrifos (Durban 30 SCC), E/E Reg. No. 460-559 have been satisfied.

2. We recommend that data available for Durban 30 SCC in this review be added to the Chlorpyrifos Registration Standard.

3. An updated copy of product chemistry table is included as Attachment 1.

**Attachment-1**: Table B (3-pages)
**Attachment-2**: Confidential Appendix (4-pages)

* p. 1: Confidential statement of formula
* p. 2: beginning materials
* p. 3-4: manufacturing process, E/E certified limited.

* E/E: chlorpyrifos reg. file, T&D, Ellenberger-111-D9, and 111-D10 (received by: McArdle/12/06)
* 111-D10: E/E, T&D, Ellenberger, Subject file, reviewed E/E file, 111-D10
* 111-D9: Section 2.1.17, 111-D10 (received 12/05)
* 111-D8: Sections 2.1.17, 2.1.8 (received 12/05)
<table>
<thead>
<tr>
<th>Product Identity</th>
<th>Test Substance</th>
<th>Guidelines Status</th>
<th>Pre Data Required</th>
<th>Footnote Marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1-1 - Product Identity and Disclosure of Ingredients</td>
<td>FP</td>
<td>R</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>C1-2 - Description of Beginning Materials and Manufacturing Process</td>
<td>FP</td>
<td>R</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>C1-3 - Description of Formation of Impurities</td>
<td>FP</td>
<td>R</td>
<td>No</td>
<td></td>
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<tr>
<td>Analysis and Certification of Product Identity</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2-1 - Preliminary Analysis</td>
<td>FP</td>
<td>CR</td>
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<tr>
<td>C2-2 - Certification of Limits</td>
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<td>C2-3 - Analytical Methods to Verify Certified Limit</td>
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<tr>
<td>Physical and Chemical Characteristics</td>
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<td>C3-1 - Color</td>
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<td>FP</td>
<td>R</td>
<td>No</td>
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<td>C3-3 - Odor</td>
<td>FP</td>
<td>R</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Test Substance</td>
<td>Guideline Status</td>
<td>AcE Data Required</td>
<td>Footnote Number</td>
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<tr>
<td>63-7 - Density, Bulk Density, or Specific Gravity</td>
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<td>RP</td>
<td>CR</td>
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<td></td>
</tr>
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<td>63-11 - Oxidizing or Reducing Action</td>
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<td>MA</td>
<td>-</td>
<td></td>
</tr>
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<td>63-15 - Flashpoint</td>
<td>RP</td>
<td>CR</td>
<td>-</td>
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</tr>
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<td>63-16 - Hydrastability</td>
<td>RP</td>
<td>MA</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>63-17 - Storage Stability</td>
<td>RP</td>
<td>R</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>63-18 - Viscosity</td>
<td>RP</td>
<td>CR</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>63-19 - Nodibility</td>
<td>RP</td>
<td>CR</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>63-20 - Corrosion Characteristics</td>
<td>RP</td>
<td>R</td>
<td>-</td>
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<tr>
<td>68-1 - Minimum of samples</td>
<td>RP</td>
<td>CR</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Required: CR = Conditionally Required; RP = Manufacturing-use Product
Page 8 is not included in this copy.

Pages ____ through ____ are not included.

The material not included contains the following type of information:

___ Identity of product inert ingredients.
___ Identity of product impurities.
___ Description of the product manufacturing process.
___ Description of quality control procedures.
___ Identity of the source of product ingredients.
___ Sales or other commercial/financial information.
___ A draft product label.
___ The product confidential statement of formula.
___ Information about a pending registration action.
___ FIFRA registration data.
___ The document is a duplicate of page(s) _____.
___ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
Page is not included in this copy.

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