SUBJECT: Product Chemistry Review of
Dimension Surf Herbicide (EPA
File No. 524-16U)

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Applicant: Monsanto Agricultural Co.

MRID Nos.: 461300-00, -01, -02, -03

CAS Registry No.: 97886-45-8

Company Code: MON-15104

Chemical Name: 3,5-Pyridinedicarbothioic acid, 2-(difluoromethyl)-4-(2-methylpropyl)-6-(trifluoromethyl)-S,S-dimethyl ester

Trade Name: Dimension Surf Herbicide

Common Name: Etioppyr

Use: Herbicide
Introduction:
This submission is for Dimension Surf Herbicide, an End-Use Product (EP) containing the active ingredient (a.i.) dithiopyr. Applications for EPs are required to fulfill the product chemistry data requirements as contained in 40 CFR 158.120.

Product Identity and Composition

6-1: Product Identity and Disclosure of Ingredients
The active ingredient (a.i.) dithiopyr is produced by Monsanto Agricultural Co. The product identity is indicated below:

\[
\begin{align*}
\text{Empirical Formula:} & \quad \text{C}_{15}\text{H}_{16}\text{F}_2\text{NO}_2\text{S}_2 \\
\text{Molecular Weight:} & \quad 461.4 \\
\text{CAS Registry No.:} & \quad 97886-45-8 \\
\text{EPA Registration No.:} & \quad 524-MHH 482 \\
\text{Company Product No.:} & \quad \text{Mon-15108, } \ldots
\end{align*}
\]

Information on the identity of the EP along with the containment statement of formula (CSF, EPA Form 8570-4) have been submitted by the applicant and are discussed in Confidential Appendix B.
6.2: Description of Beginning Materials and the Manufacturing Process

Refer to Confidential Appendix A for a discussion of the beginning materials and the manufacturing process.

6.3: Discussion of the Formation of Impurities

Refer to Confidential Appendix A for a discussion of the formation of impurities for the EP.

No additional data are needed for this section.

Analysis and Certification of Product Ingredient

6.1: Preliminary Analysis
62-2: Certification of Limits

The applicant has submitted a Confidential Statement of Formula (CSR, EPA Form 8570-4) for the formulated product (see Confidential Appendix B for discussion).

A revised label should be submitted which contains the lower certified limit for the active ingredient.

62-3: Analytical Methods To Verify

See 62-1 above for a discussion of the analytical methods.

Quality Control Procedures Information is not Included...
**Physical and Chemical Characteristics**

Summarized below are the physicochemical properties of MN15164 formulated product (MID 411300-03)

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-2 Color</td>
<td>Yellow to amber</td>
</tr>
<tr>
<td>63-3 Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>63-4 Odor</td>
<td>Mild, unobtrusive</td>
</tr>
<tr>
<td>63-5 Melting Point</td>
<td>N/A</td>
</tr>
<tr>
<td>63-6 Boiling Point</td>
<td>N/A</td>
</tr>
<tr>
<td>63-7 Specific Gravity</td>
<td>N/A</td>
</tr>
<tr>
<td>63-8 Solubility</td>
<td>0.930 gm/ml</td>
</tr>
<tr>
<td>63-9 Vapor Pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>63-10 Dissociation Constant</td>
<td>N/A</td>
</tr>
<tr>
<td>63-11 Octanol/Water Partition Coefficient</td>
<td>N/A</td>
</tr>
<tr>
<td>63-12 pH</td>
<td>4.5</td>
</tr>
<tr>
<td>63-13 Stability</td>
<td>N/A</td>
</tr>
<tr>
<td>63-14 Oxidizing or Reducing Action</td>
<td>No change when in contact with water, NH₄H₂PO₄, CO₂, Cu, Zn, or Fe for 24 hours. Reduced in presence of 0.1N KMnO₄</td>
</tr>
<tr>
<td>63-15 Flammability</td>
<td>Greater than 200°F (93°C)</td>
</tr>
<tr>
<td>63-16 Explosibility</td>
<td>Non-explosive</td>
</tr>
<tr>
<td>63-17 Storage Stability</td>
<td>A real-time 1-year study is underway. An accelerated aged study at 0, 50, and 60°C for eight weeks show no change.</td>
</tr>
<tr>
<td>Section No.</td>
<td>Property</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>63-18</td>
<td>Viscosity</td>
</tr>
<tr>
<td>63-19</td>
<td>Miscibility</td>
</tr>
<tr>
<td>63-20</td>
<td>Corrosion Characteristic</td>
</tr>
<tr>
<td>63-21</td>
<td>Dielectric Breakdown Voltage</td>
</tr>
</tbody>
</table>

The storage stability (63-17) and corrosion characteristics (63-20) results of studies underway must be submitted.
Summary of Experience

The product chemistry data requirements for registration of this EP have not been satisfied. The following data requirements need to be fulfilled:

Physical and Chemical Characteristics
The results of studies underway for storage stability (63-17) and corrosion characteristics (63-20) are needed and must be submitted.

Attachments:
Confidential Appendix A
Confidential Appendix B
The material not included contains the following type of information:

- X Identity of product inert ingredients.
- ___ Identity of product inert impurities.
- ___ Description of the product manufacturing process.
- ___ Description of product 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.