



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D. C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

June 3, 2004

MEMORANDUM

SUBJECT: **MCPA**. List A Reregistration Case 0017.. Chemical No. 030501, 030502, 030516, 030564. **Revised Product and Residue Chemistry Chapters for the Reregistration Eligibility Decision**. DP Barcode: D299360.

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THRU: Whang Phang, Ph.D., Branch Senior Scientist  
Reregistration Branch 1  
Health Effects Division (7509C)

TO: Nathan Mottl, Chemical Review Manager  
Special Review and Reregistration Division (7508C)

Attached are the Product and Residue Chemistry Chapters for the MCPA Reregistration Eligibility Decision Document (RED). The chapters were assembled by Dynamac Corporation under the supervision of RRB1, HED. The data assessment has undergone secondary review and has been revised to reflect Agency policies.

Based on the data presented in this document, HED derives the following conclusions:

Product Chemistry

With respect to product chemistry data requirements, the Agency has no objections to the registration of MCPA, its salts and its esters provided the following issues are resolved:

- Product chemistry data requirements detailed in the attached data summary tables for the MCPA acid, DMA, and 2-EHE products must be fulfilled .
- Certify that the suppliers of beginning materials and the manufacturing processes for the MCPA acid, DMA, and 2-EHE manufacturing-use products have not changed since the last comprehensive product chemistry reviews or submit complete updated product chemistry data packages

Residue Chemistry

The nature of the residue in plants and livestock is adequately understood based on metabolism

studies with wheat, goats, and hens. The HED MARC has determined that the residues to be regulated in plant commodities are free and conjugated MCPA and its metabolites 2-HMCPA [(4-chloro-2-hydroxymethylphenoxy)acetic acid] and CCPA [(4-chloro-2-carboxyphenoxy)acetic acid]. The residues to be regulated in livestock commodities have been determined to be MCPA, *per se*. Based on limited toxicity data on 2-methyl-4-chlorophenol, a currently regulated livestock metabolite, MARC expects this metabolite will be significantly less toxic than the parent compound. Therefore, 2-methyl-4-chlorophenol can be excluded. It should also be noted that if the use on peas is supported, an additional metabolism study for peas will be required.

Tolerances have been established under 40 CFR §180.339(a) for residues of MCPA (4-methyl-4-chlorophenoxyacetic acid) *per se* in/on various plant commodities, and tolerances are established under 40 CFR §180.339(b) for the combined residues of MCPA and its metabolite 2-methyl-4-chlorophenol in livestock commodities. The current tolerance expressions are not adequate. It should be noted that the chemical name for MCPA has been variously presented as “(2-methyl-4-chlorophenoxy)acetic acid” and “(4-chloro-2-methylphenoxy)acetic acid.” Although both names are correct, under current conventions for naming chemicals, the “4-chloro-2-methyl” designation is preferred.

### **Residue Chemistry Deficiencies**

- Product labels must be amended to reflect use patterns which are supported by the available crop field trial data and to remove uses which are not being supported.
- If the use on peas is being supported, metabolism studies on peas is required.
- A metabolism study in which livestock are fed the metabolites which are regulated in plants, CCPA and 2-HMCPA is required.
- A new enforcement method is needed for plant commodities. Before the available GC/MSD methods for the determination of MCPA DMAS (as MCPA), MCPA 2-EHE (as MCPA), 2-HMCPA, 2-HMCPA glucose conjugate (as 2-HMCPA), and CCPA in/on wheat commodities may be forwarded to ACL for method validation, the method for wheat straw must be modified and subjected to independent laboratory validation and radiovalidation, and the methods for wheat forage and grain must be radiovalidated.
- MCPA metabolites 2-HMCPA and CCPA should be tested through FDA Multiresidue Methods.
- Additional data are required depicting the stability of residues of MCPA, 2-HMCPA, and CCPA in/on wheat grain samples stored under ambient conditions for up to 28 days.
- Ruminant feeding studies must be submitted.
- Additional crop field trial data are required for the following crops: alfalfa forage and hay; wheat forage, grain, hay, and straw; and pasture and rangeland forage and hay.
- A study detailing confined accumulation in rotational crops planted following treatment at 1.5 lb ae/A (1x the maximum seasonal rate for annual crops) must be submitted.

MCPA

PRODUCT CHEMISTRY CONSIDERATIONS

MCPA  
Case 0017

REREGISTRATION ELIGIBILITY DECISION:

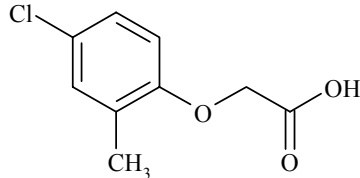
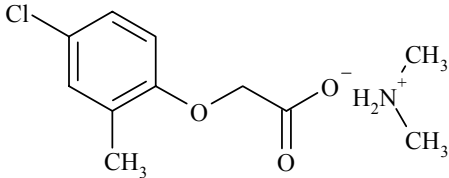
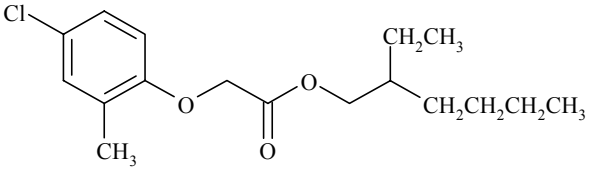
PRODUCT CHEMISTRY CONSIDERATIONS

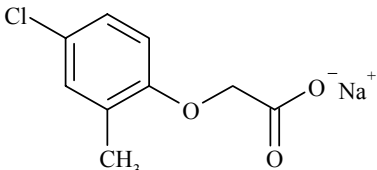
DP Barcodes D284448 and D284450

DESCRIPTION OF CHEMICAL

MCPA [4-chloro-2-methylphenoxyacetic acid] is a phenoxy herbicide registered for use on a variety of crop and noncrop sites to control a wide spectrum of broadleaf weeds. The MCPA Task Force Three (A H Marks and Company, Ltd., Dow AgroSciences, and Nufarm UK Limited) has indicated that the only uses of MCPA they intend to support are of MCPA 2-EHE and MCPA DMA on the following crops: small grains including barley, oats, rye, and wheat; small grains underseeded with legumes, including alfalfa, clover, lespedeza, trefoil, and vetch; rangeland grasses; and pasture grasses.

Chemical structures and information are presented below for MCPA acid and those salts and esters with registered manufacturing- and/or end-use products (MPs/EPs); a list of salt and ester active ingredients which are not being supported for reregistration follows. We note that the MCPA 2-ethylhexyl ester (2-EHE; PC Code 030564), which is not currently included under Case 0017, should be added. Because 2-ethylhexyl ester more accurately identifies the isooctyl ester group associated with this active ingredient, all but one of the products previously registered under the active ingredient name MCPA isooctyl ester (IOE; PC Code 030563), are now registered as 2-EHE products. The IOE is not being supported for reregistration.

MCPA active ingredients with registered MPs/EPs	
	<p><u>MCPA acid</u> Empirical Formula: C<sub>9</sub>H<sub>9</sub>ClO<sub>3</sub> Molecular weight: 200.6 CAS Registry No.: 94-74-6 PC Code: 030501</p>
	<p><u>MCPA dimethylamine salt (DMA)</u> Empirical Formula: C<sub>11</sub>H<sub>16</sub>ClNO<sub>3</sub> Molecular weight: 245.7 CAS Registry No.: 2039-46-5 PC Code: 030516</p>
	<p><u>MCPA 2-ethylhexyl ester (2-EHE)</u> Empirical Formula: C<sub>17</sub>H<sub>25</sub>ClO<sub>3</sub> Molecular weight: 312.5 CAS Registry No.: 29450-45-1 PC Code: 030564</p>

MCPA active ingredients with registered MPs/EPs	
	<p><u>MCPA sodium salt (Na)</u>  Empirical Formula: C<sub>9</sub>H<sub>8</sub>ClNaO<sub>3</sub>  Molecular weight: 222.6  CAS Registry No.: 3653-48-3  PC Code: 030502</p>

MCPA active ingredients which are not supported for reregistration (PC Code):

- MCPA diethanolamine salt (030511) - No registered products
- MCPA butoxyethyl ester (030553) - No registered products
- MCPA butyl ester (030556) - No registered products
- MCPA isobutyl ester (030562) - No registered products
- MCPA isooctyl ester (030563) - One registered 34% end-use product (EPA Reg. No. 9779-347)
- MCPA isopropyl ester (030566) - No registered products

We note that If the source active ingredient of the 34% IOE EP (EPA Reg. No. 9779-347) is MCPA 2-EHE, a revised CSF and label must be submitted. If the source is isooctyl MCPA, the product may be subject to suspension.

IDENTIFICATION OF ACTIVE INGREDIENT

MCPA acid is a white to light brown solid, flake, or microcrystalline powder with a melting point of 114-119 C, density of 1.18-1.21 g/ml at 20 C, octanol/water partition coefficient (log K<sub>OW</sub>) of 2.73, and vapor pressure of 7.7 x 10<sup>-6</sup> mbar at 20 C. MCPA is practically insoluble in water (0.03 g/100 g at 20 C) and is soluble in a range of organic solvents including acetone (91.8 g/100 g), ethyl ether (50.2 g/100 g), chloroform (5.5 g/100 g), and benzene (3.3 g/100 g).

MCPA DMA is a pale yellow or yellowish-white liquid with a boiling point of 111 C, density of 1.181 at 20 C, and octanol/water partition coefficient (log K<sub>OW</sub>) of 1.415 at 25 C. MCPA DMA rapidly dissociates in an aqueous medium to form the free phenoxy acid moiety and the dimethyl ammonium ion.

MCPA 2-EHE is an amber to brown liquid with a boiling point of 260-265 C, bulk density of 8.9 lb/gal (1.06 g/mL specific gravity), octanol/water partition coefficient (P<sub>OW</sub>) of 4.29 x 10<sup>-6</sup>, and vapor pressure of 1.77 x 10<sup>-5</sup> mbar at 20 C. MCPA 2-EHE is slightly soluble in water (0.1%, w:w) and is miscible with most organic solvents and in mineral oils.

No chemical identification information is available concerning the MCPA Na salt, except that it is water soluble.

MANUFACTURING-USE PRODUCTS

A search of the Reference Files System (REFS) conducted 3/13/03 identified 12 manufacturing-use products (MPs) registered under PC Code 030501 (MCPA acid), 3 MPs registered under PC Code 030516 (MCPA DMA), and 8 MPs registered under PC Code 030564 (MCPA 2-EHE). No MPs are registered under PC Code 030502 (MCPA Na salt); however there are 6 registered end-use products. The MPs subject to a reregistration eligibility decision are presented in Table 1.

Table 1. Registered manufacturing-use products of MCPA (Case 0017).

Product <sup>1</sup>	EPA Reg. No.	Registrant <sup>2</sup>	Comments/Transfers
<b>MCPA acid (030501)</b>			
96% acid T	7969-34	BASF Corporation	This product is incorrectly identified as an FI in REFS.
94% acid T	11685-13	Nufarm UK Limited	Transferred 6/28/95 from Aventis CropScience USA LP, EPA Reg. No. 264-479; transferred 4/25/88 from Rhone-Poulenc Agrochemical, EPA Reg. No. 359-721; transferred 4/16/86 from Vertac Chemical Corporation, EPA Reg. No. 39511-42; transferred 11/22/76 from Transvaal Incorporated, EPA Reg. No. 11687-74.
94% acid T	11685-14		Transferred 6/28/95 from Aventis CropScience USA LP, EPA Reg. No. 264-486; transferred 4/25/88 from Rhone-Poulenc Agrochemical, EPA Reg. No. 359-728; transferred 11/13/86 from Maxus Agri Chem'l, EPA Reg. No. 39335-4.
95% acid T	15440-7	A H Marks and Company, Ltd	
95% acid T	15440-21		Transferred 2/26/91 from Kemisk Vaerk Koge A/S, EPA Reg. No. 11636-2.
95% acid T	35935-8	Nufarm UK Limited	Transferred 1/25/96 from Agrolinz Incorporated, EPA Reg. No. 42545-9.
95% acid T	35935-9		Transferred 1/25/96 from Agrolinz Incorporated, EPA Reg. No. 42545-19; transferred 10/30/82 from Crompton Manufacturing Co., EPA Reg. No. 400-188; transferred 10/20/82 from The Agriculture & Nutrition Co., EPA Reg. No. 46946-237.
96.6% acid T (r)	62719-60	Dow AgroSciences LLC	Transferred 12/4/89 from Dow Chemical Company, EPA Reg. No. 464-580.
95% acid T	67591-2	Nufarm Platte PTY Ltd.	Transferred 7/13/94 from Platte Chemical Co., Inc., EPA Reg. No. 34704-233; transferred 4/22/83 from Trans Chemic Industries, Inc., EPA Reg. No. 9618-11.
96.6% acid T	70596-1	Nufarm BV	Transferred 2/21/97 from Akzo Zout Chemie Nederland BV, EPA Reg. No. 38117-10; transferred 10/5/84 from Robeco Chemicals, Inc., EPA Reg. No. 6305-12.
45.59% acid FI	2217-722	PBI/Gordon Corporation	Multiple active-ingredients (MAIs) formulated from EPA-registered products.
45% acid FI	2217-821		
<b>MCPA dimethylamine salt (030516)</b>			
77.9% DMA FI	7969-167	BASF Corporation	
77.8% DMA FI	15440-27	A H Marks and Company, Ltd	
63.5% DMA FI	62719-62	Dow AgroSciences LLC	Transferred 12/4/89 from Dow Chemical Company, EPA Reg. No. 464-582.
<b>MCPA 2-ethylhexyl ester (030564)</b>			

Product <sup>1</sup>	EPA Reg. No.	Registrant <sup>2</sup>	Comments/Transfers
97% 2-EHE T	228-289	Nufarm UK Limited	This product is incorrectly identified as an FI in REFS. Transferred 4/7/93 from Helena Chemical Co., EPA Reg. No. 5905-511; transferred 10/2/90 from Setre Chemical Co., EPA Reg. No. 38167-27; transferred 6/30/89 from Inter-Ag Corporation, EPA Reg. No. 57539-44; transferred 3/20/87 from Vertac Chemical Corp., EPA Reg. No. 39511-44.
97% 2-EHE T (r)	7969-178	BASF Corporation	Transferred 2/28/00 from Nufarm UK Limited, EPA Reg. No. 228-370.
93% 2-EHE T	11685-15	Nufarm UK Limited	Transferred 6/28/95 from Bayer CropScience LP, EPA Reg. No. 264-495; transferred 4/25/88 from Rhone-Poulenc Agrochemical Division, EPA Reg. No. 359-737; transferred 11/19/86 from Albaugh, Inc., EPA Reg. No. 42750-11; transferred 2/27/85 from GB Biosciences Corp., EPA Reg. No. 50534-146; transferred 5/8/84 from Occidental Chemical Corp., EPA Reg. No. 677-429.
97% 2-EHE T	15440-9	A H Marks and Company, Ltd	
97% 2-EHE T	15440-22		Transferred 2/26/91 from Kemisk Vaerk Koge A/S, EPA Reg. No. 11636-3.
94% 2-EHE T	35935-10	Nufarm UK Limited	Transferred 1/25/96 from Agrolinz, Inc., EPA Reg. No. 42545-24; transferred 2/25/83 from Agsco, Inc., EPA Reg. No. 554-131.
95.8% 2-EHE T	62719-64	Dow AgroSciences LLC	Transferred 12/4/89 from Dow Chemical Co., EPA Reg. No. 464-585.
100% 2-EHE T	67591-3	Nufarm Platte PTY LTD	Transferred 7/13/94 from Platte Chemical Co., Inc., EPA Reg. No. 34704-234; transferred 4/22/83 from Trans Chemic Industries, Inc., EPA Reg. No. 9618-12.

<sup>1</sup> (r) = Repackaged product.

<sup>2</sup> All registrants listed are members of the MCPA Task Force Three except PBI/Gordon Corporation.

## REGULATORY BACKGROUND

MCPA is a FIFRA List A chemical. The MCPA Reregistration Standard was issued 7/10/81, and the Guidance Document was issued 3/82. The MCPA Final Reregistration Standard and Tolerance Reassessment (FRSTR) dated 6/22/88 required that product chemistry data be resubmitted for all MCPA technical and manufacturing-use products because new requirements were introduced, and previously submitted data needed to be updated. As a result, original decisions made in the Guidance Document regarding the adequacy of product chemistry data were modified in the FRSTR; data submitted in response to the Guidance Document were reviewed or evaluated in the FRSTR, and data submitted subsequent to the FRSTR in support of the reregistration of MCPA have been reviewed by the Agency.

The Guidance Document and FRSTR required nitrosamine data for the MCPA DMA MPs and analysis of MCPA acid, salt, and ester TGAI which use chlorocresols as starting materials or intermediates for polyhalogenated dibenzo-p-dioxin/dibenzofuran (PHDD/PHDF) contaminants. The Agency no longer requires nitrosamine data for the DMA products.

The current status of the product chemistry data requirements for the MCPA acid, DMA, and 2-EHE TGAI/MPs is presented in the attached data summary tables. Refer to these tables for a listing of the outstanding product chemistry data requirements.

## CONCLUSIONS

In the Reregistration Standard it was stated that, because of the interconvertability of MCPA acid and salt forms, MCPA and its salts may be considered as one entity for most categories of testing. For MCPA esters, the Registration Standard stated that registrants could either provide data for each ester form or cite data showing that a particular ester would be equivalent to MCPA acid under test conditions. Under this determination, TGAI/PAI data requirements for the MCPA Na salt and the MCPA DMA salt would be fulfilled by data for the MCPA acid; however, product-specific data would still be required for each MP. Because the MCPA Na salt has no registered MPs at this time, all relevant product chemistry data requirements (i.e., TGAI/PAI data to support the unregistered TGAI) will be fulfilled by data for MCPA acid.

The outstanding product chemistry data requirements for the remaining MCPA acid, DMA, and 2-EHE products are summarized in Table 2, and are detailed in the attached data summary tables. Provided that the registrants submit the data required in the attached data summary tables for the T/TGAI and FI products, and either certify that the suppliers of beginning materials and the manufacturing processes for the MCPA acid, DMA, and 2-EHE manufacturing-use products have not changed since the last comprehensive product chemistry reviews or submit complete updated product chemistry data packages, the Agency has no objections to the reregistration of MCPA and its salts and esters with respect to product chemistry data requirements.



Table 2. Remaining Product Chemistry Data Requirements for MCPA acid, DMA, and 2-EHE TGAI/MPs.

TGAI/MP <sup>1</sup>	EPA Reg. No.	Registrant	Guideline Requirements
<b>MCPA acid (030501)</b>			
96% acid T	7969-34	BASF Corporation	830.1550, 1600, 1620, 1670, 1700, 1750, 6314, 6316, 6317, 6320, 7000, and 7050
94% acid T	11685-13	Nufarm UK Limited	830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6314, 6316, 6317, 6320, 7000, and 7050
94% acid T	11685-14		
95% acid T	15440-7	A H Marks and Company, Ltd	830.6317 and 7050
95% acid T	15440-21		830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6314, 6316, 6317, 6320, 7000, and 7050
95% acid T	35935-8	Nufarm UK Limited	830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6316, 6317, 6320, 7000, and 7050
95% acid T	35935-9		830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6302, 6303, 6304, 6314, 6316, 6317, 6320, 7000, 7050, and 7300
96.6% acid T (r)	62719-60	Dow AgroSciences LLC	Data requirements will be fulfilled by data submitted for the source product.
95% acid T	67591-2	Nufarm Platte PTY LTD	830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6302, 6303, 6304, 6314, 6316, 6317, 6320, 7000, 7050, and 7300
96.6% acid T	70596-1	Nufarm BV	830.7050
45.59% acid FI	2217-722	PBI/Gordon Corporation	830.6304 and 6317; TGAI/PAI data requirements will be fulfilled by data for the technical source product
45% acid FI	2217-821		
<b>MCPA dimethylamine salt (030516)</b>			
77.9% DMA FI	7969-167	BASF Corporation	830.6302, 6304, 6316, and 6319; TGAI/PAI data requirements will be fulfilled by data for the acid source product
77.8% DMA FI	15440-27	A H Marks and Company, Ltd	830.6314, 6315, 6316, 6317, 6319, 6320, and 7100; TGAI/PAI data requirements will be fulfilled by data for the acid source product
63.5% DMA FI	62719-62	Dow AgroSciences LLC	830.1600, 1620, 1670, 1800, 6302, 6303, 6304, 6314, 6315, 6316, 6317, 6319, 6320, 7000, and 7100; TGAI/PAI data requirements will be fulfilled by data for the acid source product

TGAI/MP <sup>1</sup>	EPA Reg. No.	Registrant	Guideline Requirements
<b>MCPA 2-ethylhexyl ester (030564)</b>			
97% 2-EHE T	228-289	Nufarm UK Limited	830.1550, 1700, 1750, 6313, 7100, 7370, 7550, 7840, and 7950
97% 2-EHE T (r)	7969-178	BASF Corporation	Data requirements will be fulfilled by data submitted for the source product.
93% 2-EHE T	11685-15	Nufarm UK Limited	830.1550, 1750, 1800, 6313, 6315, 6316, 6317, 6319, 6320, 7000, 7100, 7370, 7550, 7840, and 7950
97% 2-EHE T	15440-9	A H Marks and Company, Ltd	830.6313, 6314, 6315, 6316, 6317, 6319, 6320, 7100, 7370, 7550, 7840, and 7950
97% 2-EHE T	15440-22		
94% 2-EHE T	35935-10	Nufarm UK Limited	830.1550, 1600, 1620, 1700, 1750, 1800, 6313, 6315, 6316, 6319, 7000, 7100, 7370, 7550, 7840, and 7950
95.8% 2-EHE T	62719-64	Dow AgroSciences LLC	830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6302, 6303, 6304, 6313, 6314, 6315, 6316, 6317, 6319, 6320, 7000, 7100, 7300, 7370, 7550, 7840, and 7950
100% 2-EHE T	67591-3	Nufarm Platte PTY LTD	830.1550, 1600, 1620, 1670, 1700, 1750, 1800, 6302, 6303, 6304, 6313, 6314, 6315, 6316, 6317, 6319, 6320, 7100, 7370, 7550, 7840, and 7950

<sup>1</sup> (r) = Repackaged product.

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: BASF Corporation  
Product(s): 96% acid T (EPA Reg. No. 7969-34)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	CSF 11/14/85 (Basic) <sup>4</sup> , CSF 9/30/97 (Alt. A) <sup>5</sup> , CSF 8/18/98 (Alt. B) <sup>6</sup>
830.1600	Description of materials used to produce the product	N <sup>7</sup>	44401301 <sup>5</sup> , 44639901 <sup>6</sup> , 44645801 <sup>6</sup>
830.1620	Description of production process	N <sup>7</sup>	44401301 <sup>5</sup> , 44645801 <sup>6</sup>
830.1670	Discussion of formation of impurities	N <sup>7</sup>	44401301 <sup>5</sup> , 44645801 <sup>6</sup>
830.1700	Preliminary analysis	N <sup>7</sup>	44394401 <sup>5</sup> , 44645802 <sup>6</sup>
830.1750	Certified limits	N <sup>3,7</sup>	44394401 <sup>5</sup> , 44645802 <sup>6</sup> , CSF 11/14/85 (Basic) <sup>4</sup> , CSF 9/30/97 (Alt. A) <sup>5</sup> , CSF 8/18/98 (Alt. B) <sup>6</sup>
830.1800	Enforcement analytical method	Y	44394401 <sup>5</sup>
830.6302	Color	Y	<b>00155099</b>
830.6303	Physical state	Y	<b>00155099</b>
830.6304	Odor	Y	<b>00155099</b>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	<b>00155099</b> , 42895701
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N/A <sup>9</sup>	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>9</sup>	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>10</sup>	
830.7100	Viscosity	N/A <sup>9</sup>	
830.7200	Melting point/melting range	Y	<b>00155099</b> , 42895701
830.7220	Boiling point/boiling range	N/A <sup>9</sup>	
830.7300	Density/relative density/bulk density	Y	<b>00155099</b>
830.7370	Dissociation constants in water	Y	<i>Accession No. 962678</i> <sup>11</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>12</sup> , 40471801 <sup>13</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>13</sup> , 42895701
830.7950	Vapor pressure	Y	40471803 <sup>13</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Although the CSF for the basic formulation was previously found to be acceptable, a decision concerning the adequacy of the CSF cannot be made until the outstanding preliminary analysis data are submitted.

<sup>4</sup> Letter dated 1/6/86 from R. Mountfort, RD.

<sup>5</sup> RD D246012, 6/17/98, S. Mathur.

<sup>6</sup> RD D249451, 11/4/98, S. Mathur

<sup>7</sup> Data requirements are satisfied for the two alternate formulations, but per the FRSTR, data remain outstanding for the basic formulation.

<sup>9</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>10</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>11</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for the Nufarm 94% acid T, EPA Reg. No. 11685-13).

<sup>12</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>13</sup> Initially reviewed in the FRSTR, and re-addressed under D235474,(PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Nufarm UK Limited  
Product(s): 94% acid Ts (EPA Reg. Nos. 11685-13 and 11685-14)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	CSF 6/15/92 (11685-13) <sup>4</sup>
830.1600	Description of materials used to produce the product	N <sup>5</sup>	42386401 <sup>4</sup>
830.1620	Description of production process	N <sup>5</sup>	42386401 <sup>4</sup>
830.1670	Discussion of formation of impurities	N <sup>6</sup>	<b>00159470</b> , 42386401 <sup>4</sup>
830.1700	Preliminary analysis	N <sup>7</sup>	<b>00159470</b> , 42386402 <sup>4</sup>
830.1750	Certified limits	N <sup>3</sup>	42386400 <sup>4</sup> , CSF 6/15/92 (11685-13) <sup>4</sup>
830.1800	Enforcement analytical method	N <sup>8</sup>	<b>00159470</b> , 42386402 <sup>4</sup>
830.6302	Color	Y	42386403 <sup>4</sup>
830.6303	Physical state	Y	42386403 <sup>4</sup>
830.6304	Odor	Y	42386403 <sup>4</sup>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42895701 <sup>9</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N/A <sup>10</sup>	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>10</sup>	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>11</sup>	
830.7100	Viscosity	N/A <sup>10</sup>	
830.7200	Melting point/melting range	Y	42386403 <sup>4</sup> , 42895701 <sup>9</sup>
830.7220	Boiling point/boiling range	N/A <sup>10</sup>	
830.7300	Density/relative density/bulk density	Y	42386403 <sup>4</sup>
830.7370	Dissociation constants in water	Y	Accession No. 962678 <sup>12</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>13</sup> , 40471801 <sup>14</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>14</sup> , 42895701 <sup>9</sup>
830.7950	Vapor pressure	Y	40471803 <sup>14</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. These products were transferred from Aventis CropScience (formerly Rhone-Poulenc; EPA Reg. Nos. 264-479 and 264-486), and the data summarized above were originally submitted by Rhone-Poulenc. Nufarm UK must confirm that the manufacturing process and location have not changed since the product transfers; otherwise, additional data may be required. In addition, although Rhone-Poulenc had previously submitted data to establish substantial similarity for the two products, relevant data in support of this action remain outstanding (RD Memoranda dated 10/1/90, R. Lozada, and 12/14/88, K. Dockter). Data reviewed under D180988, 2/17/93 suggested that the products are manufactured at different sites by different producers. If this is the case, additional data may be required to support the individual products.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> The adequacy of the CSF for EPA Reg. No. 11685-13, with respect to product identity and certified limits, cannot be determined until data gaps pertaining to preliminary analysis have been resolved. A CSF was not available for EPA Reg. No 11685-14.

<sup>4</sup> D180988, 2/17/93, F. Toghrol. We note that the 6/15/92 CSF addressed in the subject review was not found in the product jacket.

<sup>5</sup> The product or products manufactured by the submitted process must be identified. In addition, information

concerning the source and technical specifications for all starting materials, and the duration of each step and the entire process must be provided.

<sup>6</sup> The product or products to which the discussion applies must be identified.

<sup>7</sup> The product or products for which the preliminary analysis data were submitted must be identified. Additional validation data are also required for the method used to determine an impurity. Statements of validation pertaining to all of the methods used in the preliminary analysis are required. In addition, complete preliminary analysis data are required for the product produced at an alternate manufacturing site. We note that adequate data reflecting analysis for dibenzo-p-dioxins and dibenzofurans have been submitted (Letter dated 2/3/92 from L. Rossi, SRRD; the Agency review associated with these data is not available).

<sup>8</sup> Additional validation data are required to support the methods used for the determination of an impurity. In addition, enforcement analytical methods and/or supporting validation data are required for several impurities identified in the MCPA FRSTR, and additional validation (raw data) are required for the enforcement method proposed for the active ingredient.

<sup>9</sup> Task Force data for the MCPA acid TGAI.

<sup>10</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>11</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>12</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>13</sup> RD memorandum, 12/14/88, K. Dockter.

<sup>14</sup> Initially reviewed in the FRSTR, and re-addressed under D235474, (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: A H Marks and Company, Ltd.  
Product(s): 95% acid T (EPA Reg. No. 15440-7)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y <sup>3</sup>	42377401 <sup>4</sup> , Letter 10/14/96 <sup>5</sup> , CSF 4/27/93 <sup>6</sup>
830.1600	Description of materials used to produce the product	Y	<b>00158077</b> , 42377401-04 <sup>4</sup> , 42377406-08 <sup>4</sup>
830.1620	Description of production process	Y	<b>00158077</b> , 42377401-04 <sup>4</sup> , 42377406-08 <sup>4</sup>
830.1670	Discussion of formation of impurities	Y	<b>00158077</b> , 42377401 <sup>4</sup>
830.1700	Preliminary analysis	Y	<b>00158078</b> , 42377405 <sup>4</sup> , 42377410 <sup>4</sup> , 42450901 <sup>4</sup> , 42657101 <sup>7</sup> , Letter 10/14/96 <sup>5</sup>
830.1750	Certified limits	Y	42377401 <sup>4</sup> , 42657101 <sup>7</sup> , CSF 4/27/93 <sup>6</sup>
830.1800	Enforcement analytical method	Y	<b>00158078</b> , 42377409 <sup>4</sup> , 42450901 <sup>4</sup> , 42657101 <sup>7</sup>
830.6302	Color	Y	42450902 <sup>4</sup>
830.6303	Physical state	Y	42450903 <sup>4</sup>
830.6304	Odor	Y	42450904 <sup>4</sup>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42757301 <sup>8</sup> , 42895701 <sup>9</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	Letter 10/14/96 <sup>5</sup>
830.6315	Flammability	N/A <sup>10</sup>	
830.6316	Explosibility	Y	Letter 10/14/96 <sup>5</sup>
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>10</sup>	
830.6320	Corrosion characteristics	Y	Letter 10/14/96 <sup>5</sup>
830.7000	pH	Y	42450907 <sup>4</sup>
830.7050	UV/Visible absorption	N <sup>11</sup>	
830.7100	Viscosity	N/A <sup>10</sup>	
830.7200	Melting point/melting range	Y	42450905 <sup>4</sup> , 42895701 <sup>9</sup>
830.7220	Boiling point/boiling range	N/A <sup>10</sup>	
830.7300	Density/relative density/bulk density	Y	42450906 <sup>4</sup>
830.7370	Dissociation constants in water	Y	<i>Accession No. 962678</i> <sup>12</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>13</sup> , 40471801 <sup>14</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>14</sup> , 42895701 <sup>9</sup>
830.7950	Vapor pressure	Y	40471803 <sup>14</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> The CSF is acceptable for product identity, but must be revised to account for 0.4 kg in the weight column as "other unidentified impurities" to achieve the 100 kg cited as total weight.

<sup>4</sup> D182937, 4/2/93, F. Toghrol.

<sup>5</sup> D235474, 3/9/04

<sup>6</sup> RD Memorandum, 8/3/93, M. Clifford.

<sup>7</sup> D191459, 9/9/93, S. Funk (dioxin review).

<sup>8</sup> D191457, 9/10/93, R. Perfetti

<sup>9</sup> Task Force data for the MCPA acid PAI.

<sup>10</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>11</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>12</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for the Nufarm 94% acid T, EPA Reg. No. 11685-13).

<sup>13</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>14</sup> Initially reviewed in the FRSTR, and re-addressed under D235474, 3/9/04.



Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: A H Marks and Company, Ltd.  
Product(s): 95% acid T (EPA Reg. No. 15440-21)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	<b>Technical Bulletin 4/18/83</b>
830.1600	Description of materials used to produce the product	N	
830.1620	Description of production process	N	
830.1670	Discussion of formation of impurities	N	
830.1700	Preliminary analysis	N <sup>4</sup>	<b>40513001</b>
830.1750	Certified limits	N <sup>3</sup>	<b>Technical Bulletin 4/18/83</b>
830.1800	Enforcement analytical method	N <sup>5</sup>	<b>40513001</b>
830.6302	Color	Y	<b>Product jacket</b>
830.6303	Physical state	Y	<b>Product jacket</b>
830.6304	Odor	Y	<b>Product jacket</b>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42895701 <sup>6</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N/A <sup>7</sup>	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>7</sup>	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>8</sup>	
830.7100	Viscosity	N/A <sup>7</sup>	
830.7200	Melting point/melting range	Y	<b>Product Jacket, 42895701 <sup>6</sup></b>
830.7220	Boiling point/boiling range	N/A <sup>7</sup>	
830.7300	Density/relative density/bulk density	Y	<b>Product Jacket</b>
830.7370	Dissociation constants in water	Y	<i>Accession No. 962678 <sup>9</sup></i>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>10</sup> , 40471801 <sup>11</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099, 40471802 <sup>11</sup>, 42895701 <sup>6</sup></b>
830.7950	Vapor pressure	Y	40471803 <sup>11</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Kemisk Vaerk Koge A/S (EPA Reg. No. 11636-2), and the data summarized above were submitted by Kemisk Vaerk Koge. A H Marks must confirm that the manufacturing process and location have not changed since the product transfer; otherwise, additional data may be required.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Compounds present as a consequence of reactions of the manufacturing process must be listed as impurities rather than inert ingredients, and certified limits must be proposed and validated for the active ingredient and its related impurities present at \$0.1%. The product composition including, nominal concentrations and proposed certified limits must be submitted on the proper CSF Form. We note that the most recent CSF available from the product jacket is dated 8/23/71 and lists Kemisk Vaerk Koge A/S as the registrant. An updated CSF must be submitted reflecting the current registrant and EPA Registration Number.

<sup>4</sup> Additional information is required which identifies the impurities quantified and defines the number of batches used. In addition supporting validation data must be submitted for all methods used in the preliminary analysis, and data depicting dibenzofurans are required.

<sup>5</sup> Validated methods must be submitted for quantitation of several impurities. In addition, the method submitted for the active ingredient must be resubmitted as a nonconfidential method.

<sup>6</sup> Task Force data for the MCPA acid TGAI.

<sup>7</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>8</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>9</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>10</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>11</sup> Initially reviewed in the FRSTR, and re-addressed under D235474, 3/9/04 (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Nufarm UK Limited  
Product(s): 95% acid T (EPA Reg. No. 35935-8)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	<b>00155743</b>
830.1600	Description of materials used to produce the product	N <sup>4</sup>	<b>00155743</b>
830.1620	Description of production process	N <sup>4</sup>	<b>00155743</b>
830.1670	Discussion of formation of impurities	N <sup>5</sup>	<b>00155743</b>
830.1700	Preliminary analysis	N <sup>6</sup>	<b>00155743</b>
830.1750	Certified limits	N <sup>3</sup>	<b>00155743</b>
830.1800	Enforcement analytical method	N <sup>7</sup>	<b>00155743</b>
830.6302	Color	Y	<b>00155743</b>
830.6303	Physical state	Y	<b>00155743</b>
830.6304	Odor	Y	<b>00155743</b>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	<b>00155743, 42895701</b> <sup>8</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	<b>00155743</b>
830.6315	Flammability	N/A <sup>9</sup>	
830.6316	Explosibility	N <sup>10</sup>	<b>00155743</b>
830.6317	Storage stability	N <sup>11</sup>	<b>00155743</b>
830.6319	Miscibility	N/A <sup>9</sup>	
830.6320	Corrosion characteristics	N <sup>12</sup>	<b>00155743</b>
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>13</sup>	
830.7100	Viscosity	N/A <sup>9</sup>	
830.7200	Melting point/melting range	Y	<b>00155743, 42895701</b> <sup>8</sup>
830.7220	Boiling point/boiling range	N/A <sup>9</sup>	
830.7300	Density/relative density/bulk density	Y	<b>00155743</b>
830.7370	Dissociation constants in water	Y	<i>Accession No. 962678</i> <sup>14</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	<b>00155743, 40470101</b> <sup>15</sup> , <i>40471801</i> <sup>16</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155743, 40471802</b> <sup>16</sup> , <i>42895701</i> <sup>8</sup>
830.7950	Vapor pressure	Y	<b>00155743, 40471803</b> <sup>16</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Agrolinz Incorporated (formerly Gilmore Inc.; EPA Reg. No. 42545-9), and the data summarized above were originally submitted by Gilmore. Nufarm UK Limited must confirm that the manufacturing process and location have not changed since the product transfer; otherwise, additional data may be required.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Compounds present as a consequence of reactions of the manufacturing process must be listed as impurities rather than inerts. In addition, an unknown compound must be identified, and certified limits must be proposed for a dichlorodibenzo-p-dioxin. We note that a CSF dated 2/21/90 obtained from the product jacket is marked "Not Reviewed." Although the CSF does list selected components as impurities, the remaining data gaps remain unresolved. An updated CSF must be submitted reflecting the current registrant and EPA Registration Number.

<sup>4</sup> Additional information must be submitted concerning the source of the starting materials, nature of the process, duration of each step in the process, chemical equations, and quality control measures.

<sup>5</sup> A discussion is required for the possible formation of dibenzo-p-dioxins, dibenzofurans, and some compounds for which certified limits were proposed.

<sup>6</sup> Preliminary analysis of five batches is required using validated methods to include analysis for dibenzofurans and

impurities present at \$0.1%. In addition, an unknown impurity must be identified.

<sup>7</sup> Validated methods must be submitted for quantitation of several impurities.

<sup>8</sup> Task Force data for the MCPA acid TGAI.

<sup>9</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>10</sup> The method used for the determination is required.

<sup>11</sup> Quantitative data demonstrating the stability of the MP stored in its typical packaging for up to one year are required.

<sup>12</sup> The composition of the storage containers and the method used for the determination are required; alternatively, a reasonable explanation for the lack of corrosivity must be submitted.

<sup>13</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>14</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>15</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>16</sup> Initially reviewed in the FRSTR, and re-addressed under D235474, 3/9/04 (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Nufarm UK Limited  
Product(s): 95% acid T (EPA Reg. No. 35935-9)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	<b>CSF 6/10/75</b>
830.1600	Description of materials used to produce the product	N	
830.1620	Description of production process	N	
830.1670	Discussion of formation of impurities	N	
830.1700	Preliminary analysis	N	
830.1750	Certified limits	N <sup>3</sup>	<b>CSF 6/10/75</b>
830.1800	Enforcement analytical method	N	
830.6302	Color	N	
830.6303	Physical state	N	
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42895701 <sup>4</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N/A <sup>5</sup>	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>5</sup>	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>6</sup>	
830.7100	Viscosity	N/A <sup>5</sup>	
830.7200	Melting point/melting range	Y	42895701 <sup>4</sup>
830.7220	Boiling point/boiling range	N/A <sup>5</sup>	
830.7300	Density/relative density/bulk density	N	
830.7370	Dissociation constants in water	Y	<i>Accession No. 962678</i> <sup>7</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>8</sup> , 40471801 <sup>9</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>9</sup> , 42895701 <sup>4</sup>
830.7950	Vapor pressure	Y	40471803 <sup>9</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Agrolinz Incorporated (formerly Gilmore Inc.; EPA Reg. No. 42545-19).

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Compounds present as a consequence of reactions of the manufacturing process must be listed as impurities rather than inert ingredients, and certified limits must be proposed for the active ingredient and its related impurities present at \$0.1%. We note that a CSF dated 2/21/90 obtained from the product jacket does list components as impurities and includes certified limits for all components; however, the adequacy of the updated CSF cannot be determined until the outstanding preliminary analysis data are available. An updated CSF must be submitted reflecting the current registrant and EPA Registration Number.

<sup>4</sup> Task Force data for the MCPA acid TGAI.

<sup>5</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>6</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>7</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>8</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>9</sup> Initially reviewed in the FRSTR, and re-addressed under D235474, 3/9/04 (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Dow AgroSciences LLC  
Product(s): 96.6% acid T (EPA Reg. No. 62719-60)

#### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number
830.1550	Product identity and composition	Y <sup>2</sup>	CSF 10/8/98
830.1600	Description of materials used to produce the product	N/A	
830.1620	Description of production process	N/A	
830.1670	Discussion of formation of impurities	N/A	
830.1700	Preliminary analysis	N/A	
830.1750	Certified limits	Y <sup>2</sup>	CSF 10/8/98
830.1800	Enforcement analytical method	N/A	
830.6302	Color	N/A	
830.6303	Physical state	N/A	
830.6304	Odor	N/A	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N/A	
830.6314	Oxidation/reduction: chemical incompatibility	N/A	
830.6315	Flammability	N/A	
830.6316	Explodability	N/A	
830.6317	Storage stability	N/A	
830.6319	Miscibility	N/A	
830.6320	Corrosion characteristics	N/A	
830.7000	pH	N/A	
830.7050	UV/Visible absorption	N/A	
830.7100	Viscosity	N/A	
830.7200	Melting point/melting range	N/A	
830.7220	Boiling point/boiling range	N/A	
830.7300	Density/relative density/bulk density	N/A	
830.7370	Dissociation constants in water	N/A	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N/A	
830.7840	Water solubility: column elution method; shake flask method	N/A	
830.7950	Vapor pressure	N/A	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Dow Chemical Company (EPA Reg. No. 464-580) and is repackaged from an EPA-registered product; therefore, the product chemistry data requirements will be fulfilled by data submitted for the source product.

<sup>2</sup> The CSF obtained from the product jacket has been determined to be acceptable by RD; however, we note that the nominal concentration and certified limits of the active ingredient, based on the actual amount of the active ingredient in the product, should be listed on the CSF.

Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Nufarm Platte PTY Ltd.  
Product(s): 95% acid T (EPA Reg. No. 67591-2)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N	
830.1600	Description of materials used to produce the product	N	
830.1620	Description of production process	N	
830.1670	Discussion of formation of impurities	N	
830.1700	Preliminary analysis	N	
830.1750	Certified limits	N	
830.1800	Enforcement analytical method	N	
830.6302	Color	N	
830.6303	Physical state	N	
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42895701 <sup>3</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N/A <sup>4</sup>	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N/A <sup>4</sup>	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	N <sup>5</sup>	
830.7100	Viscosity	N/A <sup>4</sup>	
830.7200	Melting point/melting range	Y	42895701 <sup>3</sup>
830.7220	Boiling point/boiling range	N/A <sup>4</sup>	
830.7300	Density/relative density/bulk density	N	
830.7370	Dissociation constants in water	Y	Accession No. 962678 <sup>6</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>7</sup> , 40471801 <sup>8</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>8</sup> , 42895701 <sup>3</sup>
830.7950	Vapor pressure	Y	40471803 <sup>8</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Platte Chemical Company (EPA Reg. No. 34704-233) as a suspended product (letter dated 8/17/94 from J. Tompkins, RD). No data were reviewed for the product in the FRSTR, and no data have been submitted since the FRSTR. In addition, the most recent CSF available from the product jacket is dated 8/23/71 and lists Trans Chemic Industries, Inc. as the registrant.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Task Force data for the MCPA acid TGAI.

<sup>4</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>5</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>6</sup> RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>7</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>8</sup> Initially reviewed in the FRSTR, AND re-addressed under D235474, 3/9/04 (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).



Case: 0017  
PC Code: 030501

Case Name: MCPA  
Registrant: Nufarm BV  
Product(s): 96.6% acid T (EPA Reg. No. 70596-1)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y <sup>3</sup>	42079401 <sup>4</sup> , CSF 4/12/96 <sup>5</sup>
830.1600	Description of materials used to produce the product	Y	42079401 <sup>4</sup> , 42577601 <sup>6</sup> , 43986101 <sup>5</sup>
830.1620	Description of production process	Y	42079401 <sup>4</sup> , 42577601 <sup>6</sup> , 43986101 <sup>5</sup>
830.1670	Discussion of formation of impurities	Y	42079401 <sup>4</sup> , 42577601 <sup>6</sup> , 43986101 <sup>5</sup>
830.1700	Preliminary analysis	Y	42079401 <sup>4</sup> , 42079402 <sup>4</sup> , 42577602 <sup>6</sup> , 43986102 <sup>5</sup>
830.1750	Certified limits	Y	42079403 <sup>4</sup> , 43986102 <sup>5</sup> , CSF 4/12/96 <sup>5</sup>
830.1800	Enforcement analytical method	Y	42079403 <sup>4</sup> , 42577603 <sup>6</sup> , 43986102 <sup>5</sup> , 44259401 <sup>7</sup>
830.6302	Color	Y	42079404 <sup>4</sup>
830.6303	Physical state	Y	42079404 <sup>4</sup>
830.6304	Odor	Y	42079404 <sup>4</sup>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	42079404 <sup>4</sup> , 42895701 <sup>8</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	42577600 <sup>6</sup>
830.6315	Flammability	N/A <sup>9</sup>	
830.6316	Explosibility	Y	42577600 <sup>6</sup>
830.6317	Storage stability	Y	42638601 <sup>10</sup> , 44259400 <sup>7</sup>
830.6319	Miscibility	N/A <sup>9</sup>	
830.6320	Corrosion characteristics	Y	42638601 <sup>10</sup> , 44259400 <sup>7</sup>
830.7000	pH	Y	42079404 <sup>4</sup>
830.7050	UV/Visible absorption	N <sup>11</sup>	
830.7100	Viscosity	N/A <sup>9</sup>	
830.7200	Melting point/melting range	Y	42079404 <sup>4</sup> , 42895701 <sup>8</sup>
830.7220	Boiling point/boiling range	N/A <sup>9</sup>	
830.7300	Density/relative density/bulk density	Y	42079404 <sup>4</sup>
830.7370	Dissociation constants in water	Y	<i>Accession. No. 962678</i> <sup>12</sup>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	40470101 <sup>13</sup> , 40471801 <sup>14</sup>
830.7840	Water solubility: column elution method; shake flask method	Y	<b>00155099</b> , 40471802 <sup>14</sup> , 42895701 <sup>8</sup>
830.7950	Vapor pressure	Y	40471803 <sup>14</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Akzo Zout Chemie Nederland BV (EPA Reg. No. 38117-10), and the majority of the data summarized above were submitted by Akzo. Nufarm BV must confirm that the manufacturing process and location have not changed since the product transfer; otherwise, additional data may be required.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> The CSF is acceptable; however, the registrant should correct the total weight in Block 17, and the nominal concentration in 13b should be changed to 96.6%. An updated CSF must be submitted reflecting the current registrant and EPA Registration Number.

<sup>4</sup> D172973 and D172975, 5/21/92, E. Zager.

<sup>5</sup> RD D225835, 5/14/96, S. Mathur.

<sup>6</sup> D185761, 3/30/93, F. Toghrol.

<sup>7</sup> D235634, 3/9/04.

<sup>8</sup> Task Force data for the MCPA acid TGAI.

<sup>9</sup> Data are not required because the TGAI/MP is a solid at room temperature.

<sup>10</sup> D192730, 8/10/93, F. Toghrol.

<sup>11</sup> The OPPTS Series 830, Product Properties Test Guidelines require data pertaining to UV/visible absorption for the PAI.

<sup>12</sup>RCB No. 923, 9/12/86, W. Anthony (PAI data for EPA Reg. No. 11685-13).

<sup>13</sup> RD memorandum, 12/14/88, K. Dockter (PAI data for the Nufarm 94% acid Ts, EPA Reg. Nos. 11685-13 and 11685-14).

<sup>14</sup> Initially reviewed in the FRSTR, AND re-addressed under D235474, 3/9/04 (PAI data for the A H Marks 95% acid T, EPA Reg. No. 15440-7).

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y	<u>44463901</u> CSFs 6/6/01 (2217-722; Basic and Alternate) CSF 11/17/01 (2217-821)
830.1600	Description of materials used to produce the product	Y	<u>44463901</u>
830.1650	Description of formulation process	Y	<u>44463901</u>
830.1670	Discussion of formation of impurities	Y	<u>44463901</u>
830.1700	Preliminary analysis	N/A <sup>3</sup>	
830.1750	Certified limits	Y	<u>44463901</u> CSFs 6/6/01 (2217-722; Basic and Alternate) CSF 11/17/01 (2217-821)
830.1800	Enforcement analytical method	Y	<u>44463901</u>
830.6302	Color	Y	<u>44463901</u>
830.6303	Physical state	Y	<u>44463901</u>
830.6304	Odor	N <sup>4</sup>	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N/A <sup>3</sup>	
830.6314	Oxidation/reduction: chemical incompatibility	Y	<u>44463901</u>
830.6315	Flammability	N/A <sup>5</sup>	
830.6316	Explosibility	Y	<u>44463901</u>
830.6317	Storage stability	N <sup>4</sup>	
830.6319	Miscibility	N/A <sup>5</sup>	
830.6320	Corrosion characteristics	Y	44861801 <sup>6</sup>
830.7000	pH	Y	<u>44463901</u>
830.7050	UV/Visible absorption	N/A <sup>3</sup>	
830.7100	Viscosity	Y	<u>44463901</u>
830.7200	Melting point/melting range	N/A <sup>3</sup>	
830.7220	Boiling point/boiling range	N/A <sup>3</sup>	
830.7300	Density/relative density/bulk density	Y	<u>44463901</u>
830.7370	Dissociation constants in water	N/A <sup>3</sup>	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N/A <sup>3</sup>	
830.7840	Water solubility: column elution method; shake flask method	N/A <sup>3</sup>	
830.7950	Vapor pressure	N/A <sup>3</sup>	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. These products are multiple active ingredient (MAI) products manufactured from EPA-registered products. EPA Reg. No. 2217-821 is a "me-too" registration that has been determined to be substantially similar to EPA Reg. No. 2217-722 (RD Memorandum D 242772, 2/11/98, S. Malak).  
<sup>2</sup> Underlined references were reviewed by the Registration Division under D242772, 2/11/98, S. Malak for EPA Reg. No. 2217-821; CSFs were obtained from the product jacket; all other references were reviewed as noted.  
<sup>3</sup> TGAI/PAI data requirements will be fulfilled by data for the technical source product.  
<sup>4</sup> Data pertaining to this requirement were claimed to be "NA as per PR Notice 92-5"; however, this waiver applies only to end-use products. Data pertaining to odor and storage stability are required for these manufacturing-use products.  
<sup>5</sup> Data are not required because the MP is a solid at room temperature.

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y	<u>44484501</u>
830.1600	Description of materials used to produce the product	Y	<u>44484501</u>
830.1620	Description of production process	Y	<u>44484501</u>
830.1670	Discussion of formation of impurities	Y	<u>44484501</u>
830.1700	Preliminary analysis	N/A <sup>3</sup>	
830.1750	Certified limits	Y	<u>44484501</u>
830.1800	Enforcement analytical method	Y	<u>44484502</u>
830.6302	Color	N	
830.6303	Physical state	Y	<u>44484503</u>
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N/A <sup>3</sup>	
830.6314	Oxidation/reduction: chemical incompatibility	Y	44535801 <sup>4</sup>
830.6315	Flammability	Y	<u>44484503</u>
830.6316	Explosibility	N	
830.6317	Storage stability	Y	45480901 <sup>5</sup>
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	Y	44535802 <sup>4</sup> , 45480901 <sup>5</sup>
830.7000	pH	Y	<u>44484503</u>
830.7050	UV/Visible absorption	N/A <sup>3</sup>	
830.7100	Viscosity	Y	<u>44484503</u>
830.7200	Melting point/melting range	N/A <sup>3</sup>	
830.7220	Boiling point/boiling range	N/A <sup>3</sup>	
830.7300	Density/relative density/bulk density	Y	<u>44484503</u>
830.7370	Dissociation constants in water	N/A <sup>3</sup>	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N/A <sup>3</sup>	
830.7840	Water solubility: column elution method; shake flask method	N/A <sup>3</sup>	
830.7950	Vapor pressure	N/A <sup>3</sup>	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable; NR = Not Required. This product is manufactured in an integrated system from an EPA-registered MCPA acid product. Because it is a salt of MCPA, TGAI/PAI data requirements for this product will be fulfilled by data for the acid source product; however, product-specific data are required.

<sup>2</sup> Underlined references were reviewed by the Registration Division under D243175, 3/5/98, A. Smith; all other references were reviewed as noted.

<sup>3</sup> TGAI/PAI data requirements will be fulfilled by data for the acid source product.

<sup>4</sup> RD D245445, 5/15/98, S. Mathur.

<sup>5</sup> RD D277498, 11/30/01, H. Podall.

Case: 0017  
PC Code: 030516

Case Name: MCPA  
Registrant: A H Marks and Company, Ltd.  
Product(s): 77.8% DMA FI (EPA Reg. No. 15440-27)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y	<u>43227201</u> , CSF 1/28/99 <sup>3</sup>
830.1600	Description of materials used to produce the product	Y	<u>43227202</u>
830.1620	Description of production process	Y	<u>43227202</u>
830.1670	Discussion of formation of impurities	Y	<u>43227201</u>
830.1700	Preliminary analysis	Y	<u>43227201</u>
830.1750	Certified limits	Y	<u>43227201</u> , CSF 1/28/99 <sup>3</sup>
830.1800	Enforcement analytical method	Y	<u>43227203</u>
830.6302	Color	Y	<u>43227206</u>
830.6303	Physical state	Y	<u>43227206</u>
830.6304	Odor	Y	<u>43227206</u>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	Y	<u>43227206</u>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	N	
830.7000	pH	Y	<u>43227206</u>
830.7050	UV/Visible absorption	N/A <sup>4</sup>	
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>4</sup>	
830.7220	Boiling point/boiling range	Y	<u>43227206</u>
830.7300	Density/relative density/bulk density	Y	<u>43227206</u>
830.7370	Dissociation constants in water	Y	<u>43227206</u>
830.7550	Partition coefficient (n-octanol/water), shake flask method	Y	<u>43227206</u>
830.7840	Water solubility: column elution method; shake flask method	Y	<u>43227206</u>
830.7950	Vapor pressure	Y	<u>43227206</u>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product is manufactured in an integrated system from an EPA-registered MCPA acid product. Because it is a salt of MCPA, TGAI/PAI data requirements for this product will be fulfilled by data for the acid source product; however, product-specific data are required.

<sup>2</sup> Underlined references were reviewed by the Registration Division under D203432, 6/13/94, S. Mathur; all other references were reviewed as noted.

<sup>3</sup> Letter dated 4/7/99 from J. Miller, RD.

<sup>4</sup> TGAI/PAI data requirements will be fulfilled by data for the acid source product.

Case: 0017  
PC Code: 030516

Case Name: MCPA  
Registrant: Dow AgroSciences LLC  
Product(s): 63.5% DMA FI (EPA Reg. No. 62719-62)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y	CSF 2/19/01
830.1600	Description of materials used to produce the product	N	
830.1620	Description of production process	N	
830.1670	Discussion of formation of impurities	N	
830.1700	Preliminary analysis	N/A <sup>3</sup>	
830.1750	Certified limits	Y	CSF 2/19/01
830.1800	Enforcement analytical method	N	
830.6302	Color	N	
830.6303	Physical state	N	
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N/A <sup>3</sup>	
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N <sup>4</sup>	<b>Product Jacket</b>
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	N	
830.7000	pH	N <sup>5</sup>	<b>Product Jacket</b>
830.7050	UV/Visible absorption	N/A <sup>3</sup>	
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>3</sup>	
830.7220	Boiling point/boiling range	N/A <sup>3</sup>	
830.7300	Density/relative density/bulk density	Y	<b>Product Jacket</b>
830.7370	Dissociation constants in water	N/A <sup>3</sup>	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N/A <sup>3</sup>	
830.7840	Water solubility: column elution method; shake flask method	N/A <sup>3</sup>	
830.7950	Vapor pressure	N/A <sup>3</sup>	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Dow Chemical Company (EPA Reg. No. 464-582), and is manufactured in an integrated system from an EPA-registered MCPA acid product. Because it is a salt of MCPA, TGAI/PAI data requirements for this product will be fulfilled by data for the acid source product; however, product-specific data are required.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; and the CSF was reviewed by the Registration Division under D273652, 5/17/01, S. Malak.

<sup>3</sup> TGAI/PAI data requirements will be fulfilled by data for the acid source product.

<sup>4</sup> Flame extension data are required.

<sup>5</sup> The temperature of the determination and concentration of the test substance are required.

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	<u>CSF 12/2/97</u>
830.1600	Description of materials used to produce the product	Y	<u>44418301</u>
830.1620	Description of production process	Y	<u>44418301</u>
830.1670	Discussion of formation of impurities	Y	<u>44418301</u>
830.1700	Preliminary analysis	N	
830.1750	Certified limits	N <sup>3</sup>	<u>CSF 12/2/97</u>
830.1800	Enforcement analytical method	Y	<u>44418301</u>
830.6302	Color	Y	<u>44418301</u>
830.6303	Physical state	Y	<u>44418301</u>
830.6304	Odor	Y	<u>44418301</u>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>4</sup>	<i>00155235</i> <sup>5</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	Letter <sup>6</sup>
830.6315	Flammability	Y	<u>44418301</u>
830.6316	Explosibility	Y	Letter <sup>6</sup>
830.6317	Storage stability	Y	<i>44929001</i> <sup>7</sup> , <i>45173401</i> <sup>7</sup>
830.6319	Miscibility	Y	Letter <sup>6</sup>
830.6320	Corrosion characteristics	Y	<i>44929001</i> <sup>7</sup>
830.7000	pH	Y	<u>44418301</u>
830.7050	UV/Visible absorption	Y	<i>43129310</i> <sup>8</sup>
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>9</sup>	
830.7220	Boiling point/boiling range	Y	<i>43129310</i> <sup>8</sup>
830.7300	Density/relative density/bulk density	Y	<u>44418301</u>
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N	
830.7840	Water solubility: column elution method; shake flask method	N <sup>10</sup>	<i>00155235</i> <sup>5</sup>
830.7950	Vapor pressure	N	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product is manufactured in an integrated system from an EPA-registered MCPA acid product.

<sup>2</sup> Underlined references were reviewed by the Registration Division under D241373, 1/13/98, S. Malak; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> The product jacket contains a more recent CSF dated 4/15/98, which, like the 12/2/97 CSF, lists one registered active ingredient source and a solvent. When the required preliminary analysis has been completed, the registrant must submit a revised CSF listing MCPA 2-EHE as the active ingredient and listing any related impurities found to be present at \$0.1% in the product.

<sup>4</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>5</sup> 3/9/04 (TGAI data for the Nufarm 94% 2-EHE T, EPA Reg. No. 35935-10).

<sup>6</sup> RD D243715, 3/9/98, B. Kitchens.

<sup>7</sup> 3/9/04.

<sup>8</sup> D202560, 3/9/04 (TGAI data for the A H Marks 97% 2-EHE Ts, EPA Reg. Nos. 15440-9 and 15440-22).

<sup>9</sup> Data are not required because the TGAI/MP is a liquid at room temperature.

<sup>10</sup> Additional data are required which demonstrate the solubility of the TGAI in solvents other than water.

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y <sup>3</sup>	CSF 5/28/99
830.1600	Description of materials used to produce the product	N/A	
830.1620	Description of production process	N/A	
830.1670	Discussion of formation of impurities	N/A	
830.1700	Preliminary analysis	N/A	
830.1750	Certified limits	Y <sup>3</sup>	CSF 5/28/99
830.1800	Enforcement analytical method	N/A	
830.6302	Color	N/A	
830.6303	Physical state	N/A	
830.6304	Odor	N/A	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N/A	
830.6314	Oxidation/reduction: chemical incompatibility	N/A	
830.6315	Flammability	N/A	
830.6316	Explodability	N/A	
830.6317	Storage stability	N/A	
830.6319	Miscibility	N/A	
830.6320	Corrosion characteristics	N/A	
830.7000	pH	N/A	
830.7050	UV/Visible absorption	N/A	
830.7100	Viscosity	N/A	
830.7200	Melting point/melting range	N/A	
830.7220	Boiling point/boiling range	N/A	
830.7300	Density/relative density/bulk density	N/A	
830.7370	Dissociation constants in water	N/A	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N/A	
830.7840	Water solubility: column elution method; shake flask method	N/A	
830.7950	Vapor pressure	N/A	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Nufarm Americas (EPA Reg. No. 228-370) and is repackaged from an EPA-registered product; therefore, the product chemistry data requirements will be fulfilled by data submitted for the source product.

<sup>2</sup> The CSF was obtained from the product jacket.

<sup>3</sup> The nominal concentration and certified limits of the active ingredient, based on the actual amount of the active ingredient in the product, should be listed on the CSF.



Case: 0017  
PC Code: 030564

Case Name: MCPA  
Registrant: Nufarm UK Limited  
Product(s): 93% 2-EHE T (EPA Reg. No. 11685-15)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	CSF 5/12/97 <sup>4</sup>
830.1600	Description of materials used to produce the product	Y	41759403 <sup>5</sup>
830.1620	Description of production process	Y	41759403 <sup>5</sup>
830.1670	Discussion of formation of impurities	Y	41759403 <sup>5</sup> , 41769401 <sup>6</sup>
830.1700	Preliminary analysis	Y	41769402 <sup>6</sup> , 41839501 <sup>7</sup>
830.1750	Certified limits	N <sup>3</sup>	41769402 <sup>6</sup> , CSF 5/12/97 <sup>4</sup>
830.1800	Enforcement analytical method	N <sup>8</sup>	41769402 <sup>6</sup>
830.6302	Color	Y	<b>Product Jacket</b>
830.6303	Physical state	Y	<b>Product Jacket</b>
830.6304	Odor	Y	<b>Product Jacket</b>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>9</sup>	<b>Product Jacket, 00155235</b> <sup>10</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	<b>Product Jacket</b>
830.6315	Flammability	N	
830.6316	Explosibility	N <sup>11</sup>	<b>Product Jacket</b>
830.6317	Storage stability	N	
830.6319	Miscibility	N <sup>12</sup>	<b>Product Jacket</b>
830.6320	Corrosion characteristics	N <sup>13</sup>	<b>Product Jacket</b>
830.7000	pH	N	
830.7050	UV/Visible absorption	Y	43129310 <sup>14</sup>
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>15</sup>	
830.7220	Boiling point/boiling range	Y	<b>Product Jacket</b>
830.7300	Density/relative density/bulk density	Y	<b>Product Jacket</b>
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N	
830.7840	Water solubility: column elution method; shake flask method	N <sup>16</sup>	<b>Product Jacket, 00155235</b> <sup>10</sup>
830.7950	Vapor pressure	N <sup>11</sup>	<b>Product Jacket</b>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Bayer CropScience (EPA Reg. No. 264-495) which was transferred from Rhone-Poulenc (EPA Reg. No. 359-737), and the data summarized above were submitted by Rhone-Poulenc. Nufarm UK Limited must confirm that the manufacturing process and location have not changed since the product transfer; otherwise, additional data may be required. This product is manufactured in an integrated system from an EPA-registered MCPA acid product.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> A revised CSF must be submitted reflecting the results of preliminary analysis and the certification of limits presented in MRID 41769402.

<sup>4</sup> Letter dated 5/27/97 from J. Miller, RD.

<sup>5</sup> DEB No. 6832, 9/13/90, S. Funk, and D161184, 9/25/91, S. Funk.

<sup>6</sup> F. Fort, 3/9/04

<sup>7</sup> D163896, 8/7/91, S. Funk (for dioxins).

<sup>8</sup> The method submitted for determination of the active ingredient, MCPA 2-EHE, is acceptable; however, the method must be resubmitted as a nonconfidential method.

<sup>9</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>10</sup> TGAI data for the Nufarm 94% 2-EHE T, EPA Reg. No. 35935-10.

<sup>11</sup> The method used for the determination is required.

<sup>12</sup> The method used and temperature at which the determination was made are required.

<sup>13</sup> The composition of the storage container and method used for the determination are required.

<sup>14</sup> D202560, 3/9/04 (TGAI data for the A H Marks 97% 2-EHE Ts, EPA Reg. Nos. 15440-9 and 15440-22).

<sup>15</sup> Data are not required because the TGAI is a liquid at room temperature.

<sup>16</sup> Additional data are required which demonstrate the solubility of the TGAI in solvents other than water.

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	Y	45804401 <sup>3</sup> , CSF 11/12/02 (15440-22) <sup>3</sup> , CSF 1/3/03 (15440-9) <sup>4</sup>
830.1600	Description of materials used to produce the product	Y	45804402 <sup>3</sup>
830.1620	Description of production process	Y	45804403 <sup>3</sup>
830.1670	Discussion of formation of impurities	Y	45804404 <sup>3</sup>
830.1700	Preliminary analysis	Y	45804405 <sup>3</sup> , 45804406 <sup>3</sup>
830.1750	Certified limits	Y	45804406 <sup>3</sup> , CSF 11/12/02 (15440-22) <sup>3</sup> , CSF 1/3/03 (15440-9) <sup>4</sup>
830.1800	Enforcement analytical method	Y	45804406 <sup>3</sup>
830.6302	Color	Y	43129310 <sup>5</sup>
830.6303	Physical state	Y	43129310 <sup>5</sup>
830.6304	Odor	Y	43129310 <sup>5</sup>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>6</sup>	00155235 <sup>7</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N	
830.6316	Explosibility	N <sup>8</sup>	<b>00126755</b>
830.6317	Storage stability	N <sup>9</sup>	<b>00126755</b>
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	N	
830.7000	pH	Y	43129310 <sup>5</sup>
830.7050	UV/Visible absorption	Y	43129310 <sup>5</sup>
830.7100	Viscosity	N <sup>8</sup>	<b>00126755</b>
830.7200	Melting point/melting range	N/A <sup>10</sup>	
830.7220	Boiling point/boiling range	Y	43129310 <sup>5</sup>
830.7300	Density/relative density/bulk density	Y	43129310 <sup>5</sup>
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N	
830.7840	Water solubility: column elution method; shake flask method	N <sup>11</sup>	00155235 <sup>7</sup>
830.7950	Vapor pressure	N <sup>8</sup>	<b>00126755</b>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. These products have been determined to be substantially similar. EPA Reg. No. 15440-22 was transferred from Kemisk Vaerk Koge A/S (EPA Reg. No. 11636-3); A H Marks has submitted updated product chemistry data since the product transfer.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> RD D287215, 3/27/03, S. Malak.

<sup>4</sup> RD D287848, 3/5/03, S. Malak.

<sup>5</sup> D202560, 3/9/04

<sup>6</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>7</sup> TGAI data for the Nufarm 94% 2-EHE T, EPA Reg. No. 35935-10.

<sup>8</sup> The method used for the determination is required.

<sup>9</sup> Quantitative data are required which demonstrate the stability of the T/MP in its typical packaging stored for up to one year.

<sup>10</sup> Data are not required because the TGAI is a liquid at room temperature.

<sup>11</sup> Additional data are required which demonstrate the solubility of the TGAI in solvents other than water.

**PRODUCT CHEMISTRY DATA SUMMARY**

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	CSF 5/12/97 <sup>4</sup>
830.1600	Description of materials used to produce the product	N <sup>5</sup>	<b>00155233</b>
830.1620	Description of production process	N <sup>5</sup>	<b>00155233</b>
830.1670	Discussion of formation of impurities	Y	<b>00155233</b>
830.1700	Preliminary analysis	N <sup>6</sup>	<b>00155233</b>
830.1750	Certified limits	N <sup>3</sup>	CSF 5/12/97 <sup>4</sup>
830.1800	Enforcement analytical method	N	
830.6302	Color	Y	00155235 <sup>7</sup>
830.6303	Physical state	Y	00155235 <sup>7</sup>
830.6304	Odor	Y	00155235 <sup>7</sup>
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>8</sup>	00155235 <sup>7</sup>
830.6314	Oxidation/reduction: chemical incompatibility	Y	00155235 <sup>7</sup>
830.6315	Flammability	N <sup>9</sup>	00155235 <sup>7</sup>
830.6316	Explosibility	N <sup>10</sup>	00155235 <sup>7</sup>
830.6317	Storage stability	Y	00155235 <sup>7</sup>
830.6319	Miscibility	N <sup>11</sup>	00155235 <sup>7</sup>
830.6320	Corrosion characteristics	Y	00155235 <sup>7</sup>
830.7000	pH	N <sup>12</sup>	00155235 <sup>7</sup>
830.7050	UV/Visible absorption	Y	<i>43129310</i> <sup>13</sup>
830.7100	Viscosity	N <sup>9</sup>	00155235 <sup>7</sup>
830.7200	Melting point/melting range	N/A <sup>14</sup>	
830.7220	Boiling point/boiling range	Y	00155235 <sup>7</sup> , <i>43129310</i> <sup>13</sup>
830.7300	Density/relative density/bulk density	Y	<b>Product Jacket</b> , 00155235 <sup>7</sup>
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N <sup>11</sup>	00155235 <sup>7</sup>
830.7840	Water solubility: column elution method; shake flask method	N <sup>15</sup>	00155235 <sup>7</sup>
830.7950	Vapor pressure	N <sup>11</sup>	00155235 <sup>7</sup>

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Agrolinz Inc. (formerly Gilmore Inc.; EPA Reg. No. 42545-24), and the data summarized above were submitted by Gilmore. Nufarm UK Limited must confirm that the manufacturing process and location have not changed since the product transfer; otherwise, additional data may be required. This product is manufactured by an integrated system from EPA-registered products.

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> When the required preliminary analysis has been completed, the registrant must submit a revised CSF listing MCPA 2-EHE as the active ingredient and listing any related impurities found to be present at \$0.1% in the product.

<sup>4</sup> Note to File dated 6/12/97, D. Kenny.

<sup>5</sup> Additional information is required concerning the nature of the process, the duration of each reaction, chemical equations, quality control measures, and the source (name and address) and technical specifications of the starting materials.

<sup>6</sup> Analysis of five batches is required using validated methods, and data depicting the impurities including dibenzo-p-dioxins and dibenzofurans, for which certified limits are required must also be submitted.

<sup>8</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>9</sup> The method used for the determination is required.

- <sup>10</sup> Data or information are required which demonstrate that the T/MP is not explosive.
- <sup>11</sup> The method used and temperature at which the determination was made are required.
- <sup>12</sup> The temperature at which the determination was made is required.
- <sup>13</sup> D202560, 3/9/04, (TGAI data for the A H Marks 97% 2-EHE Ts, EPA Reg. Nos. 15440-9 and 15440-22).
- <sup>14</sup> Data are not required because the TGAI is a liquid at room temperature.
- <sup>15</sup> Quantitative data are required which demonstrate the solubility of the TGAI in solvents other than water.

Case: 0017  
PC Code: 030564

Case Name: MCPA  
Registrant: Dow AgroSciences LLC  
Product(s): 95.8% 2-EHE T (EPA Reg. No. 62719-64)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N <sup>3</sup>	<b>00154064</b> , CSF 5/22/97 <sup>4</sup>
830.1600	Description of materials used to produce the product	N <sup>5</sup>	<b>00154063</b>
830.1620	Description of production process	N <sup>5</sup>	<b>00154063</b>
830.1670	Discussion of formation of impurities	N <sup>6</sup>	<b>00154066</b>
830.1700	Preliminary analysis	N <sup>7</sup>	<b>00154064</b>
830.1750	Certified limits	N <sup>3</sup>	<b>00154064</b> , CSF 5/22/97 <sup>4</sup>
830.1800	Enforcement analytical method	N <sup>8</sup>	<b>00154064</b>
830.6302	Color	N	
830.6303	Physical state	N	
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>9</sup>	<i>00155235</i> <sup>10</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N <sup>11</sup>	<b>Product Jacket</b>
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	N	
830.7000	pH	N <sup>12</sup>	<b>Product Jacket</b>
830.7050	UV/Visible absorption	Y	<i>43129310</i> <sup>13</sup>
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>14</sup>	
830.7220	Boiling point/boiling range	Y	<i>43129310</i> <sup>13</sup>
830.7300	Density/relative density/bulk density	N	
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N	
830.7840	Water solubility: column elution method; shake flask method	N <sup>15</sup>	<i>00155235</i> <sup>10</sup>
830.7950	Vapor pressure	N <sup>16</sup>	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Dow Chemical Company (EPA Reg. No. 464-585).

<sup>2</sup> **Bolded** references were reviewed in the MCPA FRSTR Reregistration Standard dated 6/22/88; all other references were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> When the required preliminary analysis has been completed, the registrant must submit a revised CSF listing any related impurities found to be present at \$0.1% in the product.

<sup>4</sup> Letter dated 9/2/97 from J. Miller, RD.

<sup>5</sup> The following information must be provided: (i) the nature of the process; (ii) the relative amounts of reactants; and (iii) the name and address of the manufacturers, suppliers, or producers of the starting materials.

<sup>6</sup> A discussion of the possible formation of dibenzo-*p*-dioxins and dibenzofurans is required.

<sup>7</sup> Analysis of five batches is required using validated methods, and data depicting the impurities including dibenzo-*p*-dioxins and dibenzofurans, for which certified limits are required must also be submitted.

<sup>8</sup> Validation data are required for the method used to quantitate the active ingredient (MCPA 2-EHE) and methods with adequate validation data are required for the related impurities.

<sup>9</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>10</sup> TGAI data for the Nufarm 94% 2-EHE T, EPA Reg. No. 35935-10.

<sup>11</sup> Flame extension data are required.

<sup>12</sup> The temperature of the determination and concentration of the test substance are required.

<sup>13</sup> D202560, 3/9/04, F.Fort (TGAI data for the A H Marks 97% 2-EHE Ts, EPA Reg. Nos. 15440-9 and 15440-22).

<sup>14</sup> Data are not required because the TGAI is a liquid at room temperature.

<sup>15</sup> Additional data are required which demonstrate the solubility of the TGAI in solvents other than water.

<sup>16</sup> The data which were tentatively cited for this product in the FRSTR (MRID 40471803) have since been determined to be MCPA acid data and do not apply to data requirements for the 2-EHE.



Case: 0017  
PC Code: 030564

Case Name: MCPA  
Registrant: Nufarm Platte PTY Ltd.  
Product(s): 100% 2-EHE T (EPA Reg. No. 67591-3)

### PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? <sup>1</sup>	MRID Number <sup>2</sup>
830.1550	Product identity and composition	N	
830.1600	Description of materials used to produce the product	N	
830.1620	Description of production process	N	
830.1670	Discussion of formation of impurities	N	
830.1700	Preliminary analysis	N	
830.1750	Certified limits	N	
830.1800	Enforcement analytical method	N	
830.6302	Color	N	
830.6303	Physical state	N	
830.6304	Odor	N	
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	N <sup>3</sup>	<i>00155235</i> <sup>4</sup>
830.6314	Oxidation/reduction: chemical incompatibility	N	
830.6315	Flammability	N	
830.6316	Explosibility	N	
830.6317	Storage stability	N	
830.6319	Miscibility	N	
830.6320	Corrosion characteristics	N	
830.7000	pH	N	
830.7050	UV/Visible absorption	Y	<i>43129310</i> <sup>5</sup>
830.7100	Viscosity	N	
830.7200	Melting point/melting range	N/A <sup>6</sup>	
830.7220	Boiling point/boiling range	Y	<i>43129310</i> <sup>5</sup>
830.7300	Density/relative density/bulk density	N	
830.7370	Dissociation constants in water	N	
830.7550	Partition coefficient (n-octanol/water), shake flask method	N	
830.7840	Water solubility: column elution method; shake flask method	N <sup>7</sup>	<i>00155235</i> <sup>4</sup>
830.7950	Vapor pressure	N	

<sup>1</sup> Y = Yes; N = No; N/A = Not Applicable. This product was transferred from Platte Chemical Company. (EPA Reg. No. 34704-234) as a suspended product (letter dated 8/17/94 from J. Tompkins, RD). No data were reviewed for the product in the FRSTR, and no data have been submitted since the FRSTR. In addition, the most current CSF available from the product jacket is dated 8/23/71 and lists Trans Chem Industries, Inc. as the registrant.

<sup>2</sup> References were reviewed as noted. *Italicized* references reflect TGAI and/or PAI data for phys/chem requirements which may be shared by Task Force members.

<sup>3</sup> Additional data are required which demonstrate the stability of the TGAI upon exposure to metals and metal ions.

<sup>4</sup> TGAI data for the Nufarm 94% 2-EHE T, EPA Reg. No. 35935-10.

<sup>5</sup> D202560, F. Fort, 3/9/04 (TGAI data for the A H Marks 97% 2-EHE Ts, EPA Reg. Nos. 15440-9 and 15440-22).

<sup>6</sup> Data are not required because the TGAI is a liquid at room temperature.

<sup>7</sup> Additional data are required which demonstrate the solubility of the TGAI in solvents other than water.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

DP Barcode(s): None; RD Memorandum  
Subject: Registration Requirements: MCPA; U-46 MCP; EPA Registration No. 7969-34; Your Submission Dated December 23, 1985.  
From: R. Mountfort  
To: M. Schluter, BASF Wyandotte Corp.  
Dated: 1/6/86  
MRID(s): None

CB No.: 923  
DP Barcode(s): None  
Subject: MCPA Acid: Product Chemistry to Support Existing Registration.  
From: W. Anthony  
To: R. Mountfort  
Dated: 9/12/86  
MRID(s): Accession #962678

DP Barcode(s): None; RD Memorandum  
Subject: Product Chemistry Review on MCPA Technical Acid.  
From: K. Dockter  
To: R. Mountfort  
Dated: 12/14/88  
MRID(s): 40470101

CB No.: 6832  
DP Barcode(s): None  
Subject: Manufacturing Data and Sampling Protocol for MCPA 2-Ethylhexyl Ester. ID No. 264-495. Record No. 266933.  
From: S. Funk  
To: E. Feris  
Dated: 9/13/90  
MRID(s): None

DP Barcode(s): None; RD Memorandum  
Subject: Product Chemistry Review on MCPA Acid Technical and MCPA Technical Acid, EPA Registration Number: 264-479 and 264-486.  
From: R. Lozada  
To: J. Miller  
Dated: 10/1/90  
MRID(s): 41193401

DP Barcode(s): D163896  
Subject: Analysis of MCPA Ethylhexyl Ester for Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans. Chemical No. 030563. ID No. 264-495. CBRS No. 7954.  
From: S. Funk  
To: E. Feris  
Dated: 8/7/91  
MRID(s): 41839501

DP Barcode(s): D161184  
Subject: Analysis of Technical MCPA for Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans. Additional Manufacturing Data for MCPA Ethylhexyl Ester. Response to DCI. ID Nos. 264-486, 264-495. CBRS No. 7650.  
From: S. Funk  
To: E. Feris  
Dated: 9/25/91  
MRID(s): 41759403

DP Barcode(s): D172973 and D172975  
Subject: Akzo Chemical Company: Response to the MCPA Reregistration Standard: Product Chemistry.  
From: E. Zager  
To: L. Rossi and W. Burnam  
Dated: 5/21/92  
MRID(s): 42079401 through 42079404

DP Barcode(s): D180988  
Subject: MCPA Reregistration: a List A Chemical (Chemical No.: 030501; Case No. 0017). Rhone-Poulenc AG: Response to the MCPA (FRSTR) Registration Standard (dated 6/22/88) Product Chemistry Data Requirements.  
From: F. Toghrol  
To: L. Rossi/W. Waldrop  
Dated: 2/17/93  
MRID(s): 42386401 through 42386403

DP Barcode(s): D185761  
Subject: MCPA Reregistration: List A Chemical (Chemical No.: 030501; Case No. 0017). Akzo: Response to the MCPA 94% T Product Chemistry Data Requirements.  
From: F. Toghrol  
To: L. Rossi/W. Waldrop  
Dated: 3/30/93  
MRID(s): 42577600 through 42577603

DP Barcode(s): D182937  
Subject: MCPA Reregistration: List A Chemical (Chemical No.: 030501; Case No. 0017). A. H. Marks: Response to the MCPA Acid 93% T Product Chemistry Data Requirements.  
From: F. Toghrol  
To: L. Rossi/W. Waldrop  
Dated: 4/2/93  
MRID(s): 42377401 through 42377410 and 42450901 through 42450907

DP Barcode(s): None; RD Memorandum  
Subject: Product Chemistry Review of Updated CSF.  
From: M. Clifford  
To: PM No. 23  
Dated: 8/3/93  
MRID(s): None

DP Barcode(s): D192730  
Subject: MCPA Reregistration: List A Chemical No. 030501; Case No. 0017. Akzo Response to the MCPA 94% T Product Chemistry Data Requirements.  
From: F. Toghrol  
To: L. Rossi/W. Waldrop  
Dated: 8/10/93  
MRID(s): 42638601

DP Barcode(s): D191459  
Subject: MCPA (List A, Chemical 030501, Case No. 0017). Product Chemistry: Determination of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans.  
From: S. Funk  
To: W. Waldrop/A. Ertman  
Dated: 9/9/93  
MRID(s): 42657101

DP Barcode(s): D191457  
Subject: Response to the MCPA Reregistration Standard: Product Chemistry.  
From: R. Perfetti  
To: L. Rossi and A. Rathman  
Dated: 9/10/93  
MRID(s): 42757301

DP Barcode(s): D203432  
Subject: RD/RSB/PCRS Transmittal/Product Chemistry Review/ Manufacturing Use Product; EPA Reg. No. 015440-ET; Chemical Code/Name: 030516 MCPA dimethylamine salt; Common Name: MCPA DMA 750; CAS #: 2039-46-5.  
From: S. Mathur  
To: J. Miller

Dated: 6/13/94  
MRID(s): 43227201 through 43227203 and 43227206

DP Barcode(s): None; RD Letter  
Subject: Transfer of Pesticide Registrations From Company Number 34704 to Company Number 67591  
From: J. Miller  
To: R. Unruh, Nufarm Platte PTY. Ltd.  
Dated: 8/17/94  
MRID(s): None

DP Barcode(s): D225835  
Subject: Product Chemistry Review of TGAI; EPA Reg. No. 38117-10; Product Name: 2-methyl-4-chlorophenoxyacetic acid (MCPA); Company: Akzo Zout Chemie Nederland BV.  
From: S. Mathur  
To: J. Miller  
Dated: 5/14/96  
MRID(s): 43986101 and 43986102

DP Barcode(s): None; RD Letter  
Subject: Revised Basic Confidential Statement of Formula, Specifying MCPA/2-EHE As The Active Ingredient; Technical MCPA IOE; EPA Registration No. 11685-15; Your Application Dated May 12, 1997.  
From: J. Miller  
To: W. Mahlburg, Nufarm UK Limited  
Dated: 5/27/97  
MRID(s): None

DP Barcode(s): None; RD Letter  
Subject: Label Revision Amendment - Revised Basic CSF and Minor Label Revisions, DowElanco/MCPA 2-Ethylhexyl Ester Technical, EPA Registration Number 62719-64, Your amendment application submission dated May 16, 1997.  
From: J. Miller  
To: L. Hammond, DowElanco  
Dated: 9/2/97  
MRID(s): None

DP Barcode(s): D241373  
Subject: Product Chemistry Review; EPA Reg. No. 228-289; Product Name: Riverdale MCPA Isooctyl Ester, 97% AI; Company Name: Riverdale Chemical Company; Action Code: 361.  
From: S. Malak  
To: S. Stanton  
Dated: 1/13/98  
MRID(s): 44418301

DP Barcode(s): D242772  
Subject: Product Chemistry Review; EPA File Symbol No. 2217-IER; Product Name: EH1356 Herbicide; Company: PBI/Gordon Corporation  
From: S. Malak  
To: M. Cooke  
Dated: 2/11/98  
MRID(s): 44463901

DP Barcode(s): D243175  
Subject: Product Chemistry Review; EPA File Symbol No. 7969-RAT; Product Name: MCPA-DMA 750 g/L MP (BAS 141 24H); Company: BASF Corporation  
From: A. Smith  
To: S. Stanton  
Dated: 3/5/98  
MRID(s): 44484501-44484504

DP Barcode(s): D243715  
Subject: Product Chemistry Technical Review; EPA Reg. No. 228-289; Product Name: Transvaal MCPA Isooctyl Ester; Company: Riverdale Chemical Company.  
From: B. Kitchens  
To: J. Miller/S. Stanton  
Dated: 3/9/98  
MRID(s): None

DP Barcode(s): D245445  
Subject: Product Chemistry Review of MP; EPA Reg. No. 7969-167; Product Name: (4-chloro-2-methylphenoxy) acetic acid-DMA-750 g/L MP; Company: BASF Corporation  
From: S. Mathur  
To: J. Miller  
Dated: 5/15/98  
MRID(s): 44535801 and 44535802

DP Barcode(s): D246012  
Subject: Product Chemistry Review of TGAI; EPA Reg. No. 7969-34; Product Name: U-46 MCP; Company: BASF Corporation.  
From: S. Mathur  
To: J. Miller  
Dated: 6/17/98  
MRID(s): 44394401 and 44401301

DP Barcode(s): D249451  
Subject: Product Chemistry Review of MP; EPA Reg. No. 7969-34; Product Name: U-46 MCP; Company: BASF Corporation.  
From: S. Mathur  
To: J. Miller  
Dated: 11/4/98  
MRID(s): 44639901, 44645801 and 44645802

DP Barcode(s): None; RD Letter  
Subject: Revised Basic Confidential Statement of Formula (CSF); MCPA DMA 750; EPA Registration No. 15440-27; Your Resubmission Dated January 28, 1999.  
From: J. Miller  
To: R. Otten, A H Marks Registration and Regulatory Services  
Dated: 4/7/99  
MRID(s): None

DP Barcode(s): D273652  
Subject: Product Chemistry Review of Manufacturing-Use Product; EPA Reg. No. 62719-62; Product Name: MCPA Amine 5 Lb. Concentrate (For Manufacturing-Use Only); Company Name: Dow AgroSciences, LLC; Action Code: 345.  
From: S. Malak  
To: J. Miller/M. Cooke  
Dated: 5/17/01  
MRID(s): None

DP Barcode(s): D277498  
Subject: Product Chemistry Review - Action: 570; EPA Reg. No. 7969-167; Product Name: MCPA-DMA 750 g/L; Company: BASF Corporation  
From: H. Podall  
To: J. Miller/J. Stone  
Dated: 11/30/01  
MRID(s): 45480901

DP Barcode(s): D287848  
Subject: Product Chemistry Review of a Technical Grade of Active Ingredient; EPA Reg. No. 15440-9; Product Name: Technical 2-Ethylhexyl Ester of MCPA, 94% MCPA Isooctyl Ester; Company Name: A H Marks & Company.  
From: S. Malak  
To: J. Miller/J. Stone  
Dated: 3/5/03  
MRID(s): None

DP Barcode(s): D287215  
Subject: Product Chemistry Review of a Technical Grade of Active Ingredient,  
Chemical Formula Change-Food/Feed Use; EPA Reg. No. 15440-22; A H  
Marks.  
From: S. Malak  
To: J. Miller/J. Stone  
Dated: 3/27/03  
MRID(s): 45804401 through 45804406

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MCPA

RESIDUE CHEMISTRY CONSIDERATIONS

## Executive Summary

MCPA [(4-chloro-2-methylphenoxy)acetic acid] is a phenoxy herbicide registered for use on alfalfa, barley, clover, flax, lespedeza, oats, pasture and rangeland grass, peas, rice, rye, sorghum, trefoil, triticale, and wheat, as well as grass grown for seed, to control a wide spectrum of broadleaf weeds. The MCPA Task Force Three (A.H. Marks and Company, Ltd., Dow AgroSciences, and Nufarm UK Limited) has indicated that the only uses of MCPA they intend to support are uses of MCPA dimethylamine salt (DMAS) and MCPA 2-ethylhexyl ester (2-EHE) on the following crops: small grains including barley, oats, rye, and wheat; small grains underseeded with legumes and rangeland and pasture grasses. The Interegional Research Project No. 4 (IR-4) has stated that they plan to support the uses on peas in the Pacific Northwest, flax, and clover grown for seed. The following uses are not being supported: clover (except for clover grown for seed), rice and sorghum.

The MCPA Task Force Three has also stated that they only intend to support the soluble concentrate (SC) formulation of MCPA DMAS and the EC formulation of MCPA 2-EHE for application to food/feed crops. Currently, the 2.5, 3.7, 4, and 5.96 lb ae/gal formulations of MCPA DMAS and the 2.35, 2.84, 3.7, 4, 4.7, and 5.2 lb ae/gal formulations of the MCPA 2-EHE formulation are registered for use on food/feed crops. The products are typically applied as postemergence broadcast applications using ground or aerial equipment.

MCPA is FIFRA List A pesticide assigned to Case No. 0017. The Residue Chemistry Chapter of the Registration Standard was completed 8/31/81, and the Registration Standard Guidance Document was issued 3/82. The MCPA Final Registration Standard and Tolerance Reassessment (FRSTR) was completed 6/22/88. Several data submissions have been received and evaluated since the FRSTR. The information contained in this document outlines the Residue Chemistry Science Assessments with respect to the reregistration of MCPA.

The nature of the residue in plants and livestock is adequately understood based on metabolism studies with wheat, goats, and hens. The HED MARC has determined that the residues to be regulated in plant commodities are free and conjugated MCPA and its metabolites 2-HMCPA [(4-chloro-2-hydroxymethylphenoxy)acetic acid] and CCPA [(4-chloro-2-carboxyphenoxy)acetic acid]. The residues to be regulated in livestock commodities have been determined to be MCPA, *per se*. Based on limited toxicity data on 2-methyl-4-chlorophenol, a currently regulated livestock metabolite, MARC expects the toxicity of 2-methyl-4-chlorophenol will be significantly less toxic than the parent and therefore, 2-methyl-4-chlorophenol can be excluded. It should also be noted that if the use on peas is supported, an additional metabolism study for peas will be required.

Tolerances have been established under 40 CFR §180.339(a) for residues of MCPA (2-methyl-4-chlorophenoxyacetic acid) *per se* in/on various plant commodities, and tolerances are established under 40 CFR §180.339(b) for the combined residues of MCPA and its metabolite 2-methyl-4-chlorophenol in livestock commodities. The current tolerance expressions are not adequate. We note that the chemical name for MCPA has been variously presented as “(2-methyl-4-chlorophenoxy)acetic acid” and “(4-chloro-2-methylphenoxy)acetic acid.” Although both names are correct, under current conventions for naming chemicals, the “4-chloro-2-methyl” designation is preferred.

For enforcement of tolerances for residues of MCPA, PAM Vol. II lists PAM Vol. I Sections 221.1, 421, and 422. No limit of quantitation is specified. We note that Section 221.1 has now



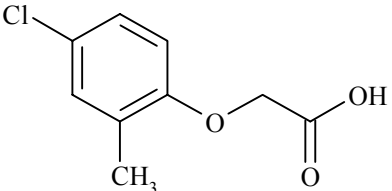
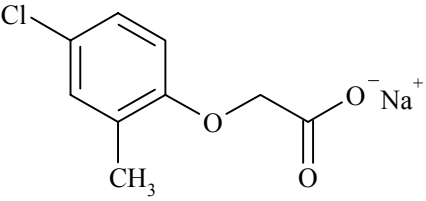
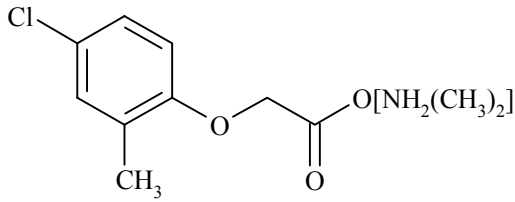
become Section 402 (GC method for acids and phenols) and Sections 421 and 422 (TLC methods) no longer exist. Because of the change in the tolerance expression, a new enforcement method is needed for plant commodities. The adequacy of the enforcement method for livestock commodities cannot be determined at this time because feeding study data remain outstanding.

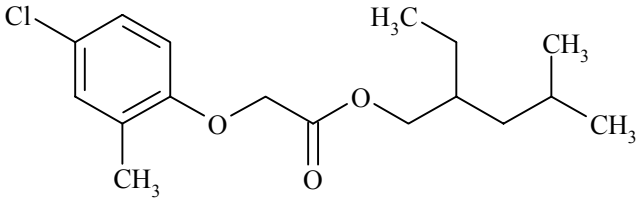
### **Residue Chemistry Deficiencies**

- Product labels must be amended to reflect use patterns which are supported by the available crop field trial data and to remove uses which are not being supported.
- If the use on peas is being supported, metabolism studies on peas is required.
- A metabolism study in which livestock are fed the metabolites which are regulated in plants, CCPA and 2-HMCPA is required.
- A new enforcement method is needed for plant commodities. Before the available GC/MSD methods for the determination of MCPA DMAS (as MCPA), MCPA 2-EHE (as MCPA), 2-HMCPA, 2-HMCPA glucose conjugate (as 2-HMCPA), and CCPA in/on wheat commodities may be forwarded to ACL for method validation, the method for wheat straw must be modified and subjected to independent laboratory validation and radiovalidation, and the methods for wheat forage and grain must be radiovalidated.
- MCPA metabolites 2-HMCPA and CCPA should be tested through FDA Multiresidue Methods.
- Additional data are required depicting the stability of residues of MCPA, 2-HMCPA, and CCPA in/on wheat grain samples stored under ambient conditions for up to 28 days.
- Ruminant feeding studies must be submitted.
- Additional crop field trial data are required for the following crops: alfalfa forage and hay; barley grain, hay, and straw; oat forage, grain, hay, and straw; rye forage, grain, and straw; wheat forage, grain, hay, and straw; and pasture and rangeland forage and hay.
- A study detailing confined accumulation in rotational crops planted following treatment at 1.5 lb ae/A (1x the maximum seasonal rate for annual crops) must be submitted.

### **Background**

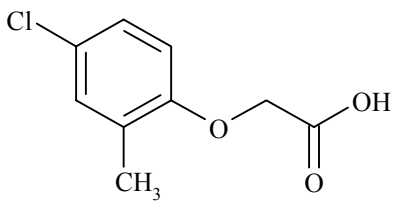
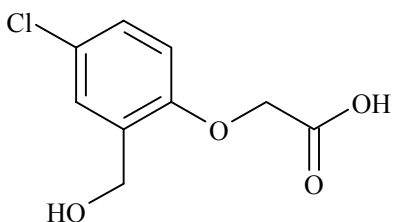
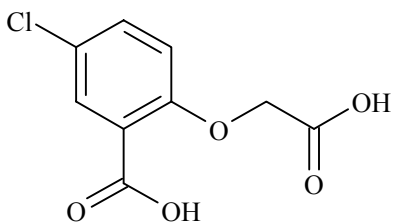
The PC Codes and nomenclature of MCPA and its salts and esters are listed below in Table 1. The physicochemical properties of MCPA, MCPA DMAS, and MCPA 2-EHE are listed in Table 2. No chemical identification information is available concerning the MCPA Na salt, except that it is water soluble. The chemical names and structures of MCPA residues of concern are presented in Table 3.

<b>Table 1. MCPA Nomenclature.</b>	
Chemical structure	
Common name	MCPA acid
Molecular Formula	$C_9H_9ClO_3$
Molecular Weight	200.6
IUPAC name	(4-chloro-2-methylphenoxy)acetic acid
CAS name	(4-chloro-2-methylphenoxy)acetic acid
CAS #	94-74-6
PC Code	030501
Chemical structure	
Common name	MCPA sodium salt
Molecular Formula	$C_9H_8ClNaO_3$
Molecular Weight	222.6
IUPAC name	sodium (4-chloro-2-methylphenoxy)acetate
CAS name	(4-chloro-2-methylphenoxy)acetic acid, sodium salt
CAS #	3653-48-3
PC Code	030502
Chemical structure	
Common name	MCPA dimethylamine salt
Molecular Formula	$C_{11}H_{16}ClNO_3$
Molecular Weight	245.7
IUPAC name	(4-chloro-2-methylphenoxy)acetic acid, dimethylamine salt
CAS name	(4-chloro-2-methylphenoxy)acetic acid, compound with N-methylmethanamine (1:1)
CAS #	2039-46-5
PC Code	030516

Chemical structure	
Common name	MCPA 2-ethylhexyl ester
Molecular Formula	C <sub>17</sub> H <sub>25</sub> ClO <sub>3</sub>
Molecular Weight	312.5
IUPAC name	(4-chloro-2-methylphenoxy)acetic acid, 2-ethylhexyl ester
CAS name	(4-chloro-2-methylphenoxy)acetic acid, 2-ethylhexyl ester
CAS #	29450-45-1
PC Code	030564

Parameter	Value			Reference
	MCPA	MCPA DMAS	MCPA 2-EHE	
Melting point/range (Boiling point/range)	114-119 °C	(111 °C)	(260-265 °C)	MCPA RED, PC Chapter
pH	approximately 3 [MCPA Reregistration Standard, PC Chapter]	Not available	3.46 at 19.7 °C [D202560]	[See specific column]
Density, at 20 °C	1.18-1.21 g/mL	1.181 g/mL	8.9 lb/gal bulk density (1.06 g/mL specific gravity)	MCPA RED, PC Chapter
Water solubility, at 20 °C	0.03 g/100 g	Rapidly dissociates to the free phenoxy acid moiety and dimethyl ammonium ion in water.	<1 mg/L	MCPA RED, PC Chapter
Solvent solubility, at 20 °C	91.8 g/100 g acetone 50.2 g/100 g ethyl ether 5.5 g/100 g chloroform 3.3 g/100 g benzene	Not available	Miscible in most organic solvents and mineral oils.	MCPA RED, PC Chapter
Vapor pressure, at 20 °C	7.7 x 10 <sup>-6</sup> mbar	Not available	1.77 x 10 <sup>-5</sup> mbar	MCPA RED, PC Chapter
Dissociation constant, pK <sub>a</sub>	3.07	Not available	Not available	CB# 923, 9/12/86, W. Anthony [Task Force Data; Accession No. 962678]
Octanol/water partition coefficient, Log(K <sub>ow</sub> )	2.73	1.415	-5.37	MCPA RED, PC Chapter
UV/visible absorption spectrum	Not available	Not available	Absorbance peaks observed at 203, 228, and 279 nm for a solution of MCPA 2-EHE in water with methanol co-solvent; molar absorption coefficient of 16784 M <sup>-1</sup> cm <sup>-1</sup> at λ <sub>MAX</sub> 203.1 nm.	D202560

The following MCPA active ingredients (with PC code) are not supported for reregistration:  
 MCPA diethanolamine salt (030511) - no registered products;  
 MCPA butoxyethyl ester (030553) - no registered products;  
 MCPA butyl ester (030556) - no registered products;  
 MCPA isobutyl ester (030562) - no registered products;  
 MCPA isooctyl ester (030563) - one registered end-use product (EPA Reg. No. 9779-347);  
 MCPA isopropyl ester (030566) - no registered products.

<b>Table 3. Chemical Names and Structures of MCPA and its Residues of Concern.</b>		
Company Name	Chemical Name	Structure
MCPA	(4-chloro-2-methylphenoxy)acetic acid	
2-HMCPA	(4-chloro-2-hydroxymethylphenoxy)acetic acid	
CCPA	(4-chloro-2-carboxyphenoxy)-acetic acid	

## RESIDUE CHARACTERIZATION

### General Discussion on Residue Chemistry of MCPA

#### 860.1200 Directions for Use

#### Product List

There are four active ingredients (AIs) with food/feed uses associated with MCPA: MCPA sodium salt (PC code 030502), MCPA dimethylamine salt (MCPA DMAS; PC code 030516), MCPA isooctyl ester (PC code 030563), and MCPA 2-ethylhexyl ester (MCPA 2-EHE; PC code

030564). There are no registered products containing MCPA acid (PC code 030501) with food/feed uses.

A 9/11/03 product registration query of the Agency's OPPIN database identified several MCPA end-use products (EPs) registered to members of the MCPA Task Force Three. These EPs as well as all active SLN registrations are listed below.

<b>Table 4. MCPA End-use Products (EPs) Food/feed Uses Registered to Members of the MCPA Task Force Three.</b>			
EPA Reg. No./SLN No.	AI	Formulation	Product Name
<b>Nufarm UK Limited</b>			
000228-00143	MCPA DMAS	3.7 lb ae/gal SC	Riverdale MCPA-4 Amine
000228-00156	MCPA 2-EHE	3.7 lb ae/gal EC	Riverdale MCPA L.V. 4 Ester
000228-00199	MCPA Na salt	1.86 lb ae/gal SC	Riverdale Sodium Salt of MCPA
000228-00267	MCPA 2-EHE	5.2 lb ae/gal EC	Dagger Selective Herbicide
000228-00279	MCPA DMAS	78% ae SC	Riverdale Dri-MCPA Amine
000228-00290	MCPA DMAS	5.96 lb ae/gal SC	Riverdale MCPA-6 Amine
000228-00296	MCPA DMAS	2.5 lb ae/gal SC	Riverdale Veteran 2010 Herbicide
011685-00019	MCPA DMAS	4 lb ae/gal EC	Rhomene MCPA Amine Herbicide
011685-00020	MCPA Na salt	2 lb ae/gal SC	Weedar Sodium MCPA
011685-00021	MCPA 2-EHE	3.7 lb ae/gal EC	Rhonox MCPA Low Volatile Ester Herbicide
071368-00016	MCPA 2-EHE	3.7 lb ae/gal EC	Rhonox® EW Broadleaf Herbicide
071368-00017	MCPA 2-EHE	4.7 lb ae/gal WP <sup>1</sup>	Rhonox Gel Emulsifiable Broadleaf Herbicide
MS93000400	MCPA DMAS	3.7 lb ae/gal SC	Riverdale MCPA-4 Amine
MS93000500	MCPA 2-EHE	3.7 lb ae/gal EC	Riverdale Weedestroy® MCPA Low Volatile Ester
<b>A. H. Marks and Company</b>			
015440-00037	MCPA DMAS	4 lb ae/gal SC	Agroxone
<b>Dow Agrosiences</b>			
062719-00013	MCPA DMAS	4 lb ae/gal SC	MCP Amine
062719-00058	MCPA Na salt	2 lb ae/gal SC	MCPA Na Salt
062719-00059	MCPA 2-EHE	4 lb ae/gal EC	MCP Ester
062719-00086	MCPA 2-EHE	2.35 lb ae/gal EC	Curtail M
062719-00307	MCPA 2-EHE	2.84 lb ae/gal EC	Starane Plus Sword

<sup>1</sup> The formulation type reported here is that listed in REFS for the subject product. We note that EPA Reg. No. 71368-17 is likely an EC formulation, not a WP.

### Use Pattern Table

A comprehensive summary of the registered food/feed use patterns of MCPA, as prepared by BEAD, is presented in Appendix 1. A tabular summary of the residue chemistry science assessments for reregistration of MCPA is presented in Table 6. The conclusions listed in Table 6 regarding the reregistration eligibility of MCPA food/feed uses are based on the use patterns supported by the basic producers, the members of the MCPA Task Force Three. When end-use product DCIs are developed, RD should require that all end-use product labels (e.g., MAI labels, SLNs, and products subject to the generic data exemption) be amended such that they are consistent with the basic producers' labels.

The following label amendments are required:

- All uses on crops which are not being supported by the MCPA Task Force Three must be removed from product labels. Based on the information from the “Use Closure Memorandum for MCPA”(7/18/01), uses on the following crops must be removed from product labels: rice; and sorghum.
- All product labels which include uses on “small grains” and “small grains underseeded with legumes” must be modified to clarify that “small grains” include barley, oats, rye, triticale, and wheat only, and that “legumes” include alfalfa, clover, lespedeza, trefoil, and vetch only.
- Maximum seasonal application rates must be specified for all uses on food/feed crops. The available data support the following maximum seasonal rates: 1.5 lb ae/A/season to barley, oats, rye, and wheat; 0.5 lb ae/A/season to small grains underseeded with legumes; and 4 lb ae/A/season to pasture and rangeland grass.
- Product labels which include uses on pasture and rangeland grass must be modified to specify a 7-day PHI for grass hay.
- No restrictions against the feeding of treated crop commodities are allowed for any of the supported crops. Any such restrictions must be removed from product labels.
- According to the information in Appendix 1, at least one MCPA DMAS product specifies a maximum application rate of 1.4 lb ae/A to barley underseeded with legumes. This application rate must be modified to specify a maximum application rate of 0.5 lb ae/A to barley underseeded with legumes.
- According to the information in Appendix 1, at least one MCPA DMAS product specifies a maximum single application rate of 4 lb ae/A as a spot treatment to grasses. The available data support a maximum single application of 2 lb ae/A to grasses. The affected label(s) must be modified to reflect a maximum single application rate of 2 lb ae/A to grasses.
- No field trial data used for tolerance reassessment reflected the use of a surfactant in the spray mixture, or the use of a diluent other than water. All product labels must be amended to remove any recommendations for use of a surfactant for application to food/feed crops. In addition, any recommendations to use diesel oil as a diluent for aerial applications to food/feed crops must be removed from product labels. All product labels which allow application using aerial equipment to food/feed crops must specify that the minimum application volume for aerial applications is 2 gal/A.
- The use pattern tables in Appendix 1 specify pregrazing intervals (also referred to as preforaging intervals) and PHIs of 7 days and 14 days for wheat forage and hay. The MCPA Task Force Three has not indicated the pregrazing/preharvest interval for wheat forage and hay that they wish to support. The Task Force must propose a PHI for wheat forage and hay based on the available data, and all product labels must be modified to reflect this PHI.

### 860.1300 Nature of the Residue - Plants

The nature of the residue in wheat is adequately understood. The residues of concern in wheat are free and conjugated MCPA and its metabolites 2-HMCPA, and CCPA. The chemical structures of MCPA and MCPA residues of concern are presented in Table 3. Please note that if the use on peas is supported, an additional metabolism study for peas is required.

In a wheat metabolism study (MRID 43580301), total radioactive residues (TRR) were 33.2 ppm and 52.0 ppm in/on wheat forage collected 7 days, and 82.2 ppm and 135 ppm in/on wheat straw and 0.406 and 0.549 ppm in/on wheat grain collected 67 days following a single application of uniformly ring-labeled [<sup>14</sup>C]MCPA 2-EHE or [<sup>14</sup>C]MCPA DMAS, respectively, at 1x the maximum use rate (1.5 lb ae/A); applications were made at boot stage.

In wheat from the 2-EHE treatment, MCPA was identified at 10.0% of TRR (3.3 ppm) in forage, 13.7% of TRR (11.3 ppm) in straw, and 0.4% of TRR (0.002 ppm) in grain. The major metabolite in forage and straw was a glucose conjugate of 2-HMCPA at 42.0% of TRR (13.9 ppm) in forage and 39.0% of TRR (32.2 ppm) in straw; this metabolite was also identified in grain at 1.2% of TRR (0.005 ppm). The major metabolites in grain were glucose conjugates at 58.5% of TRR (0.237 ppm) and CCPA at 25.3% of TRR (0.103 ppm); CCPA was also identified in forage (14.6% TRR, 13.9 ppm) and straw (14.8% TRR, 12.1 ppm). 2-HMCPA and an MCPA/2-HMCPA conjugate were also identified in all matrices at 2.2-10.8% of TRR; MCPA 2-EHE was identified in wheat forage and straw at 4.2% and 0.5% of TRR, respectively (1.39 and 0.411 ppm).

In wheat from the DMAS treatment, MCPA was identified at 54.4% of TRR (28.3 ppm) in forage, 26.6% of TRR (35.9 ppm) in straw, and 0.5% of TRR (0.003 ppm) in grain, and was the major metabolite in forage and straw. The major metabolite in grain was glucose conjugates at 51.3% of TRR (0.281 ppm). The glucose conjugate of 2-HMCPA was also a major metabolite, at 22.9% of TRR (11.8 ppm) in forage and 25.6% of TRR (34.5 ppm) in straw; this metabolite was also identified in grain at 1.4% of TRR (0.007 ppm). CCPA, 2-HMCPA, and an MCPA/2-HMCPA conjugate were also identified in all matrices at 1.6-16.5% of TRR.

In another wheat metabolism study (MRID 00041633), wheat plants were treated with uniformly ring labeled [<sup>14</sup>C]MCPA as a solution of the potassium salt (application rate not specified). Residues in grain were not characterized. Identified metabolites were MCPA, CCPA, 2-HMCPA, and 3-hydroxy MCPA in forage and straw.

The MCPA Task Force Three has also submitted adequate characterization data for several labeled (<sup>13</sup>C, <sup>14</sup>C, and <sup>2</sup>H) test substances, including MCPA, MCPA DMAS, MCPA 2-EHE, HMCPA, CCPA, MCPA glycine conjugate, and MCPA ornithine conjugate.

On September 3, 2003, the Metabolism Assessment Review Committee (MARC) recommended that for both tolerance and risk assessment, MCPA, CCPA, and 2-HMCPA are the residues of concern.

### 860.1300 Nature of the Residue - Livestock

The qualitative nature of the residue in livestock is understood. The residues to be regulated in livestock commodities have been determined to be MCPA *per se*. The available studies with lactating goats and laying hens adequately delineate the metabolism of MCPA *per se* in livestock. We note that none of the metabolites identified in the wheat metabolism study were identified in

the livestock metabolism studies. A metabolism study in which livestock are fed the metabolites CCPA and 2-HMCPA are required.

Following oral administration of uniformly ring-labeled [<sup>14</sup>C]MCPA to lactating goats for 3 days at 832 and 694 ppm (- 1.0x and 0.85x the maximum theoretical dietary burden), the TRR were 0.160 ppm and 0.172 ppm in milk, 0.140 ppm and 0.159 ppm in fat, 0.099 ppm and 0.070 ppm in muscle, 0.886 ppm and 0.899 ppm in kidney, and 0.480 ppm and 0.455 ppm in liver. Extraction and characterization of residues were conducted on samples from the goat dosed at 694 ppm.

MCPA was identified in milk (28.5% TRR, 0.046 ppm), fat (30.2% TRR, 0.042 ppm), muscle (22.3% TRR, 0.022 ppm), kidney (6.7% TRR, 0.060 ppm), and liver (4.9% TRR, 0.024 ppm). An MCPA-glycine conjugate was also identified in milk (53.9% TRR, 0.086 ppm). An unknown which represented a major component in fat (30.3% TRR, 0.042 ppm), kidney (57.4% TRR, 0.509 ppm), and liver (50.5% TRR, 0.243 ppm) was tentatively identified as a nonchlorinated triglyceride conjugate of MCPA or a closely related analog. The registrant indicated that attempts to identify a major unknown in muscle (48.4% of TRR, 0.048 ppm) are continuing. The remaining unidentified components represented <6% of the TRR in milk and tissues.

Following oral administration of uniformly ring-labeled [<sup>14</sup>C]MCPA to hens for 7 days at 100 ppm (- 430x the maximum theoretical dietary burden; see Table 5), the TRR were 0.032 ppm in egg whites, 0.220 ppm in egg yolks, 0.033 ppm in fat, 0.017 ppm in thigh muscle, 0.006 ppm in breast muscle, and 0.085 ppm in liver. MCPA was the major component identified in egg white (90.3% TRR, 0.029 ppm), egg yolk (57.4% TRR, 0.127 ppm), fat (12.0% TRR, 0.004 ppm), thigh muscle (35.5% TRR, 0.006 ppm), and liver (78.2% TRR, 0.0663 ppm). An unknown detected in egg yolk (10.5% TRR, 0.023 ppm), fat (1.3% TRR, 0.0005 ppm) breast muscle (8.4% TRR, 0.001 ppm), and liver (1.4% TRR, 0.0012 ppm) was found to consist of at least three components, one of which was tentatively identified as the di-MCPA ornithine conjugate. Remaining unknowns, which accounted for 1.6-8.2% TRR in eggs and tissues were characterized as acid-labile conjugates. HED has determined that a Category 3 of 40 CFR 180.6(a) situation exists (no expectation of residues ) with respect to poultry.

On September 3, 2003, the Metabolism Assessment Review Committee (MARC) recommended that for both tolerance and risk assessment, MCPA, *per se* is the residue of concern. Based on limited toxicity data on 2-methyl-4-chlorophenol, MARC expects the toxicity of 2-methyl-4-chlorophenol will be significantly less toxic than the parent) and therefore, 2-methyl-4-chlorophenol can be excluded.

### **860.1340 Residue Analytical Methods**

Data collection methods: GC methods with mass selective detection (MSD) have been used for the determination of residues of MCPA *per se* or residues of MCPA and its metabolites 2-HMCPA and CCPA in alfalfa, pasture and rangeland grass, and wheat commodities. Brief descriptions of these methods follow.

For determination of MCPA *per se*, residues were extracted and hydrolyzed with basic methanol. The hydrolyzed material was acidified with 4% phosphoric acid and cleaned up on a C18 solid-phase extraction cartridge. MCPA was derivatized to its methyl ester with a solution of boron trifluoride in methanol, and the MCPA methyl ester residues were then partitioned into hexane. The hexane fraction was oxidized with potassium permanganate and cleaned up on an acidic alumina micro column. Residues of MCPA methyl ester were determined by GC/MSD and were reported as MCPA acid equivalents. The validated LOQ was 0.01 ppm.



For determination of MCPA, 2-HMCPA, and CCPA, samples of forage, hay, and straw commodities were hydrolyzed with 0.1 N sodium hydroxide overnight at room temperature, and samples of grain and processed grain commodities were extracted with basic methanol. The extract was adjusted to pH 5 and then hydrolyzed with  $\beta$ -glucosidase. The hydrolysate was partitioned with diethyl ether, and the diethyl ether fractions were concentrated, mixed with a sulfuric acid:methanol solution, and heated overnight at 37 C, to convert MCPA, 2-HMCPA, and CCPA to their methyl esters (MCPA ME, MMCPA ME, and MCCPA ME). The methyl esters were partitioned into hexane and analyzed by GC/MSD. These methods purportedly determine residues of MCPA, MCPA 2-EHE, MCPA DMAS, 2-HMCPA, 2-HMCPA glucose conjugate, and CCPA; MCPA 2-EHE and MCPA DMAS are hydrolyzed to MCPA, and 2-HMCPA glucose conjugate is hydrolyzed to 2-HMCPA during the initial extraction/hydrolysis steps.

GLC methods with electron capture or microcoulometric detection have also been used for the determination of residues of MCPA *per se* in plant commodities. These methods involve conversion of MCPA to its methyl ester prior to analysis; in many cases, an acid or alkaline hydrolysis step was also included.

GC methods have been used for the determination of residues of MCPA and its metabolite 2-methyl-4-chlorophenol in livestock commodities. Two of these methods, ACR 71.10S for tissues and ACR 70.17 for milk, have undergone successful Agency method validation. Method ACR 71.10S was modified from method ACR 71.10 with the addition of an alkaline hydrolysis step and a Florisil column cleanup. In method ACR 71.10, residues were extracted from tissues using ammoniacal methanol and the extract was acidified, partitioned into diethyl ether, and cleaned up on an alumina column for GC analysis using microcoulometric detection. Method ACR 70.17 involves heating milk samples in phosphoric acid and then extraction of residues using diethyl ether; residues are cleaned up on an alumina column, with MCPA and the metabolite eluted separately, and MCPA residues are esterified using diazomethane. Residues are determined by GC with microcoulometric detection. For both methods, MCPA was determined as the methyl ester and the phenol metabolite was determined as free phenol.

A modified version of Method ACR 70.17, in which an alkaline hydrolysis step was added, has been submitted. However, a study by the registrant indicated that there was no difference in residue levels in milk samples analyzed using the modified method (which used alkaline hydrolysis) versus the original method (which used acid hydrolysis). We also note that an additional study by the registrant indicated that there was no difference in residue levels in tissue samples analyzed using the method ACR 71.10S (which included the alkaline hydrolysis step) versus method ACR 71.10.

Enforcement method: For enforcement of tolerances for residues of MCPA, PAM Vol. II lists PAM Vol. I Sections 221.1, 421, and 422. No limit of quantitation is specified. We note that Section 221.1 has now become Section 402 (GC method for acids and phenols) and Sections 421 and 422 (TLC methods) no longer exist. The Residue Chemistry Chapter of the Registration Standard dated 8/31/81 noted that the PAM Vol. I method is adequate for enforcement of tolerances for residues of MCPA in livestock commodities as-is but recommended that the method be modified with a hydrolysis step for enforcement of MCPA tolerances for plant commodities. We note that the PAM Vol. I method does not determine residues of the metabolite 4-chloro-2-methyl phenol which is currently regulated in livestock commodities. However, on September 3, 2003, the Metabolism Assessment Review Committee (MARC) recommended that for both tolerance and risk assessment purposes, MCPA, *per se* is the residue of concern. MARC expects the toxicity of 2-methyl-4-chlorophenol will be significantly less toxic than the parent; therefore, 2-methyl-4-chlorophenol can be excluded.

Because the HED MARC has determined that MCPA residues of concern in plant commodities are free and conjugated MCPA and its metabolites 2-HMCPA and CCPA, a new enforcement method for plant commodities must be submitted. The registrants have submitted independent laboratory validation data for the GC/MSD methods described above for the determination of MCPA DMAS (as MCPA), MCPA 2-EHE (as MCPA), 2-HMCPA, 2-HMCPA glucose conjugate (as 2-HMCPA), and CCPA. The submitted ILV of these methods using MCPA, MCPA DMAS, MCPA 2-EHE, 2-HMCPA, and CCPA in wheat commodities was successful for all tested analytes in wheat forage and wheat grain, with the exception of MCPA 2-EHE in wheat grain. The ILV was not successful for any analyte in wheat straw at expected residue levels.

The method for wheat straw must be modified and subjected to a second ILV before it can be forwarded to ACL for method validation. This is required before the method may be used for enforcement purposes. Radiovalidation data for the methods for wheat forage, grain, and straw must also be submitted. These data are required before the methods may be forwarded to ACL for method validation.

These methods should be modified to include a calculation step to convert residues of 2-HMCPA and CCPA to MCPA-equivalent residues, as all crop field trial data for these analytes were reported as MCPA equivalents.

The need for additional enforcement methods for livestock commodities will be determined when the required livestock feeding studies have been submitted and evaluated. We note that no radiovalidation data are available for livestock commodities.

#### **860.1360 Multiresidue Methods**

The PESTRAK database dated 11/01 (PAM Volume I, Appendix I) indicates that the recovery of MCPA is variable (60-131%) using Multiresidue Method 402 (method for acids and phenols) but does not contain any information about the recovery of MCPA (or MCPA methyl ester) through Sections 301, 302, and 303 multiresidue methods.

MCPA metabolites 2-HMCPA and CCPA should be tested through FDA Multiresidue Methods.

#### **860.1380 Storage Stability**

The reregistration requirements for storage stability data are not fulfilled. Additional data are required depicting the stability of residues of MCPA, 2-HMCPA, and CCPA in/on wheat grain samples stored under ambient conditions for up to 28 days, to support the processing study reported in MRIDs 45288707 and 45288713.

The available storage stability data indicate that residues of MCPA DMAS, 2-HMCPA, CCPA, and MCPA 2-EHE are stable in/on wheat forage, straw, and grain, and pasture grass hay and forage for up to 369-378 days (12.1-12.4 months) of frozen storage, and in wheat flour for up to 539 days (17.7 months) of frozen storage. These data are adequate to support the storage conditions and intervals of samples from crop field trial studies used for tolerance reassessment. Additional data, as specified above, are required to support the storage intervals and conditions of samples from the wheat processing study. We note that crop field trial and feeding study data are outstanding. Additional storage stability data may be required to support these studies if samples are not analyzed within intervals that residues have been shown to be stable.

#### **860.1400 Water, Fish, and Irrigated Crops**

MCPA is presently not registered for direct use on water and aquatic food and feed crops; therefore, no residue chemistry data are required under these guideline topics.

### 860.1460 Food Handling

MCPA is presently not registered for use in food-handling establishments; therefore, no residue chemistry data are required under this guideline topic.

### 860.1480 Meat, Milk, Poultry, and Eggs

The reregistration requirements for magnitude of the residue in meat, milk, poultry, and eggs are not satisfied. Ruminant feeding studies, required in the 1988 FRSTR, remain outstanding. Poultry feeding studies are no longer required based on the results of the poultry metabolism study. A Category 3 of 40 CFR 180.6(a) situation exists (no expectation of residues ) with respect to poultry.

Currently, there are no registered direct livestock treatments of MCPA to livestock; however, MCPA is registered for use on several livestock feed items. The maximum theoretical dietary burdens of MCPA to livestock are presented in the table below. We note that these calculations are tentative because field trial data remain outstanding for all feed items.

<b>Table 5. Calculation of Maximum Dietary Burdens of MCPA to Livestock.</b>				
Feed Commodity	% Dry Matter <sup>1</sup>	% Diet <sup>1</sup>	Estimated Residue Levels (ppm) <sup>2</sup>	Dietary Contribution (ppm) <sup>3</sup>
<b>Beef Cattle</b>				
Grass forage	25	60	340	816
Wheat grain	89	40	0.1	0.045
<b>TOTAL BURDEN</b>		100		<b>816.0</b>
<b>Dairy Cattle</b>				
Grass forage	25	60	340	816
Wheat grain	89	40	0.1	0.045
<b>TOTAL BURDEN</b>		100		<b>816.0</b>
<b>Poultry</b>				
Alfalfa meal	89	10	1.5	0.15
Wheat grain	89	80	0.1	0.08
<b>TOTAL BURDEN</b>		90		<b>0.23</b>
<b>Swine</b>				
Alfalfa meal	89	10	1.5	0.15
Wheat grain	89	80	0.1	0.08
<b>TOTAL BURDEN</b>		90		<b>0.23</b>

<sup>1</sup> Table 1 (OPPTS Guideline 860.1000).

<sup>2</sup> Estimated residues based on data from field trials.

<sup>3</sup> For dairy and beef cattle, the contribution = [tolerance / % DM] x % diet. For poultry and swine, the contribution = tolerance x % diet.

Feeding study data were discussed in the 1988 FRSTR. The results of these studies are presented in the table below; animals were dosed with MCPA. These data are not adequate to fulfill reregistration requirements because no data for tissues are available reflecting dosing at 1x the

maximum theoretical dietary burden. It should be noted that although no finite residue data are available for poultry commodities, HED has evaluated a poultry metabolism study and determined the applicability of 40 CFR 180.6(a)(3) (no reasonable expectation of residues). Therefore, no finite residue data in poultry are required.

Dosing Level (ppm)	Length of Dosing (days)	Matrix	Residues (ppm)	
			MCPA	2-Methyl-4-chlorophenol
<b>Cattle (MRIDs 00004491, 00004624, and 00004625)</b>				
1,000 <sup>1</sup>	21	Milk	up to 0.08	up to 0.13
		Cream	<0.05	up to 0.09
500	28	Muscle	<0.05	<0.05
		Fat	<0.05	<0.05
		Kidney	1.6-2.1	<0.05
		Liver	0.05-0.09	<0.05
250	28	Muscle	<0.05	<0.05
		Fat	<0.05-0.05	<0.05
		Kidney	0.45-1.92	<0.05
		Liver	<0.05-0.06	<0.05-0.05
<b>Sheep (MRID 00004626)</b>				
500	28	Muscle	<0.05	<0.05
		Fat	<0.05	<0.05
		Kidney	0.25-1.6	<0.05
		Liver	<0.05-0.09	<0.05

<sup>1</sup> In this study, cattle were dosed at increasing levels as follows: at 10 ppm for 14 days, then 30 ppm for 14 days, then 100 ppm for 14 days, then 300 ppm for 14 days, and finally at 1,000 ppm for 21 days.

### 860.1500 Crop Field Trials

The reregistration requirements for magnitude of the residue in plants are not fulfilled for the following crop commodities: peas (succulent and dry), flax seed, alfalfa forage and hay; barley grain, hay, and straw; clover forage and hay; lespedeza forage and hay; oat forage, grain, hay, and straw; pasture and rangeland forage and hay; rye forage, grain, and straw; trefoil forage and hay; vetch forage and hay; and wheat forage, grain, hay, and straw. Reregistration requirements are fulfilled for wheat aspirated grain fractions.

Additional crop field trial data are required for the following crops: peas, alfalfa forage and hay; ; wheat forage, grain, hay, and straw; and pasture and rangeland forage and hay. The required data for wheat forage, grain, hay, and straw will be translated to support use on barley, oats and rye. The required data for alfalfa forage and hay will be translated to support use on clover, lespedeza, trefoil, and vetch. Unless specific geographic representation requirements have been specified, the registrants should consult OPPTS GLN 860.1500 Tables 5 and 6 to determine the appropriate regions for conduct of the required field trials. In addition, the numbers and locations of trials specified in Table 5 of GLN 860.1500 are predicated upon only one formulation type being requested for use on each crop. The registrants should consult OPPTS GLN 860.1500 (e)(2)(x) to determine the number of field trials to be conducted to support more than one formulation type for use on each crop.

MCPA Task Force Three has indicated that the only uses they intend to support are use of the 2-EHE EC formulation and the DMAS SC formulation on the following crops: small grains including barley, oats, rye, and wheat; small grains underseeded with legumes; rangeland grasses; and pasture grasses. The Interegional Research Project No. 4 (IR-4) has stated that they plan to support the uses on peas in the Pacific Northwest, flax, and clover grown for seed. The 1988 FRSTR required additional crop field trial data for the following crops which are not being supported by the Task Force: dried beans, dried bean vines and hay, rice grain and straw, and sorghum grain dust. No data have been submitted by any registrant in response to these data requirements. Unless a registrant indicates an intention to support use of MCPA on these crops, the uses will be cancelled, and the established tolerances will be revoked.

A discussion of the available residue data, by crop group, is presented below. Only crops which the MCPA Task Force Three is supporting are discussed.

### Cereal Grain Group

Barley, grain: The 1988 FRSTR did not require any additional data for oat, barley or rye grain; it was concluded that the required data for wheat grain could be translated to oat, barley, and rye grain. It was noted that the available data for oat and barley grain were meager and reflected application rates #0.5x and 0.25x the maximum allowable rates in oat and barley, respectively.

Data from the required wheat trials will be translated to oat, barley and rye.

Wheat grain and aspirated grain fractions: The number and location of available wheat grain crop field trials are inadequate to satisfy data requirements. As stated above, a total of 15 wheat field trials are required to support use on small grains. These trials should be conducted in Regions 2 (1 trial), 4 (1 trial), 5 (3 trials), 6 (1 trial), 7 (4 trials), 8 (4 trials), and 11 (1 trial) [GLN 860.1500, Table 5]. A total of eight field trials, reflecting determination of MCPA residues of concern in/on wheat grain, have been conducted in Regions 5 (3 trials), 7 (1 trial), 8 (2 trials), and 14 (2 trials) for each of the formulations that the registrants wish to support; we note that totals include relevant field trials conducted in Canada. Eleven additional field trials must be conducted for wheat in Regions 2 (1 trial), 4 (1 trial), 5 (1 trial), 6 (1 trial), 7 (4 trials), 8 (2 trials), and 11 (1 trial); field trials must be conducted for both formulation types of MCPA to be supported.

The 1988 FRSTR required additional data for aspirated grain fractions. Although the requirement for data for aspirated grain fractions was subsequently waived (based on the early growth stage of wheat at which MCPA is applied, and the nonquantifiable residues that had been observed in/on wheat grain at harvest), data for wheat aspirated grain fractions have been submitted which indicate that residues of MCPA *per se* concentrate in aspirated grain fractions (average processing factor of 455x). In two additional studies, residues of MCPA, 2-HMCPA and CCPA were found to concentrate (average processing factors of 38x, 38x, and 13x, respectively) in wheat aspirated grain fractions. Total residues of MCPA, 2-HMCPA, and CCPA also concentrated in aspirated grain fractions (32x average processing factor). Based on an average processing factor of 32x and the current HAFT value of 0.08 ppm, a tolerance must be proposed for aspirated grain fractions; the appropriate value for the tolerance will be determined when all required wheat grain field trial data have been submitted. Alternatively, the Task Force may wish to conduct an additional aspirated grain fractions study in which samples are collected using procedures which more closely simulate collection of grain dust in commercial grain elevators.

The 1988 FRSTR also required additional crop field trial data for wheat grain. Two types of crop field trial data have been submitted in response: one reflecting determination of residues of MCPA *per se* and one reflecting determination of residues of MCPA, 2-HMCPA, and CCPA.

*Studies reflecting determination of MCPA per se:* Residues of MCPA *per se* in/on wheat grain harvested 30-45 days (immature stage) and 44-74 days (at maturity) following application of the 4 lb ae/gal 2-EHE EC formulation or the 4 lb ae/gal DMAS SC formulation as a single preboot foliar broadcast application at 1.5 lb ae/A (1x) were <0.01-0.02 ppm in/on three samples each of immature and mature grain for each treatment. Six tests were conducted in KS(2), ND(2), and OK(2) on spring and winter wheat.

*Studies reflecting determination of MCPA, 2-HMCPA, and CCPA:* In the second set of studies, wheat plants were treated with a single application of the 4 lb ae/gal DMAS SC formulation or 4 lb ae/gal 2-EHE EC formulation at the pre-boot growth stage at - 1.5 lb ae/A (1x). Wheat grain was harvested at an immature stage (30 days after treatment) and at maturity (54-59 days after treatment). A total of six wheat field trials (2 spring wheat and 4 winter wheat) were conducted in Regions 5 (ND; 2 trials) and 8 (KS and OK; 4 trials) during the 1997 and 1998 growing seasons. Three trials were conducted with the DMAS SC formulation, and three trials were conducted with the 2-EHE EC formulation. The results of these field trials are presented in the table below.

<b>Summary of Residue Data from Wheat Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Wheat, grain	1.49-1.60	30	6	0.06	0.72	0.44
		maturity (54-59)	6	<0.03	<0.08	<0.08
<b>MCPA 2-EHE Trials</b>						
Wheat, grain	1.56-1.63	30	6	<0.03	0.31	0.27
		maturity (54-59)	6	<0.04	0.05	0.05

In a third set of studies, wheat plants were treated with a single application of the DMAS SC, 2-EHE EC, or sodium salt SC formulation at - 1.5 lb ae/A (1x) prior to booting. Wheat grain was harvested at an immature stage (30-35 days after treatment) and at maturity (63-93 days after treatment). A total of five spring wheat field trials were conducted in Canada in Regions 5 (MB; 2 trials), 7 (AL; 1 trial), and 14 (AL and SK; 2 trials) during the 2001 growing season. At each test location, separate trials were conducted with MCPA DMAS, MCPA 2-EHE, and MCPA sodium salt formulations. The results of these field trials are presented in the table below.

<b>Summary of Residue Data from Wheat Field Trials Conducted in Canada with MCPA DMAS SC, 2-EHE EC, and Na SC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Wheat, grain	1.443-1.605	30-31	10	<0.030	<0.120	0.119
		maturity (63-93)	10	<0.030	<0.031	0.031
<b>MCPA 2-EHE Trials</b>						
Wheat, grain	1.474-1.565	30-31	10	<0.030	0.279	0.279
		maturity (63-93)	10	<0.030	<0.034	<0.033
<b>MCPA Na Trials</b>						
Wheat, grain	1.466-1.572	30-31	10	<0.030	<0.122	0.110
		maturity (63-93)	10	<0.030	<0.032	0.031

### Forage, Fodder, and Straw of Cereal Grain Group

Wheat forage, hay, and straw: The number and location of the available wheat forage, hay, and straw crop field trials are inadequate to satisfy data requirements. As stated above, a total of 15 wheat field trials are required to support use on small grains. These trials should be conducted in Regions 2 (1 trial), 4 (1 trial), 5 (3 trials), 6 (1 trial), 7 (4 trials), 8 (4 trials), and 11 (1 trial) [GLN 860.1500, Table 5]. A total of eight field trials, reflecting determination of MCPA residues of concern in/on wheat forage, hay, and straw, have been conducted in Regions 5 (3 trials), 7 (1 trial), 8 (2 trials), and 14 (2 trials) for each of the formulations that the registrants wish to support; we note that totals include relevant field trials conducted in Canada. Nine additional field trials must be conducted for wheat in Regions 2 (1 trial), 4 (1 trial), 6 (1 trial), 7 (3 trials), 8 (2 trials), and 11 (1 trial); field trials must be conducted for both formulation types of MCPA to be supported.

The 1988 FRSTR required additional crop field trial data for wheat forage, hay, and straw. Two types of crop field trial data have been submitted in response: one reflecting determination of residues of MCPA *per se* and one reflecting determination of residues of MCPA, 2-HMCPA, and CCPA.

*Studies reflecting determination of MCPA per se:* Residues of MCPA in/on three samples each of wheat forage harvested 14 and 21 days following application of the 4 lb ae/gal 2-EHE EC formulation or the 4 lb ae/gal DMAS SC formulation as a single preboot foliar broadcast application at 1.5 lb ae/A (1x) were 1.21-6.21 ppm and 1.23-6.27 ppm following application of the 2-EHE EC formulation, and 1.23-8.29 ppm and 0.64-9.14 ppm following application of the DMAS SC formulation. Residues of MCPA in/on three samples each of wheat straw harvested 30-45 days and 44-74 days after treatment were 0.56-6.75 ppm and <0.01-4.12 ppm following application of the 2-EHE EC formulation and 0.42-11.2 ppm and <0.01-6.13 ppm following application of the DMAS SC formulation. Six tests were conducted in KS(2), ND(2), and OK(2) on spring and winter wheat.

*Studies reflecting determination of MCPA, 2-HMCPA, and CCPA:* In a second set of studies, wheat plants were treated with a single application of the 4 lb ae/gal DMAS SC formulation or

4 lb ae/gal 2-EHE EC formulation at the pre-boot growth stage at - 1.5 lb ae/A (1x). Wheat forage was harvested 0, 7, 14, and 21 days following treatment, wheat hay was harvested 7, 14, and 21 days after treatment, and wheat straw was harvested at an immature stage (30 days after treatment) and at maturity (54-59 days after treatment). A total of six wheat field trials (2 spring wheat and 4 winter wheat) were conducted in Regions 5 (ND; 2 trials) and 8 (KS and OK; 4 trials) during the 1997 and 1998 growing seasons. Three trials were conducted with the DMAS SC formulation and three trials were conducted with the 2-EHE EC formulation. The results of these field trials are presented in the table below.

<b>Summary of Residue Data from Wheat Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Wheat, forage	1.49-1.60	0	6	<48.2	76.0	74.2
		7	6	3.75	19.40	18.90
		14	6	2.52	18.40	16.7
		21	6	2.16	15.90	14.85
Wheat, hay	1.49-1.60	7	6	8.06	47.20	46.4
		14	6	8.71	39.50	37.45
		21	6	9.88	30.10	28.9
Wheat, straw	1.49-1.60	30	6	8.13	24.0	23.00
		maturity (54-59)	6	4.08	21.5	21.15
<b>MCPA 2-EHE Trials</b>						
Wheat, forage	1.56-1.63	0	6	50.00	69.60	66.10
		7	6	11.30	17.90	15.75
		14	6	8.63	18.40	17.50
		21	6	3.77	16.90	16.40
Wheat, hay	1.56-1.63	7	6	19.50	58.90	54.60
		14	6	14.00	30.80	29.90
		21	6	13.50	26.90	22.45
Wheat, straw	1.56-1.63	30	6	10.70	28.00	25.00
		maturity (54-59)	6	4.55	19.40	17.35

In a third set of studies conducted in Canada, wheat plants were treated with a single application of the DMAS SC, 2-EHE EC, or sodium salt SC formulation at - 1.5 lb ae/A (1x) prior to booting. Wheat forage was harvested 0, 7, 14, and 21 days following treatment; wheat hay was harvested 7, 14, and 21 days after treatment; and wheat straw and grain were harvested at an immature stage (30-35 days after treatment) and at maturity (63-93 days after treatment). A total of five spring wheat field trials were conducted in Canada in Regions 5 (MB; 2 trials), 7 (AL; 1 trial), and 14 (AL and SK; 2 trials) during the 2001 growing season. At each test location, separate trials were conducted with MCPA DMAS, MCPA 2-EHE, and MCPA sodium salt. The results of the field trials are presented in the table below.



<b>Summary of Residue Data from Wheat Field Trials Conducted in Canada with MCPA DMAS SC, 2-EHE EC, and Na SC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Forage	1.443-1.605	0	10	<68.24	138	114
		7	10	<5.82	11.20	9.25
		14	10	1.51	<6.55	4.94
		21	10	<0.71	3.89	3.49
Hay	1.443-1.605	7	10	12.60	75.90	71.75
		14	10	<1.96	34.50	28.30
		21	10	2.50	12.30	10.09
Straw	1.443-1.605	30-35	10	<0.69	9.60	9.19
		maturity (63-93)	10	<0.69	3.28	3.19
<b>MCPA 2-EHE Trials</b>						
Forage	1.474-1.565	0	10	<56.41	<127	112
		7	10	6.68	11.90	10.95
		14	10	5.47	8.81	7.68
		21	10	<1.54	5.62	5.19
Hay	1.474-1.565	7	10	13.10	111	101
		14	10	5.11	37.60	34.10
		21	10	2.61	10.60	10.45
Straw	1.474-1.565	30-35	10	<0.69	14.00	13.20
		maturity (63-93)	10	<0.69	6.48	6.19
<b>MCPA Na Trials</b>						
Forage	1.466-1.572	0	10	69.20	131	119
		7	10	4.95	11.30	8.14
		14	10	1.79	4.80	4.30
		21	10	<0.47	3.53	3.35
Hay	1.466-1.572	7	10	11.7	50.50	46.75
		14	10	2.75	18.60	17.10
		21	10	<1.08	5.56	4.23
Straw	1.466-1.572	30-35	10	<0.69	6.10	6.09
		maturity (63-93)	10	<0.69	2.49	2.36

Crop field trials were also conducted on wheat underseeded with alfalfa to support use of MCPA on small grains underseeded with legumes. Two types of crop field trial data have been submitted: one reflecting determination of residues of MCPA *per se* and one reflecting determination of residues of MCPA, 2-HMCPA, and CCPA.

*Studies reflecting determination of MCPA per se:* In the first set of studies, residues of MCPA *per se* in/on 10 samples each of wheat forage harvested 7 and 14 days following application of the 4 lb ae/gal 2-EHE EC formulation or the 4 lb ae/gal DMAS SC formulation as a single preboot

foliar broadcast application at 0.5 lb ae/A (1x the maximum rate for this type of application; 0.3x the maximum rate for small grains) were 1.02-2.20 ppm and 0.71-1.78 ppm following application of the 2-EHE EC formulation and 0.64-3.30 ppm and 0.35-1.99 ppm following application of the DMAS SC formulation. Residues of MCPA in/on ten samples each of wheat hay harvested 7 and 14 days after treatment were 1.85-6.08 ppm and 2.13-4.55 ppm following application of the 2-EHE EC formulation and 0.91-11.6 ppm and 0.77-5.02 ppm following application of the DMAS SC formulation. Ten tests were conducted in CA(2), IA(2), ID(2), MI(2), and MN(2).

*Studies reflecting determination of MCPA, 2-HMCPA, and CCPA:* In a second set of studies, wheat forage and hay were harvested 7 and 14 days following a single application of the 4 lb ae/gal DMAS SC formulation or 4 lb ae/gal 2-EHE EC formulation at - 0.5 lb ae/A (1x the maximum rate for this type of application). A total of six field trials on wheat underseeded with alfalfa were conducted in Region 5 (IA, MI, and MN) during the 1997 growing season. Three trials were conducted with the 4 lb ae/gal DMAS SC formulation and three trials were conducted with the 4 lb ae/gal 2-EHE EC formulation. The results of the field trials are presented in the table below.

<b>Summary of Residue Data from Wheat Underseeded with Alfalfa Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Wheat forage	0.536-0.591	7	6	3.59	6.94	6.31
		14	6	2.16	4.31	3.91
Wheat hay	0.536-0.591	7	6	5.96	14.5	14.4
		14	6	3.29	9.71	8.94
<b>MCPA 2-EHE Trials</b>						
Wheat forage	0.544-0.584	7	6	2.36	6.03	6.03
		14	6	1.80	3.85	3.77
Wheat hay	0.544-0.584	7	6	6.85	11.7	11.35
		14	6	3.28	7.35	6.70

Barley hay and straw: The 1988 FRSTR did not require any additional data for barley hay and straw; it was concluded that the required data for wheat commodities could be translated to barley hay and straw. It was noted that the available data for barley commodities were meager and reflected application rates #0.5x the maximum allowable rates.

Oat forage, hay, and straw: The 1988 FRSTR did not require any additional data for oat commodities; it was concluded that the required data for wheat commodities could be translated to oat commodities. It was noted that the available data for oat commodities were meager and reflected application rates 0.25x the maximum allowable rates.

Rye forage and straw: The 1988 FRSTR did not require any additional data for rye commodities; it was concluded that the required data for wheat commodities could be translated to rye.

Crop field trial data for wheat commodities have been submitted and reviewed. It has been determined that these data are not adequate to satisfy data requirements. Data from the required wheat studies will be translated to barley, oats and rye.

### Peas

No data are available reflecting determination of the metabolites 2-HMCPA, and CCPA. The available data indicate that residues of MCPA were <0.05 ppm in or on peas (succulent and dry) harvested 38 days after application (using ground equipment) of the sodium salt at 0.37 - 0.75 lb ae/A)(1-2x the maximum rate). Data depicting residues of MCPA, 2-HMCPA and CCPA in or on peas (succulent and dry) harvested after application of representative EC and SC/L formulations of the dimethylamine salt and the ester are required. Additionally data on MCPA, 2-HMCPA and CCPA residues in peas resulting from aerial application are also required.

### Grass Forage, Fodder, and Hay Group

Grass (pasture and rangeland) forage and hay: The number of available field trials for pasture and rangeland grass forage and hay is inadequate to fulfill data requirements. In addition, data reflecting a 0-day PHI for pasture grass forage have not been not submitted. Zero-day residue data for grasses cut for forage are required as specified in OPPTS 860.1000 Table 1. To support use on pasture and rangeland grass, a total of 12 field trials must be conducted; currently, only four field trials with pasture and rangeland grass are available for each formulation type reflecting determination of MCPA residues of concern. To fulfill data requirements for grass, additional data must be submitted reflecting MCPA residues of concern in/on pasture grass forage harvested on the day of the last application of the 2-EHE EC and the DMAS SC formulations according to the maximum use pattern; a total of 12 field trials must be conducted. In addition, eight field trials must be conducted reflecting MCPA residues of concern in/on pasture and rangeland grass hay harvested following application of the 2-EHE EC and DMAS SC formulations according to the maximum use pattern. We note that the grass hay trials may be conducted in combination with the grass forage trials.

The 1988 FRSTR required additional data for pasture grass forage and hay. Two types of crop field trial data have been submitted in response: one reflecting determination of residues of MCPA *per se* and one reflecting determination of residues of MCPA, 2-HMCPA, and CCPA.

*Studies reflecting determination of MCPA per se:* In the first set of studies, residues of MCPA *per se* in/on four samples each of rangeland grass forage harvested 0 and 7-8 days following two postemergence applications of the 4 lb ae/gal 2-EHE EC formulation or 4 lb ae/gal DMAS SC formulation at 2 lb ae/A/application with a 90-day retreatment interval were 101-227 ppm and 262.2-98.7 ppm, respectively, following treatment with the 2-EHE EC formulation, and 93.6-219 ppm and 30.0-47.9 ppm, respectively, following treatment with the DMAS SC formulation. Residues in/on four samples each of pasture grass forage harvested 7, 14, and 21 days following the same treatment were 48.5-62.8 ppm, 30.7-50.3 ppm, and 18.8-46.8 ppm, respectively, following treatment with the 2-EHE EC formulation, and 31.8-83.3 ppm, 20.9-72.0 ppm, and 16.1-59.6 ppm, respectively, following treatment with the DMAS SC formulation.

Residues of MCPA in/on four samples each of pasture grass hay harvested 7, 14, and 21 days following treatment with the 2-EHE EC formulation or DMAS SC formulation were 65.5-126 ppm, 49.1-131 ppm, and 30.3-72.6 ppm following treatment with the 2-EHE EC formulation, and 73.3-190 ppm, 46.1-129 ppm, and 38.8-87.4 ppm following treatment with the DMAS SC formulation. Residues of MCPA in/on four samples each of rangeland grass hay harvested 0 and

7-8 days following treatment with the 2-EHE EC formulation or DMAS SC formulation were 44.2-233 ppm and 25.6-79.7 ppm following treatment with the 2-EHE EC formulation, and 64.3-292 ppm and 36.9-58.3 ppm following treatment with the DMAS SC formulation. Sixteen pasture grass field trials were conducted in KY(4), MO(4), NY(4), and TX(4), and twelve rangeland grass field trials were conducted in NE(3), ND(3), OK(3), and OR(3).

The registrant conducted one study in NE in which rangeland grass was treated with two applications, at a 90-day retreatment interval, of the 4 lb ae/gal 2-EHE EC formulation at 2 lb ae/A/application, as aerial applications using diesel oil as the diluent. One sample each of forage and hay were collected 0 and 7 days following final application. Residues of MCPA *per se* were 66.1 ppm and 24.8 ppm in/on forage collected 0 and 7 days posttreatment, respectively, and were 83.7 ppm and 39.6 ppm in/on hay collected 0 and 7 days posttreatment.

*Studies reflecting determination of MCPA, 2-HMCPA, and CCPA:* In a second set of studies, pasture and rangeland grass were treated with two applications of the 4 lb ae/gal DMAS SC formulation or 4 lb ae/gal 2-EHE EC formulation at - 2.0 lb ae/A/application. Pasture grass forage and hay were harvested 7, 14, and 21 days following the first application and 7, 14, 21, and 30 days following the second application. Rangeland grass forage and hay were harvested 0, 7, and 21 days following the first application, and 0, 7, 21, and 30 days following the second application. A total of eight grass field trials (4 pasture grass and 4 rangeland grass) were conducted during the 1997 growing season. The pasture grass field trials were conducted in Regions 5 (MO; 2 trials) and 6 (TX; 2 trials). The rangeland grass field trials were conducted in Regions 5 (SD; 2 trials) and 6 (OK; 2 trials). Four trials (2 pasture grass and 2 rangeland grass) were conducted with the DMAS SC formulation, and four trials (2 pasture grass and 2 rangeland grass) were conducted with the 2-EHE EC formulation. The results of these field trial studies are presented in the table below.

<b>Summary of Residue Data from Grass Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.</b>						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
<b>MCPA DMAS Trials</b>						
Pasture grass, forage	2.17-2.25	7	4	30.70	37.60	34.15
		14	4	8.10	48.10	46.20
		21	4	8.85	44.50	43.55
	4.29-4.51	7	4	25.40	51.70	43.90
		14	4	14.10	27.10	22.00
		21	4	5.90	<14.70	14.40
		30	4	4.55	19.90	18.70
Pasture grass, hay	2.17-2.25	7	4	95.20	218	213
		14	4	36.40	108	94.50
		21	4	18.90	107	101
	4.29-4.51	7	4	30.70	64.30	61.45
		14	4	26.40	41.40	39.05
		21	4	20.60	49.40	47.10
		30	4	7.23	32.40	29.95

**Summary of Residue Data from Grass Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.**

Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
Rangeland grass, forage	2.10-2.16	0	4	186	301	272
		7	4	31.60	120	117
		21	4	16.30	<37.20	36.90
	4.25-4.33	0	4	237	<334	330
		7	4	<55.70	69.70	63.95
		21	4	<23.80	64.40	62.35
	30	4	<21.90	40.80	35.45	
Rangeland grass, hay	2.10-2.16	0	4	275	379	335
		7	4	47.00	249	234
		21	4	30.10	<88.60	85.90
	4.25-4.33	0	4	<138	<564	527
		7	4	64.40	<94.50	90.00
		21	4	<35.40	48.70	45.20
	30	4	27.50	37.70	32.60	
<b>MCPA 2-EHE Trials</b>						
Pasture grass, forage	2.15-2.25	7	4	35.60	57.30	56.65
		14	4	34.50	44.80	44.15
		21	4	18.70	26.70	25.15
	4.33-4.52	7	4	29.10	108	107
		14	4	18.70	45.70	42.95
		21	4	7.56	32.10	27.35
	30	4	4.06	33.00	30.90	
Pasture grass, hay	2.15-2.25	7	4	109	175	158
		14	4	53.30	66.90	65.45
		21	4	34.70	58.70	57.25
	4.33-4.52	7	4	64.90	81.30	76.80
		14	4	36.10	60.30	51.80
		21	4	22.70	70.40	69.35
	30	4	7.27	64.20	59.85	
Rangeland grass, forage	2.16-2.18	0	4	<143	220	219
		7	4	35.00	<81.10	78.50
		21	4	<16.30	26.40	25.10
	4.31-4.37	0	4	179	244	211.5
		7	4	45.80	67.50	62.60
		21	4	<21.70	<34.60	28.15
	30	4	<11.60	15.40	15.20	

Summary of Residue Data from Grass Field Trials with MCPA DMAS SC and 2-EHE EC Formulations.						
Commodity	Total Applic. Rate (lb ae/A)	PHI (days)	Combined Residues of MCPA, 2-HMCPA, and CCPA (ppm MCPA equivalents)			
			n	Min.	Max.	HAFT
Rangeland grass, hay	2.16-2.18	0	4	153	<222	206
		7	4	69.90	118	113
		21	4	<41.00	53.00	47.10
	4.31-4.37	0	4	<154	262	254
		7	4	51.90	<113	109
		21	4	34.20	<42.70	42.15
		30	4	20.60	23.80	22.35

### Nongrass Animal Feed Group

Alfalfa forage and hay: Currently, the use of MCPA on alfalfa is restricted to small grains underseeded with alfalfa. The number and location of the available alfalfa crop field trial data are inadequate to satisfy data requirements. To support use of MCPA on wheat underseeded with alfalfa, a total of four field trials would be required: three trials in Region 5 and one trial in Region 7 (the only regions in common for alfalfa and wheat). One field trial reflecting determination of MCPA residues of concern in/on alfalfa forage and hay has been conducted in Region 5 for the DMAS SC formulation; therefore, an additional three trials (two in Region 5 and one in Region 7) must be conducted with the DMAS SC formulation. Four field trials (three in Region 5 and one in Region 7) must be conducted with the 2-EHE EC formulation.

The 1988 FRSTR required additional data for alfalfa forage and hay. Two types of crop field trial data were submitted: one reflecting determination of residues of MCPA *per se* and one reflecting determination of MCPA, 2-HMCPA, and CCPA.

*Studies reflecting determination of MCPA per se:* In the first set of studies, residues of MCPA *per se* in/on five samples each of alfalfa forage harvested 87-98 days following application of the 4 lb ae/gal 2-EHE EC formulation or the 4 lb ae/gal DMAS SC formulation to wheat underseeded with alfalfa as a single foliar broadcast application at 0.5 lb ae/A were <0.01-0.07 ppm following application of the 2-EHE EC formulation and <0.01-0.15 ppm following application of the DMAS SC formulation. Residues of MCPA in/on five samples of alfalfa hay harvested 87-98 days after treatment were <0.01-0.30 ppm following application of the 2-EHE EC formulation and <0.01-0.20 ppm following application of the DMAS SC formulation. Ten tests were conducted in CA(2), IA(2), ID(2), MI(2), and MN(2).

*Studies reflecting determination of MCPA, 2-HMCPA, and CCPA:* In a second study conducted in Region 5 (MI), total MCPA equivalent residues of MCPA and its metabolites 2-HMCPA and CCPA in/on two samples each of alfalfa forage and hay harvested 137 days after treatment were <0.29 and <1.07 ppm, respectively, following application of the DMAS SC formulation at 0.54 lb ae/A to wheat underseeded with alfalfa.

Clover, lespedeza, trefoil, and vetch forage and hay: The 1988 FRSTR concluded that the required data for alfalfa forage and hay could be translated to the forage and hay of clover, lespedeza, trefoil, and vetch. The MCPA Task Force Three has stated that use of MCPA on nongrass animal feeds is to be restricted to small grains underseeded with alfalfa, clover, lespedeza, trefoil, and vetch. Although HED would not normally allow translation of data from

alfalfa to support uses on clover, lespedeza, trefoil, and vetch, HED will allow it in this case because the only supported use of MCPA on these crops is to the crops underseeded to small grains. The required data for alfalfa forage and hay will satisfy crop field trial data requirements for the forage and hay of clover, lespedeza, trefoil, and vetch.

### **860.1520 Processed Food and Feed**

The reregistration requirements for magnitude of the residue in processed food/feed are satisfied for wheat. The wheat processing data may be translated to barley, oats, and rye.

The 1988 FRSTR required processing studies for flax, rice, and sorghum; no data have been submitted by any registrant in response to these data requirements. The MCPA Task Force Three has indicated that they will not be supporting uses on flax, rice, and sorghum. IR-4 has stated that it plans to support the use on flax; however, no data have been submitted.

*Study reflecting determination of MCPA per se:* The submitted wheat processing data are adequate and indicate that residues of MCPA do not concentrate in flour, middlings, shorts, and germ processed from wheat grain bearing detectable residues. The submitted data indicate that residues of MCPA may concentrate in wheat bran (average of 2.6x).

*Study reflecting determination of MCPA, 2-HMCPA, and CCPA:* A second set of wheat processing data indicate that total MCPA equivalent residues (MCPA, 2-HMCPA, and CCPA) concentrate slightly in wheat bran and germ (1.2x average processing factors) but do not concentrate in flour, middlings, or shorts (average processing factors of 0.7x, 1x, and 1x, respectively). Residues of MCPA *per se* did not concentrate in any wheat processed commodity (average processing factor of <0.4x for each commodity). Residues of 2-HMCPA concentrated slightly in wheat bran (>1.8x), middlings (>1x), and shorts (>1x), but did not concentrate in wheat flour (0.5x) or germ (0.5x). Residues of CCPA concentrated in wheat bran (>2.3x), germ (>1.8x), middlings (>1.3x), and shorts (>1.3x), but did not concentrate in flour (<1x). Based on a highest average field trial (HAFT) residue of 0.08 ppm for wheat grain, expected MCPA residues of concern in wheat bran and germ will not exceed the established tolerance of 0.1 ppm for wheat grain. No tolerances for wheat processed commodities are required.

### **860.1850 and 860.1900 Confined and Field Accumulation in Rotational Crops**

The reregistration requirements for confined accumulation in rotational crops are not satisfied. A study detailing confined accumulation in rotational crops planted following treatment at 1.5 lb ae/A (1x the maximum seasonal rate for annual crops) must be submitted. The need for field rotational crop studies and/or rotational crop tolerances, and the adequacy of existing rotational crop restrictions will be determined following review of the required confined rotational crop study.

The available rotational crop study is not adequate because it was conducted at 0.5x the maximum seasonal application rate to annual crops. In addition, radioactive residues were not characterized in any rotational crop.

### **860.1650 Submittal of Analytical Reference Standards**

Analytical reference standards for MCPA and MCPA 2-EHE are available at the EPA National Pesticide Standards Repository.

<b>Table 6. Residue Chemistry Science Assessment for Reregistration of MCPA (PC Codes 030501, 030502, 030516, 030564).</b>			
GLN Data Requirements	Current Tolerances (ppm) [§180.339] <sup>1</sup>	Additional Data Needed?	MRID Nos. <sup>2</sup>
860.1200: Directions for Use	N/A = Not Applicable	Yes <sup>3</sup>	See Table 4 and Appendix 1
860.1300: Nature of the Residue - Plants	N/A	No	00005575 <b>00041633</b> 00053734 00053755 05004272 43580301 <sup>4</sup> 44027301 <sup>5</sup> 44337201 <sup>6</sup> 44337202 <sup>7</sup> 44337203 <sup>8</sup> 44337204 <sup>9</sup> 45001901- 45001904 <sup>10</sup>
860.1300: Nature of the Residue - Livestock	N/A	Yes <sup>11</sup>	43575501 <sup>4</sup> 43575901 <sup>4</sup> 43915401 <sup>4</sup> 44027301 <sup>5</sup> 44337201 <sup>6</sup> 44337202 <sup>7</sup> 44337203 <sup>8</sup> 44337204 <sup>9</sup> 45001901-45001904 <sup>10</sup>
860.1340: Residue Analytical Method			
- Plant Commodities	N/A	Yes <sup>12</sup>	00004449 00004453 00004632 00004724 00004766 00004787 00004822 00004993 00005575 00102704 00110363 45288701 <sup>13</sup>
- Animal Commodities	N/A	Reserved <sup>14</sup>	00004438 00004439 00004491 00004492 00004627 05003259
860.1360: Multi-Residue Method	NA	Yes <sup>15</sup>	
860.1380: Storage Stability Data			
- Plant Commodities	N/A	Yes <sup>16</sup>	45549601 <sup>17</sup>
- Animal Commodities	N/A	Reserved <sup>18</sup>	
860.1400: Magnitude of the Residue - Water, Fish, and Irrigated Crops	NA	NA	
860.1460: Magnitude of the Residue - Food Handling	NA	NA	
860.1480: Magnitude of the Residue - Meat, Milk, Poultry, Eggs			
- Milk and the Fat, Meat, and Meat Byproducts of Cattle, Goats, Hogs, Horses, and Sheep	0.1 [180.339(b)]	Yes <sup>19</sup>	00004491 00004624 00004625 00004626
- Eggs and the Fat, Meat, and Meat Byproducts of Poultry	None established	No <sup>20</sup>	



<b>Table 6. Residue Chemistry Science Assessment for Reregistration of MCPA (PC Codes 030501, 030502, 030516, 030564).</b>			
GLN Data Requirements	Current Tolerances (ppm) [§180.339] <sup>1</sup>	Additional Data Needed?	MRID Nos. <sup>2</sup>
860.1500: Crop Field Trials			
<u>Legume Vegetable Group</u> - Seed and pod vegetables	0.1	Yes <sup>21</sup>	00004443 00004453 00004773
<u>Cereal Grain Group</u> - Barley, grain	0.1	Yes <sup>22,23</sup>	00004613 00005567 00078931
- Oat, grain	0.1	Yes <sup>22,24</sup>	00023687
- Rice, grain	0.1	Reserved <sup>25</sup>	00004764 00102704
- Rye, grain	0.1	Yes <sup>22,26</sup>	
- Sorghum, grain and aspirated grain fractions	0.1, grain	Reserved <sup>25</sup>	00004993
- Wheat, grain and aspirated grain fractions	0.1, grain	Yes <sup>22,27</sup>	00004651 00004655 00004659 00005575 00025394 43718401 <sup>28</sup> 43724301 <sup>27</sup> 43724401 <sup>27</sup> 43756401 <sup>27</sup> 43793901 <sup>27</sup> 43804601 <sup>27</sup> 45288702- 45288703 <sup>29</sup> 45288705 <sup>30</sup> 45288708-45288709 <sup>28</sup> 45288712 <sup>29</sup> 45763101- 46733105 <sup>31</sup>
<u>Forage, Fodder, and Straw of Cereal Grain Group</u> - Barley, hay and straw	2, straw	No <sup>22,23</sup>	00004613 00005567
- Oat, forage, hay, and straw	20, forage 2, straw	No <sup>22,24</sup>	00023687
- Rice, straw	2	Reserved <sup>25</sup>	00004764 00102704
- Rye, forage and straw	20, forage 2, straw	No <sup>22,26</sup>	
- Sorghum, forage and stover	20, forage and fodder	Reserved <sup>25</sup>	00004993
- Wheat, forage, hay, and straw	0.1, hay 2, straw	Yes <sup>22,27</sup>	00004651 00004659 00005575 00025394 43718401 <sup>27</sup> 43724301 <sup>27</sup> 43724401 <sup>27</sup> 43756401 <sup>27</sup> 43793901 <sup>27</sup> 43804601 <sup>27</sup> 45288702-45288703 <sup>28</sup> 45288705 <sup>29</sup> 45288708- 45288709 <sup>28</sup> 45288712 <sup>29</sup> 45763101-46763105 <sup>30</sup>
<u>Grass Forage, Fodder, and Hay Group</u> - Grass, forage and hay	300, pasture and rangeland 20, hay 0.1, annual canarygrass seed and straw	Yes <sup>22,32</sup>	00004449 00084292 <sup>33</sup> 43782401 <sup>27</sup> 43791901 <sup>27</sup> 43801301 <sup>27</sup> 43826401 <sup>34</sup> 43826402 <sup>33</sup> 45288704 <sup>35</sup> 45288706 <sup>34</sup> 45288710- 45288711 <sup>34</sup>

<b>Table 6. Residue Chemistry Science Assessment for Reregistration of MCPA (PC Codes 030501, 030502, 030516, 030564).</b>			
GLN Data Requirements	Current Tolerances (ppm) [§180.339] <sup>1</sup>	Additional Data Needed?	MRID Nos. <sup>2</sup>
<u>Nongrass Animal Feed Group</u> - Alfalfa, forage and hay	0.1	Yes <sup>22,36</sup>	00046148 <sup>37</sup> 43793901 <sup>27</sup> 43804601 <sup>27</sup> 45288705 <sup>29</sup> 45288712 <sup>29</sup>
- Clover, forage and hay	0.1	No <sup>38</sup>	
- Lespedeza, forage and hay	0.1	No <sup>37</sup>	
- Trefoil, forage and hay	0.1	No <sup>37</sup>	
- Vetch, forage and hay	0.1	No <sup>37</sup>	
<u>Miscellaneous Commodities</u> - Flax, seed	0.1, seed 2, straw	No <sup>21</sup>	
860.1520 Processed Food/Feed			
- Barley	None established	No <sup>39</sup>	
- Flax	None established	Reserved <sup>21</sup>	
- Oat	None established	No <sup>38</sup>	
- Rice	None established	Reserved <sup>25</sup>	
- Rye	None established	No <sup>38</sup>	
- Wheat	None established	No	43764101 <sup>27</sup> 43841501 <sup>27</sup> 45288707 <sup>40</sup> 45288713 <sup>39</sup>

<b>Table 6. Residue Chemistry Science Assessment for Reregistration of MCPA (PC Codes 030501, 030502, 030516, 030564).</b>			
GLN Data Requirements	Current Tolerances (ppm) [§180.339] <sup>1</sup>	Additional Data Needed?	MRID Nos. <sup>2</sup>
860.1850 Confined Accumulation in Rotational Crops	N/A	Yes <sup>41</sup>	40961301 <sup>42</sup>
860.1900 Field Accumulation in Rotational Crops	N/A	Reserved <sup>43</sup>	

1. All tolerances are established under 40 CFR §180.339(a) unless otherwise indicated.
2. Unless otherwise noted, unbolded references were reviewed in the MPCA Registration Standard, dated 8/31/81 and **bolded** references were reviewed in the MPCA FRSTR, dated 6/22/88.
3. The following label amendments are required:
  - All uses on crops which are not being supported must be removed from product labels. Based on the information in the tables in Appendix 1, uses on the following crops must be removed from product labels: rice and sorghum.
  - All product labels which include uses on “small grains” and “small grains underseeded with legumes” must be modified to clarify that “small grains” include barley, oats, rye, and wheat only.
  - Maximum seasonal application rates must be specified for all uses on food/feed crops. The available data support the following maximum seasonal rates: 1.5 lb ae/A/season to barley, oats, rye, and wheat; 0.5 lb ae/A/season to small grains underseeded with legumes; and 4 lb ae/A/season to pasture and rangeland grass.
  - Product labels which include uses on pasture and rangeland grass must be modified to specify a 7-day PHI for grass hay.
  - No restrictions against the feeding of treated crop commodities are allowed for any of the supported crops. Any such restrictions must be removed from product labels.
  - According to the information in Appendix 1, at least one MPCA DMAS product specifies a maximum application rate of 1.4 lb ae/A to barley underseeded with legumes. This application rate must be modified to specify a maximum application rate of 0.5 lb ae/A to barley underseeded with legumes.
  - According to the information in Appendix 1, at least one MPCA DMAS product specifies a maximum single application rate of 4 lb ae/A as a spot treatment to grasses. The available data support a maximum single application of 2 lb ae/A to grasses. The affected label(s) must be modified to reflect a maximum single application rate of 2 lb ae/A to grasses.
  - No field trial data used for tolerance reassessment reflected the use of a surfactant in the spray mixture, or the use of a diluent other than water. All product labels must be amended to remove any recommendations for use of a surfactant for application to food/feed crops. In addition, any recommendations to use diesel oil as a diluent for aerial applications to food/feed crops must be removed from product labels. All product labels which allow application using aerial equipment to food/feed crops must specify that the minimum application volume for aerial applications is 2 gal/A.
  - The use pattern tables in Appendix 1 specify pregrazing intervals (also referred to as preforaging intervals) and PHIs of 7 days and 14 days for wheat forage and hay. The MPCA Task Force Three has not indicated the pregrazing/preharvest interval for wheat forage and hay that they wish to support. The Task Force must propose a PHI for wheat forage and hay based on the available data, and all product labels must be modified to reflect this PHI.
4. DP Barcodes D213403, D213402, D213398, and D223031; 3/9/04; F. Fort.
5. DER for MRID 44027301; DP Barcode D227174; 3/9/04; F. Fort.
6. DER for MRID 44337201; DP Barcode D238155; 3/9/04; F. Fort.
7. DER for MRID 44337202; DP Barcode D238156; 3/9/04; F. Fort.
8. DER for MRID 44337203; DP Barcode D238157; 3/9/04; F. Fort.
9. DER for MRID 44337204; DP Barcode D238158; 3/9/04; F. Fort.

10. DER for MRIDs 45001901-45001904; DP Barcode D262444; 3/9/04; F. Fort.
11. Additional data concerning the storage intervals between sample collection and final analysis must be submitted for the poultry metabolism study reported in MRID 43575901.
12. Because the HED MARC has determined that MCPA residues of concern in plant commodities are free and conjugated MCPA and its metabolites 2-HMCPA and CCPA, new enforcement methods for plant commodities must be submitted. The available GC/MSD data collection methods for the determination of MCPA DMAS (as MCPA), MCPA 2-EHE (as MCPA), 2-HMCPA, 2-HMCPA glucose conjugate (as 2-HMCPA), and CCPA in/on wheat commodities may be suitable for enforcement purposes. However, before the methods may be forwarded to ACL for method validation, the method for wheat straw must be modified and subjected to independent laboratory validation and radiovalidation, and the methods for wheat forage and grain must be radiovalidated. These methods should be modified to include a calculation step to convert residues of 2-HMCPA and CCPA to MCPA-equivalent residues, as all crop field trial data for these analytes were reported as MCPA equivalents.
13. DER for MRID 45288701; DP Barcode D271787; 3/9/04; F. Fort.
14. The need for additional enforcement methods for animal commodities will be determined when the required livestock feeding studies have been submitted and evaluated. We note that no radiovalidation data are available for animal commodities.
15. Multiresidue method testing data for MCPA metabolites 2-HMCPA and CCPA must be submitted.
16. Storage stability data for wheat grain stored under ambient conditions for 28 days are required to support the processing study reported in MRIDs 45288707 and 45288713.
17. DER for MRID 45549601; DP Barcode D279942; 3/9/04; F. Fort.
18. The need for storage stability data for animal commodities will be determined when livestock feeding studies have been submitted and evaluated.
19. A ruminant feeding study must be submitted.
20. Poultry feeding studies are no longer required based on the results of the poultry metabolism study. A Category 3 of 40 CFR 180.6(a) situation exists (no expectation of residues) with respect to poultry.
21. IR-4 has stated it intends to support the uses on peas and flax. Additional crop field trial data must be submitted for these commodities.
22. Unless specific geographic representation requirements have been specified, the registrants should consult OPPTS GLN 860.1500 Tables 5 and 6 to determine the appropriate regions for conduct of the required field trials. In addition, the numbers and locations of trials specified in Table 5 of GLN 860.1500 are predicated upon only one formulation type being requested for use on each crop. The registrants should consult OPPTS GLN 860.1500 (e)(2)(x) to determine the number of field trials to be conducted to support both the DMAS SC and 2-EHE EC formulations for use on each crop.
23. Crop field trial data for wheat commodities may be translated to barley grain, hay, and straw..
24. Crop field trial data for wheat commodities may be translated to oat grain, forage, hay, and straw.
25. Commodity is not being supported and should be cancelled.
26. Crop field trial data for wheat commodities may be translated to rye grain, forage, and straw.
27. The number and location of the available wheat crop field trials are inadequate to satisfy data requirements. An additional 9 field trials must be conducted for wheat in Regions 2 (1 trial), 4 (1 trial), 6 (1 trial), 7 (3 trials), 8 (2 trials), and 11 (1 trial).

In addition, the Task Force may wish to conduct an additional aspirated grain fractions study in which samples are collected using procedures which more closely simulate collection of grain dust in commercial grain elevators.

28. DP Barcodes D218775, D218780, D218783, D219839, D219840, D219842, D219838, D220740, D221354, and D220738; 8/27/97; K. Dockter.
29. DER for MRIDs 45288702, 45288703, 45288708, and 45288709; DP Barcode D271787; 3/9/04; F. Fort.
30. DER for MRIDs 45288705 and 45288712; DP Barcode D271787; 3/9/04; F. Fort.
31. DER for MRIDs 45763101-45763105; DP Barcode D288033; 3/9/04; F. Fort.
32. The number of available grass forage and hay crop fields is inadequate to satisfy data requirements. In addition, no 0-day data are available for pasture grass forage. Crop field trial data must be submitted reflecting MCPA residues of concern in/on pasture grass forage harvested on the day of the last application of the 2-EHE EC and the DMAS SC formulations according to the maximum use pattern; a total of 12 field trials must be conducted. In addition, eight field trials must be conducted reflecting MCPA residues of concern in/on pasture and rangeland grass hay harvested following application of the 2-EHE EC and DMAS SC formulations according to the maximum use pattern. The grass hay trials may be conducted in combination with the grass forage trials.
33. PP#1E2577; 2/9/82; M. Nelson.
34. DER for MRIDs 43826401 and 43826402; DP Barcode TBD; 3/9/04; F. Fort.
35. DER for MRIDs 45288704, 45288706, 45288710, and 45288711; DP Barcode D271787; 3/9/04; F. Fort.
36. The available alfalfa forage and hay crop field trial data are inadequate to satisfy data requirements because of insufficient geographic representation. An additional three field trials (two in Region 5 and one in Region 7) must be conducted for alfalfa forage and hay with the DMAS SC formulation and four field trials (three in Region 5 and one in Region 7) must be conducted for alfalfa forage and hay with the 2-EHE EC formulation.
37. PP#6E1856; 10/27/82; A. Smith.
38. The available and required data for alfalfa forage and hay may be translated to the forage and hay of clover, lespedeza, trefoil, and vetch.
39. The available wheat processing study data may be translated to the processed commodities of barley, oats, and rye.
40. DER for MRIDs 45288707 and 45288713; DP Barcode D271787; 3/9/04; F. Fort.
41. A confined rotational crop study reflecting treatment at 1x the maximum seasonal rate for annual crops must be submitted.
42. DP Barcodes D197125 and D224874; 3/9/04; F. Fort.
43. The need for field rotational crop studies and/or rotational crop restrictions will be determined following review of the required confined rotational crop study.

## TOLERANCE REASSESSMENT SUMMARY

### Tolerance Reassessments for MCPA

The tolerances listed in 40 CFR §180.339(a) are expressed in terms of MCPA (2-methyl-4-chlorophenoxyacetic acid) *per se*. The tolerances listed in 40 CFR §180.339(b) are expressed in terms of combined residues of MCPA and its metabolite 2-methyl-4-chlorophenol. The current tolerance expressions are not adequate. The HED MARC has determined that the residues to be regulated in plant commodities are free and conjugated MCPA and its metabolites 2-HMCPA and CCPA. The residues to be regulated in animal commodities have tentatively been determined to be MCPA, *per se*.

The heading for 40 CFR §180.339 should be modified from “2-methyl-4-chlorophenoxyacetic acid” to “MCPA,” the accepted common name. In addition, all references to “negligible” and “(N)” should be removed from the tolerance definitions and the established tolerance levels in 40 CFR §180.339.

Because the residues of concern in plant commodities differ from those in animal commodities, tolerances for plant commodities must continue to be listed in a separate section from those for animal commodities. Section 180.339(a) should be reclassified as 180.339(a)(1) and Section 180.339(b) should be reclassified as 180.339(a)(2). Section 180.339(b) should be reserved for temporary tolerances established in support of Section 18 emergency exemptions, Section 180.339(c) should be reserved for tolerances with regional registrations, and Section 180.339(d) should be reserved for tolerances for inadvertent or indirect residues.

Currently, the tolerance definition for MCPA specifies the following: “Tolerances are established for residues of the herbicide 2-methyl-4-chlorophenoxyacetic acid from application of the herbicide in the acid form or in the form of its sodium, ethanolamine, diethanolamine, triethanolamine, isopropanolamine, diisopropanolamine, triisopropanolamine, or dimethylamine salts or its isooctyl or butoxyethyl esters...” MCPA is applied in various forms (free acids, esters or salts), but they release a single common moiety that is the pesticidally active component and serves as the basis for tolerance regulation. In these cases, where the available tolerance enforcement methodology cannot distinguish between which form of the pesticidally active component was applied, HED recommends that the tolerance definition be revised to remove all references to the form of the active component applied. The following language is recommended for the tolerance expression to cover applications of the various forms of the pesticidally active component:

“Tolerances are established for combined residues of the herbicide MCPA [(4-chloro-2-methylphenoxy)acetic acid], both free and conjugated, and its metabolites (4-chloro-2-hydroxymethyl-phenoxy)acetic acid and (4-chloro-2-carboxyphenoxy)acetic acid, calculated as MCPA, resulting from the direct application of MCPA or its various salts and esters, in or on the following commodities:” for §180.339(a)(1); and “Tolerances are established for residues of the herbicide MCPA resulting from the direct application of MCPA or its various salts and esters, in or on the following commodities:” for §180.339(a)(2).

#### Tolerances Listed Under 40 CFR §180.339(a):

Additional crop field trial data are required before the established tolerances for the following commodities, **as defined**, may be reassessed: peas, succulent and dry; flax, seed; alfalfa; alfalfa, hay; barley, grain; barley, straw; clover; clover, hay; grass, pasture; grass, rangeland; grass, hay; lespedeza; lespedeza, hay; oat, forage; oat, grain; oat, straw; rye, forage; rye, grain; rye, straw; trefoils; trefoil hay; vetches; vetch, hay; wheat, grain; and wheat, straw.

The MCPA Task Force Three has indicated that they will only be supporting use of MCPA on small grains including barley, oats, rye, and wheat; small grains underseeded with legumes, including alfalfa, clover, lespedeza, trefoil, and vetch; rangeland grasses; and pasture grasses. IR-4 has indicated that they will support the uses on flax, and peas (succulent and dry) No other registrant has indicated an intention to support use of MCPA on other previously registered crops. Therefore, the following tolerances should be revoked: canarygrass, annual, hay; rice, grain; rice, straw; sorghum, forage; sorghum, grain; sorghum, and grain, stover. The tolerance for vegetables, seed and pod should be removed in conjunction with establishing a tolerance for peas, succulent and dry. In addition, the tolerances for annual canarygrass seed and flax straw should be removed, as EPA no longer requires tolerances for these commodities.

Tolerances To Be Proposed Under 40 CFR §180.339(a)(1):

The available crop field trial data indicate that tolerances for MCPA residues of concern must be proposed for: barley, hay; grain, aspirated fractions; oat, hay; wheat, forage; and wheat, hay, peas, succulent and peas, dry. Additional data are required before the appropriate tolerance levels may be determined for these commodities.

Tolerances Listed Under 40 CFR §180.339(b): The adequacy of the established tolerances for animal commodities cannot be determined at this time because feeding study data remain outstanding.

Proposed Tolerances

PP#9E3785: IR-4 has proposed tolerances for residues of MCPA in/on wild rice grain at 0.1 ppm and wild rice straw at 2.0 ppm. This petition is currently in reject status pending submission of a revised Section B and crop field trial data.

A summary of MCPA tolerance reassessments is presented in Table 7.

<b>Table 7. Tolerance Reassessment Summary for MCPA.</b>				
Commodity	Current Tolerance (ppm)	Range of Residues (ppm)	Tolerance Reassessment (ppm)	Comment/[Correct Commodity Definition]
<b>Tolerances Listed Under 40 CFR §180.339 (a):<sup>1</sup></b>				
Alfalfa	0.1	<0.29	TBD <sup>2</sup>	<i>Alfalfa, forage</i>
Alfalfa, hay	0.1	<1.07	TBD	
Barley, grain	0.1(N) <sup>3</sup>	See wheat commodities below	TBD	
Barley, straw	2		TBD	



Commodity	Current Tolerance (ppm)	Range of Residues (ppm)	Tolerance Reassessment (ppm)	Comment/[ <i>Correct Commodity Definition</i> ]
Canarygrass, annual, hay	0.1	N/A	Revoke	EPA currently only requires tolerances for grass straw to support applications to grass grown for seed. No MCPA registrant has stated that they intend to support use on grass grown for seed.
Canarygrass, annual, seed	0.1	Not applicable (N/A)	Remove	EPA no longer requires tolerances for grass seed.
Clover	0.1	See alfalfa above	TBD	<i>Clover, forage</i>
Clover, hay	0.1		TBD	
Flax, straw	2	N/A	Remove	EPA no longer requires tolerances for flax straw
Flax, seed	0.1(N)	N/A	TBD	<i>Flax, seed</i>
Grass, pasture	300	4.06-108	TBD	<i>Grass, forage</i>
Grass, rangeland	300	<11.6-<334	TBD	
Grass, hay	20	7.23-<564	TBD	
Lespedeza	0.1	See alfalfa above	TBD	<i>Lespedeza, forage</i>
Lespedeza, hay	0.1		TBD	
Oat, forage	20	See wheat commodities below	TBD	
Oat, grain	0.1(N)		TBD	
Oat, straw	2		TBD	
Rice, grain	0.1(N)	N/A	Revoke	No MCPA registrant has stated that they intend to support use on rice.
Rice, straw	2	N/A	Revoke	
Rye, forage	20	See wheat commodities below	TBD	
Rye, grain	0.1(N)		TBD	
Rye, straw	2		TBD	
Sorghum, grain	0.1	N/A	Revoke	No MCPA registrant has stated that they intend to support use on sorghum.
Sorghum, forage	20	N/A		
Sorghum, grain, stover	20	N/A		
Trefoils	0.1	See alfalfa above	TBD	<i>Trefoil, forage</i>
Trefoil hay	0.1		TBD	<i>Trefoil, hay</i>
Vegetables, seed and pod	0.1	N/A	Revoke	Incorrect crop group definition; tolerance must be proposed for peas, succulent and dry
Vetches	0.1	See alfalfa above	TBD	<i>Vetch, forage</i>
Vetch, hay	0.1		TBD	<i>Vetch, hay</i>
Wheat, grain	0.1(N)	<0.03-<0.08	TBD	
Wheat, straw	2	<0.69-21.5	TBD	
<b>Tolerances Listed Under 40 CFR §180.339 (b):<sup>1</sup></b>				
Cattle, fat	0.1(N)	--	TBD	

<b>Table 7. Tolerance Reassessment Summary for MCPA.</b>				
Commodity	Current Tolerance (ppm)	Range of Residues (ppm)	Tolerance Reassessment (ppm)	Comment/[Correct Commodity Definition]
Cattle, meat byproducts	0.1(N)	--	TBD	
Cattle, meat	0.1(N)	--	TBD	
Goat, fat	0.1(N)	--	TBD	
Goat, meat byproducts	0.1(N)	--	TBD	
Goat, meat	0.1(N)	--	TBD	
Hog, fat	0.1(N)	--	TBD	
Hog, meat byproducts	0.1(N)	--	TBD	
Hog, meat	0.1(N)	--	TBD	
Horse, fat	0.1(N)	--	TBD	
Horse, meat byproducts	0.1(N)	--	TBD	
Horse, meat	0.1(N)	--	TBD	
Milk	0.1(N)	--	TBD	
Sheep, fat	0.1(N)	--	TBD	
Sheep, meat byproducts	0.1(N)	--	TBD	
Sheep, meat	0.1(N)	--	TBD	
<b>Tolerances to Be Proposed under 40 CFR 180.339(a)(1):</b>				
Peas	0.1(N)	N/A	TBD	<i>peas, succulent or dry</i>
Barley, hay	--	See wheat hay below	TBD	
Grain, aspirated fractions	--	32 (average concentration factor) x 0.08 = 2.6	TBD	
Oat, hay	--	See wheat hay below	TBD	
Wheat, forage	--	3.75-19.4; <sup>4</sup> 1.51-18.4 <sup>5</sup>	TBD	
Wheat, hay	--	8.06-111; <sup>4</sup> 1.96-39.5 <sup>5</sup>	TBD	

<sup>1</sup> Tolerances listed under 180.339(a) must be redesignated as 180.339(a)(1) and tolerances listed under 180.339(b) must be redesignated as 180.339(a)(2), to allow 180.339(b) to be reserved for tolerances for Section 18 emergency exemptions.

<sup>2</sup> TBD = To be determined. Additional residue data (crop field trial or livestock feeding study) are required.

<sup>3</sup> (N) = Negligible residues.

<sup>4</sup> Reflecting a 7-day PHI.

<sup>5</sup> Reflecting a 14-day PHI.

### **Codex/International Harmonization**

No Codex MRLs have been established for MCPA; therefore, issues of compatibility between Codex MRLs and U.S. tolerances do not exist. No Canadian or Mexican MRLs have been established for MCPA. We note that registered food uses of MCPA exist in Canada (for crops

such as wheat, barley, rye, oats, flax, peas, corn, pasture grass, alfalfa, and trefoil); these uses presumably fall under the PMRA General MRL of 0.1 mg/kg [Regulation B.15.002(1) of the Canadian Food and Drugs Regulations (FDR) establishes 0.1 ppm as the “General Maximum Residue Limit.” This regulation states that a food is adulterated if it contains residues of a pesticide at a level greater than 0.1 ppm unless a specific MRL has been established in Table II, Division 15 of the FDR.]

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43826401 Honeycutt, R.; DeGeare, M. (1995) Magnitude of MCPA Residues from Application of MCPA 2-Ethylhexyl Ester to Rangeland Grass, Ground Application: Lab Project Number: 93-211RA-12: 95-512: QMAS 94030. Unpublished study prepared by Hazard Evaluation & Regulatory Affairs Co., Inc. and Quality Management & Analytical Services, Inc. 680 p.

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- 45288707 Kludas, R. (2000) Magnitude of MCPA and Metabolite Residues in Processed Fractions of Winter Wheat Following Treatment with MCPA Dimethylamine Salt: Lab Project Number: GR97-271: 97271: 6698-107. Unpublished study prepared by Grayson Research, LLC. 485 p. {OPPTS 860.1520}
- 45288708 Kludas, R. (2000) Magnitude of MCPA and Metabolite Residues from Applications of MCPA 2-Ethylhexyl Ester to Winter Wheat: Lab Project Number: GR97-268: 97268: 6698-117. Unpublished study prepared by Grayson Research, LLC. 511 p. {OPPTS 860.1500}
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- 45288710 Kludas, R. (2000) Magnitude of MCPA and Metabolite Residues from Application of MCPA 2-Ethylhexyl Ester to Pasture Grass: Lab Project Number: GR97-274: 97274: 97274-1. Unpublished study prepared by Grayson Research, LLC. 368 p. {OPPTS 860.1500}
- 45288711 Kludas, R. (2000) Magnitude of MCPA and Metabolite Residues from Application of MCPA 2-Ethylhexyl Ester to Rangeland Grass: Lab Project Number: GR97-276: 97276: 97276-1. Unpublished study prepared by Grayson Research, LLC. 334 p. {OPPTS 860.1500}
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- 45549601 Eberhard, J. (2001) Final Report: Freezer Storage Stability Study for MCPA DMAS, 4-Chloro-2-hydroxymethylphenoxyacetic Acid (2-HMCPA) and 4-Chloro-2-carboxyphenoxyacetic Acid (CCPA) and MCPA 2-EHE in Selected Plant Matrices: Lab Project Number: 6698-122. Unpublished study prepared by Covance Laboratories Inc. 1353 p. {OPPTS 860.1380}
- 45763101 Barney, W. (2002) Magnitude of MCPA and Metabolite Residues From Application of MCPA Dimethylamine Salt, MCPA 2-Ethylhexyl Ester and MCPA Acid to Spring Wheat in Haywood, Manitoba: Lab Project Number: GR01-394: 01-394.1: 01-394. Unpublished study prepared by Grayson Research, LLC., Enviro-Test Laboratories, Inc. and ICMS, Inc. 520 p. {OPPTS 860.1500}
- 45763102 Barney, W. (2002) Magnitude of MCPA and Metabolite Residues from Application of MCPA Dimethylamine Salt, MCPA 2-Ethylhexyl Ester and MCPA Acid to Spring Wheat in Elm Creek, Manitoba: Lab Project Number: GR01-413: 01-413.1: 01-413. Unpublished study prepared by Grayson Research, LLC., Enviro-Test Laboratories, Inc. and Ag-Quest, Inc. 515 p. {OPPTS 860.1500}

45763103 Barney, W. (2002) Magnitude of MCPA and Metabolite Residues from Application of MCPA Dimethylamine Salt, MCPA 2-Ethylhexyl Ester and MCPA Acid to Spring Wheat in Barnwell, Alberta: Lab Project Number: GR01-414: 01-414.1: 01-414. Unpublished study prepared by Grayson Research, LLC., Enviro-Test Laboratories, Inc. and Ag-Quest, Inc. 522 p. {OPPTS 860.1500}

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## Agency Memoranda Citations

<b>Table 8. Agency Memoranda Citations.</b>						
<b>Date</b>	<b>DP Barcode</b>	<b>CB No.</b>	<b>From</b>	<b>To</b>	<b>MRID Nos.</b>	<b>Subject</b>
11/22/89	--	5649	S. Inasi	H. Jamerson/ A. Beard	None	PP#9E3785; Sodium MCPA in/on Wild Rice. Review of Analytical Method and Residue Data.
12/11/92	D181507	10366	F. Fort	J. Coombs/ W. Waldrop	None	MCPA. Protocol for Magnitude of the Residue Studies.
8/17/93	D185807	11048	D. Davis	E. Wilson/ J. Miller	42563001, 42563002	PP#3F4182. Fenoxaprop-ethyl (Tiller® EC Herbicide) in or on Spring Barley. Evaluation of Nature of the Residue, Analytical Method, and Magnitude of the Residue Data.
10/28/93	D190196	11710	D. Davis	K. Hicks/ R. Taylor	None	ID# 000264-EUP-OE. Bromoxynil Octanoate, Bromoxynil Heptanoate, and Isooctyl Ester of 2-Methyl-Chlorophenoxyacetic Acid (Bronate® Gel Herbicide) in/on Wheat and Barley. Evaluation of Residue and Analytical Data to Support an EUP.
3/3/94	D199208	13258	D. Davis	K. Hicks/ R. Taylor	None	ID# 000264-EUP-OE. Bromoxynil Octanoate, Bromoxynil Heptanoate, and Isooctyl Ester of 2-Methyl-Chlorophenoxyacetic Acid (Bronate® Gel Herbicide) in/on Wheat and Barley. Evaluation of Revised Label.
3/24/94	D199926	13277	F. Fort	A. Ertman/ W. Waldrop	None	MCPA. Residue Testing Concerns. List A Case 0017. Chemical I.D. No. 030501.
10/6/94	D206655	14242	S. Hummel	A. Ertman/ W. Waldrop	None	MCPA (030501). List A Case 0017. Questions regarding completion of Poultry Metabolism Study MCPA Task Force letter of 8/16/94
12/18/95	D221176	16582	F. Fort	A. Ertman/ W. Waldrop	None	MCPA, isooctyl ester. Overtolerance residues.
4/9/96	D223495 and D223498	17005 and 17006	S. Funk	A. Ertman/ W. Waldrop	None	2-Methyl-4-chlorophenoxyacetic Acid (MCPA; List A, Chemical 030501, Case 0017). MCPA Task Force Three Protocols for Poultry and Ruminant Feeding Studies.

<b>Table 8. Agency Memoranda Citations.</b>						
<b>Date</b>	<b>DP Barcode</b>	<b>CB No.</b>	<b>From</b>	<b>To</b>	<b>MRID Nos.</b>	<b>Subject</b>
8/27/97	D218775, D218780, D218783, D219839, D219840, D219842, D219838, D220740, D221354, D220738	16119, 16121, 16122, 16295, 16296, 16297, 16298, 16450, 16590, 16643	K. Dockter	A. Ertman	43718401, 43724301, 43724401, 43756401, 43764101, 43782401, 43791901, 43793901, 43801301, 43804601, 43841501	MCPA Reregistration. Task Force 3 Responses [Residues in/on Pasture Grass, Rangeland Grass, Spring & Winter Wheat, and Alfalfa-underseeded Wheat, and in Wheat Processed Commodities; 860.1520] to F. Fort's 12/11/92 Review; CBRS 10366.
3/9/04	D213403, D213402, D213398, and D223031	15320, 15321, 15322, and 16889			43575501, 43575901, 43580301, 43915401	[Nature of the Residue in Wheat, Lactating Goats, and Laying Hens]
3/9/04	D197125 and D224874	N/A			40961301	[Confined Rotational Crops]
3/9/04	D227174	N/A			44027301	860.1300 DER for MRID 44027301: Characterization Data for Reference Standard [ <sup>2</sup> H/ <sup>14</sup> C]MCPA.
3/9/04	D238155	N/A			44337201	860.1300 DER for MRID 44337201: Characterization Data for Reference Standards [ <sup>14</sup> C]MCPA, [ <sup>14</sup> C]MCPA 2-Ethylhexyl Ester, and [ <sup>14</sup> C]MCPA Dimethylamine Salt.
3/9/04	D238156	N/A			44337202	860.1300 DER for MRID 44337202: Characterization Data for Reference Standard MCPA Ornithine Conjugate.
3/9/04	D238157	N/A			44337203	860.1300 DER for MRID 44337203: Characterization Data for Reference Standard MCPA Glycine Conjugate.
3/9/04	D238158	N/A			44337204	860.1300 DER for MRID 44337204: Characterization Data for Reference Standards [ <sup>14</sup> C]HMCPA, [ <sup>14</sup> C]CCPA, [ <sup>14</sup> C]4-Chloro-o-cresol, [ <sup>14</sup> C]4-Chloro-2-methylanisole, and [ <sup>14</sup> C]MCPA Ornithine Conjugate.
3/9/04	D262444	N/A			45001901-45001904	860.1300 DER for MRIDs 45001901-45001904: Characterization Data for Reference Standards [ <sup>14</sup> C]MCPA, [ <sup>13</sup> C <sub>6</sub> -Ring]HMCPA MME, [ <sup>13</sup> C <sub>6</sub> -Ring]HMCPA, and [ <sup>2</sup> H]HMCPA MME.

<b>Table 8. Agency Memoranda Citations.</b>						
<b>Date</b>	<b>DP Barcode</b>	<b>CB No.</b>	<b>From</b>	<b>To</b>	<b>MRID Nos.</b>	<b>Subject</b>
3/9/04	D271787	N/A			45288701-45288713	860.1340 DER for MRID 45288701: Independent Laboratory Validation.
						860.1500 DER for MRIDs 45288702, 45288703, 45288708, & 45288709: Crop Field Trial Data for Wheat.
						860.1500 DER for MRIDs 45288704, 45288706, 45288710, & 45288711: Crop Field Trial Data for Pasture and Rangeland Grass.
						860.1500 DER for MRIDs 45288705 & 45288712: Crop Field Trial Data for Wheat Underseeded with Alfalfa.
						860.1520 DER for MRIDs 45288707 & 45288713: Processing Data for Wheat.
3/9/04	D279942	N/A			45549601	860.1380 DER for MRID 45549601: Storage Stability Data for Plant Commodities.
3/9/04	D288033	N/A			45763101-45763105	860.1500 DER for MRIDs 45763101-45763105: Crop Field Trial Data for Wheat Grown in Canada.
3/9/04	TBD	N/A			43826401 and 43826402	860.1500 DER for MRIDs 43826401 and 43826402: Crop Field Trial Data for Rangeland Grass.

**APPENDIX 1**

**Food/Feed Use Pattern Tables for MCPA  
Generated by BEAD/OPP**



SITE NAME	Product/Site Limitations				
Application Type (for any Reg.# at any rate) (aggregate) <b>Application Timing (for any Reg.# at any rate)</b> Application Equipment (for any Reg.# at any rate) (aggregate)	Max. Single Appl. Rate to a Single Site (AI unless noted otherwise)  Inconvertible Label (L) Dosages Also Present	Max Seasonal Rate  (L) Dosages Also Present	Max. # Apps Per Crop Cycle (cc) and Year (at any rate)	Min Retmt Intv (days) (at any rate)	PHI/PGI/PSI Use Limitations (at any rate) (May not apply to all Reg. #s within group)
No Food Site Records Found					

Current As Of: 08/22/2002

Printed On: 09/25/2002

SITE NAME	Product/Site Limitations				
Application Type (for any Reg.# at any rate) (aggregate) <b>Application Timing (for any Reg.# at any rate)</b> Application Equipment (for any Reg.# at any rate) (aggregate)	Max. Single Appl. Rate to a Single Site (AI unless noted otherwise)  Inconvertible Label (L) Dosages Also Present	Max Seasonal Rate  (L) Dosages Also Present	Max. # Apps Per Crop Cycle (cc) and Year (at any rate)	Min Retmt Intv (days) (at any rate)	PHI/PGI/PSI Use Limitations (at any rate) (May not apply to all Reg. #s within group)
<b>ALFALFA</b>	Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Groundwater restriction.				
Spray <b>Dormant</b> Aircraft/Ground	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 8 mph or greater.
<b>BARLEY</b>	14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not contaminate water. Do not enter treated areas without protective clothing until sprays have dried. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Broadcast <b>Early boot</b> Aircraft/Low pressure ground sprayer	.75 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Broadcast <b>Early jointing</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b>	1 lb (AE) A	NS	NS NS	NS	

Current As Of: 08/22/2002

Printed On: 09/25/2002

Aircraft/Ground					
Spot treatment/Spray <b>Tillering</b> Aircraft/Low pressure ground sprayer	1.395 lb (AE) A	NS	NS NS	NS	
<b>BARLEY-LEGUME MIXTURE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast/Low volume spray (concentrate) <b>Early jointing</b> Aircraft/Low pressure ground sprayer	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Tillering</b> Aircraft	.25 lb (AE) A	NS	NS NS	NS	
<b>CLOVER</b>	<p>Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Groundwater restriction.</p>				
Spray <b>Dormant</b> Aircraft/Ground	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 8 mph or greater.
<b>FLAX</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.</p>				

	For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Geographic allowable: ID OR WA				
Low volume spray (concentrate)/Spray <b>Before bud break</b> Aircraft/Ground/Low pressure ground sprayer	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	.34875 lb (AE) A	NS	NS NS	NS	
<b>GRASS FORAGE/FODDER/HAY</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not contaminate water. Do not enter treated areas without protective clothing until sprays have dried. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Grown for seed only.				
Low volume spray (concentrate)/Spray <b>Early jointing</b> Aircraft/Low pressure ground sprayer	.93 lb (AE) A	NS	NS NS	NS	
Spray <b>Postemergence</b> Aircraft/Ground	.93 lb (AE) A	NS	NS NS	NS	
<b>GRASSES GROWN FOR SEED</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not contaminate water. Do not enter treated areas without protective clothing until sprays have dried. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Broadcast <b>Spring</b> Aircraft/Low pressure ground sprayer	1 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
<b>OATS</b>	14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) pregrazing interval (meat animals being finished for slaughter).				

	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast <b>Early boot</b> Aircraft/Low pressure ground sprayer	.75 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Broadcast <b>Early jointing</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tiller through boot</b> Aircraft/Low pressure ground sprayer	.6975 lb (AE) A	NS	NS NS	NS	
<b>OATS-LEGUME MIXTURE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast/Low volume spray (concentrate) <b>Early jointing</b> Aircraft/Low pressure ground sprayer	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8

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					mph or greater.
Spray <b>Tillering</b> Aircraft	.25 lb (AE) A	NS	NS NS	NS	
<b>PASTURES</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Low volume spray (concentrate)/Spray <b>Established plantings</b> Aircraft/Low pressure ground sprayer	1.395 lb (AE) A	NS	NS NS	NS	
Broadcast/Spray <b>Fall</b> Aircraft/Ground/Low pressure ground sprayer	2 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1.395 lb (AE) A	NS	NS NS	NS	
Broadcast/Spray <b>Spring</b> Aircraft/Ground/Low pressure ground sprayer	2 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
<b>PEAS (UNSPECIFIED)</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  Do not feed forage from treated areas.  Do not feed treated forage to livestock.  Do not feed treated hay or vines to livestock.  Do not feed treated vines to livestock.  Do not graze livestock in treated areas.</p>				

	Do not graze treated areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Geographic allowable: ID OR Pacific NW States (Label verbatim) WA				
Broadcast/Low volume spray (concentrate)/Spray <b>Postemergence</b> Aircraft/Ground/Low pressure ground sprayer	.375 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Prebloom</b> Aircraft/Ground	.375 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 8 mph or greater.
<b>RANGELAND</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not contaminate water. Do not enter treated areas without protective clothing until sprays have dried. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Low volume spray (concentrate)/Spray <b>Established plantings</b> Aircraft/Low pressure ground sprayer	1.395 lb (AE) A	NS	NS NS	NS	
Broadcast/Spray <b>Fall</b> Aircraft/Ground/Low pressure ground sprayer	2 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1.395 lb (AE) A	NS	NS NS	NS	
Broadcast/Spray <b>Spring</b> Aircraft/Ground/Low pressure ground sprayer	2 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
<b>RICE</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply in areas where commercial fish processing, resulting in the production of				

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	<p>fish protein concentrate or fish meal, is practiced.          Do not apply through any type of irrigation system.          Do not apply where catfish are considered commercial resources.          Do not apply where crayfish are considered commercial resources.          Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.          Do not contaminate water, food, or feed by storage or disposal.          Do not contaminate water.          Do not enter treated areas without protective clothing until sprays have dried.          For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.          Groundwater restriction.</p>				
Broadcast/Low volume spray (concentrate)/Spray <b>Established plantings</b> Aircraft/Low pressure	1.25 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1.25 lb (AE) A	NS	NS NS	NS	
<b>RYE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).          14 day(s) pregrazing interval (meat animals being finished for slaughter).          7 day(s) preforage interval (animals being finished for slaughter).          7 day(s) pregrazing interval (meat animals being finished for slaughter).          7 day(s) pregrazing interval.          Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.          Do not apply through any type of irrigation system.          Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.          Do not contaminate water, food, or feed by storage or disposal.          Do not contaminate water.          Do not enter treated areas without protective clothing until sprays have dried.          For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.          Groundwater restriction.</p>				
Broadcast <b>Early boot</b> Aircraft/Low pressure ground sprayer	.75 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Broadcast <b>Early jointing</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1 lb (AE) A	NS	NS NS	NS	



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Low volume spray (concentrate)/Spray <b>Tiller through boot</b> Aircraft/Low pressure ground sprayer	.6975 lb (AE) A	NS	NS NS	NS	
<b>RYE-LEGUME MIXTURE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast/Low volume spray (concentrate) <b>Early jointing</b> Aircraft/Low pressure ground sprayer	.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Tillering</b> Aircraft	.25 lb (AE) A	NS	NS NS	NS	
<b>SORGHUM</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast <b>Early jointing</b> Aircraft/Low pressure ground sprayer	.75 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	.75 lb (AE) A	NS	NS NS	NS	

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<b>WHEAT</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast <b>Early boot</b> Aircraft/Low pressure ground sprayer	.75 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Broadcast <b>Early jointing</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	Do not apply when wind velocity is 6 mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Postemergence</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Spot treatment/Spray <b>Tillering</b> Aircraft/Low pressure ground sprayer	1.395 lb (AE) A	NS	NS NS	NS	
<b>WHEAT-LEGUME MIXTURE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not contaminate water.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Broadcast/Low volume spray (concentrate)	.5 lb (AE) A	NS	NS	NS	Do not apply when wind velocity is 6

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<b>Early jointing</b> Aircraft/Low pressure ground sprayer			NS		mph or less. Do not apply when wind velocity is 8 mph or greater.
Spray <b>Tillering</b> Aircraft	.25 lb (AE) A	NS	NS NS	NS	
Product Number(s) Contained in this Report : 000228-00199 005905-00510 011685-00020 042750-00024 062719-00058					

SITE NAME	Product/Site Limitations				
Application Type (for any Reg.# at any rate) (aggregate) <b>Application Timing (for any Reg.# at any rate)</b> Application Equipment (for any Reg.# at any rate) (aggregate)	Max. Single Appl. Rate to a Single Site (AI unless noted otherwise)  Inconvertible Label (L) Dosages Also Present	Max Seasonal Rate  (L) Dosages Also Present	Max. # Apps Per Crop Cycle (cc) and Year (at any rate)	Min Retmt Intv (days) (at any rate)	PHI/PGI/PSI Use Limitations (at any rate) (May not apply to all Reg. #s within group)
<b>AGRICULTURAL FALLOW/IDLELAND</b>	Conservation Reserve Acres. Do not allow children or pets on treated areas until surfaces are dry. Do not allow livestock to graze treated foliage. Do not apply through any type of irrigation system. Do not apply when wind velocity is 6 mph or greater. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water intended for irrigation or domestic purposes. Do not contaminate water, food, or feed by storage or disposal. Do not place in locations accessible to children, pets or domestic animals. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Spray <b>Fallow</b> Aircraft/Ground	2.775 lb (AE) A	NS	NS NS	NS	
Spray <b>When needed</b> Sprayer	3 lb (AE) A	NS	NS NS	NS	
<b>AGRICULTURAL RIGHTS-OF-WAY/FENCEROWS/HEDGEROWS</b>	Do not apply through any type of irrigation system. Do not apply when wind velocity is 6 mph or greater. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water intended for irrigation or domestic purposes. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Broadcast/Spot treatment <b>Postemergence</b> Ground	2 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	NS	
Spray	3 lb (AE) A	NS	NS	NS	

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When needed Sprayer			NS		
<b>AGRICULTURAL UNCULTIVATED AREAS</b>	<p>Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.</p>				
Broadcast/Spot treatment <b>Postemergence</b> Ground	2 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	NS	
<b>ALFALFA</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Dormant</b> Aircraft/Ground/Sprayer	.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	.23125 lb (AE) A	NS	NS NS	NS	
Spray <b>Late fall</b> Aircraft/Ground/Sprayer	.5 lb (AE) A	NS	NS NS	NS	
Spray	.25 lb (AE) A	NS	NS	NS	

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Late tillering Aircraft/Ground			NS		
Spray Tillering Ground	.23125 lb (AE) A	NS	NS NS	NS	
<b>BARLEY</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) prefeeding interval.  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preharvest interval (forage).  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Keep out of lakes, streams, ponds, tidal marshes, and estuaries.</p>				
Spray Early boot Aircraft/Ground	.925 lb (AE) A	NS	NS NS	NS	
Spray Foliar Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray Internode elongation Aircraft/Low pressure ground sprayer	1.316 lb (AE) A	NS	NS NS	NS	
Spray	1.5 lb (AE) A	NS	NS	NS	

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<b>Postemergence</b> Aircraft/Ground			NS		
Low volume spray (concentrate) <b>Spring</b> Aircraft/Low volume ground sprayer	.25 lb (AE) A	NS	NS NS	NS	
Spray <b>Tiller through boot</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	
<b>BARLEY-LEGUME MIXTURE</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Internode elongation</b> Aircraft/Ground/Low pressure	.24585 lb (AE) A	NS	NS NS	NS	
Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure/Low pressure ground sprayer/Sprayer	1.3875 lb (AE) A	NS	NS NS	NS	
<b>CLOVER</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).</p>				

	<p>7 day(s) pregrazing interval.                  Do not allow children or pets on treated areas until surfaces are dry.                  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.                  Do not apply through any type of irrigation system.                  Do not apply when wind velocity is 6 mph or greater.                  Do not apply when wind velocity is 8 mph or greater.                  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.                  Do not contaminate water intended for irrigation or domestic purposes.                  Do not contaminate water, food, or feed by storage or disposal.                  Do not enter treated areas without protective clothing until sprays have dried.                  Do not place in locations accessible to children, pets or domestic animals.                  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.                  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.                  Groundwater restriction.                  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Dormant</b> Aircraft/Ground	.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Fall</b> Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	.23125 lb (AE) A	NS	NS NS	NS	
Spray <b>Late fall</b> Ground	.4625 lb (AE) A	NS	NS NS	NS	
Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
Spray <b>Postemergence</b> Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	
Spray <b>Spring</b> Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	
Spray <b>Tillering</b> Ground	.23125 lb (AE) A	NS	NS NS	NS	
<b>FLAX</b>	7 day(s) prefeeding interval on threshings or stubble to meat animals.				



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	<p>7 day(s) prefeeding interval.  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Keep out of lakes, streams, ponds, tidal marshes, and estuaries.</p>				
Spray <b>Before bud break</b> Aircraft/Ground	.3725 lb (AE) A	NS	NS NS	NS	
Spray <b>Boot</b> Aircraft/Ground	.375 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	.5 lb (AE) A	NS	NS NS	NS	
High volume spray (dilute)/Low volume spray (concentrate)/Spray <b>Postemergence</b> Aircraft/Ground	.5 lb (AE) A	NS	NS NS	NS	
<b>GRASSES GROWN FOR SEED</b>	<p>7 day(s) preslaughter interval.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.</p>				

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	<p>Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Spray <b>Established plantings</b> Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	
Spray <b>Spring</b> Aircraft/Ground	.8775 lb (AE) A	NS	NS NS	NS	
Spray <b>Tillering</b> Aircraft/Ground	.8775 lb (AE) A	NS	NS NS	NS	
Spot treatment <b>When needed</b> Sprayer	.125 lb (AE)/3 gal	NS	NS NS	NS	
<b>LESPEDEZA</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Spray <b>Tillering</b> Ground	.23125 lb (AE) A	NS	NS NS	NS	
<b>OATS</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preharvest interval (forage).  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to</p>				

	<p>intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Keep out of lakes, streams, ponds, tidal marshes, and estuaries.</p>				
Spray <b>Early boot</b> Aircraft/Ground	.925 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Low pressure ground sprayer	1.316 lb (AE) A	NS	NS NS	NS	
Spray <b>Postemergence</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Tiller through boot</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	
<b>OATS-LEGUME MIXTURE</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.</p>				

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	<p>Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Internode elongation</b> Low pressure	.24585 lb (AE) A	NS	NS NS	NS	
Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure/Low pressure ground sprayer/Sprayer	.5 lb (AE) A	NS	NS NS	NS	
<b>PASTURES</b>	<p>21 day(s) preharvest interval (dry hay).  21 day(s) preharvest interval (forage).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not graze treated areas.  Do not harvest for dairy animals feed prior to crop maturity.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				

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	Keep out of lakes, streams, ponds, tidal marshes, and estuaries.				
Spray <b>Delayed dormant through bloom</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Established plantings</b> Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	
Spray <b>Fall</b> Aircraft/Ground	1.85 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	
Broadcast/Spot treatment/Spray <b>Postemergence</b> Aircraft/Ground	2 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	NS	
Spray <b>Spring</b> Aircraft/Ground	1.85 lb (AE) A	NS	NS NS	NS	
Broadcast/Spot treatment/Spray <b>When needed</b> Aircraft/Ground/High volume ground sprayer/Sprayer	4 lb (AE) A .125 lb (AE)/3 gal	4 lb (AE)/cc	NS NS	NS	
<b>PEAS (UNSPECIFIED)</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply during bloom.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not feed hay or vines to livestock.  Do not feed or graze animals on treated areas.  Do not feed treated hay or vines to livestock.  Do not feed treated vines to livestock.  Do not graze or feed forage.</p>				

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	<p>Do not graze treated areas.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: ID OR Pacific NW States (Label verbatim) WA</p>				
Spray <b>Foliar</b> Aircraft/Ground	.375 lb (AE) A	NS	NS NS	NS	
High volume spray (dilute)/Low volume spray (concentrate)/Spray <b>Postemergence</b> Aircraft/Ground	.375 lb (AE) A	NS	NS NS	NS	
Spray <b>Prebloom</b> Aircraft/Ground	.3469 lb (AE) A	NS	NS NS	NS	
Spray <b>Tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
<b>RANGELAND</b>	<p>21 day(s) preharvest interval (dry hay).  21 day(s) preharvest interval (forage).  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not graze treated areas.  Do not harvest for dairy animals feed prior to crop maturity.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.</p>				

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	Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.				
Spray <b>Delayed dormant through bloom</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Fall</b> Aircraft/Ground/Sprayer	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	
Broadcast/Spot treatment/Spray <b>Postemergence</b> Aircraft/Ground	2 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	NS	
Spray <b>Spring</b> Aircraft/Ground/Sprayer	1.5 lb (AE) A	NS	NS NS	NS	
Broadcast/Spot treatment/Spray <b>When needed</b> Aircraft/Ground/High volume ground sprayer/Sprayer	4 lb (AE) A .125 lb (AE)/3 gal	4 lb (AE)/cc	NS NS	NS	
<b>RICE</b>	<p>Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply directly to water. Do not apply through any type of irrigation system. Do not apply when wind velocity is 5 mph or greater. Do not apply when wind velocity is 6 mph or greater. Do not apply where catfish are considered commercial resources. Do not apply where crayfish are considered commercial resources. Do not apply where runoff is likely to occur. Do not apply where shellfish are considered commercial resources. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water intended for irrigation or domestic purposes. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Keep out of lakes, streams, ponds, tidal marshes, and estuaries. Geographic allowable: CA MS</p>				

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Spray <b>Foliar</b> Aircraft	1.244 lb (AE) A	2.235 lb (AE)/cc	2/cc NS	35	
Broadcast <b>Late tillering</b> Low pressure ground sprayer	2.675 lb (AE) A	NS	NS NS	NS	
High volume spray (dilute)/Low volume spray (concentrate)/Spray <b>Postemergence</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Postplant</b> Aircraft	.75 lb (AE) A	1.5 lb (AE)/cc	2/cc NS	35	
Spray <b>Tillering</b> Ground	1.5 lb (AE) A	1.5 lb (AE)/cc	2/cc NS	35	
<b>RYE</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (dairy animals).  7 day(s) prefeeding interval.  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preharvest interval (forage).  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Keep out of lakes, streams, ponds, tidal marshes, and estuaries.</p>				



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Spray <b>Early boot</b> Aircraft/Ground	.925 lb (AE) A	NS	NS NS	NS	
Spray <b>Foliar</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Low pressure ground sprayer	1.316 lb (AE) A	NS	NS NS	NS	
Spray <b>Postemergence</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
High volume spray (dilute)/Low volume spray (concentrate) <b>Spring</b> Aircraft/Ground/Low volume ground sprayer	.25 lb (AE) A	NS	NS NS	NS	
Spray <b>Tiller through boot</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	
<b>RYE-LEGUME MIXTURE</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Internode elongation</b> Low pressure	.24585 lb (AE) A	NS	NS NS	NS	

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Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure/Low pressure ground sprayer/Sprayer	.5 lb (AE) A	NS	NS NS	NS	
<b>SMALL GRAIN-LEGUME MIXTURE</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.</p>				
Spray <b>Tillering</b> Low pressure ground sprayer	.23125 lb (AE) A	NS	NS NS	NS	
<b>SMALL GRAINS</b>	<p>Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.</p>				
Low volume spray (concentrate) <b>Early spring</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
<b>TREFOIL</b>	<p>Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Groundwater restriction.</p>				
Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
<b>WHEAT</b>	<p>14 day(s) preforage interval (animals being finished for slaughter).  14 day(s) pregrazing interval (dairy animals).  7 day(s) prefeeding interval.  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).</p>				

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	<p>7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  7 day(s) preharvest interval (forage).  7 day(s) preslaughter interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  Do not place in locations accessible to children, pets or domestic animals.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Keep out of lakes, streams, ponds, tidal marshes, and estuaries.</p>				
Spray <b>Foliar</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Ground/Low pressure ground sprayer	1.503 lb (AE) A	NS	NS NS	NS	
Spray <b>Postemergence</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
High volume spray (dilute)/Low volume spray (concentrate)/Spot treatment <b>Spring</b> Aircraft/Ground/Low volume ground sprayer	1.5 lb (AE) A	NS	NS NS	NS	
Spray <b>Tiller through boot</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure ground sprayer	1.503 lb (AE) A	NS	NS NS	NS	

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Spray <b>When needed</b> Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	
<b>WHEAT-LEGUME MIXTURE</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not apply when wind velocity is 6 mph or greater.  Do not apply when wind velocity is 8 mph or greater.  Do not apply where runoff is likely to occur.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water intended for irrigation or domestic purposes.  Do not contaminate water, food, or feed by storage or disposal.  Do not enter treated areas without protective clothing until sprays have dried.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Geographic allowable: Pacific NW States (Label verbatim)</p>				
Spray <b>Internode elongation</b> Low pressure	.24585 lb (AE) A	NS	NS NS	NS	
Spray <b>Late tillering</b> Aircraft/Ground	.25 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Ground/Low pressure/Low pressure ground sprayer/Sprayer	.5 lb (AE) A	NS	NS NS	NS	
Product Number(s) Contained in this Report : 000228-00143 000228-00279 000228-00290 000228-00296 001381-00104 001386-00587 002217-00362 005905-00502 009779-00262 011685-00019 015440-00037 034704-00130 042750-00014 051036-00359 062719-00013 067591-00001 MS93000400					

SITE NAME	Product/Site Limitations				
Application Type (for any Reg.# at any rate) (aggregate) <b>Application Timing (for any Reg.# at any rate)</b> Application Equipment (for any Reg.# at any rate) (aggregate)	Max. Single Appl. Rate to a Single Site (AI unless noted otherwise)  Inconvertible Label (L) Dosages Also Present	Max Seasonal Rate  (L) Dosages Also Present	Max. # Apps Per Crop Cycle (cc) and Year (at any rate)	Min Retmt Intv (days) (at any rate)	PHI/PGI/PSI Use Limitations (at any rate) (May not apply to all Reg. #s within group)
<b>BARLEY</b>	45 day(s) pregrazing interval. Buffer zone restriction. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply directly to water. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. This pesticide is toxic to aquatic invertebrates.				
Chemigation/Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Boom sprayer/Sprinkler irrigation	.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Postharvest</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	Rotational/plant back crop restriction. Geographic allowable: MN MT ND SD
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	
<b>FLAX</b>	Buffer zone restriction. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply directly to water. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. This pesticide is toxic to aquatic invertebrates.				
Chemigation/Low volume spray (concentrate)/Spray <b>Foliar</b> Aircraft/Boom sprayer/Sprinkler irrigation	.225 lb (AE) A	NS	NS NS	NS	
<b>OATS</b>	45 day(s) pregrazing interval. Buffer zone restriction. Do not apply directly to water, or to areas where surface water is present or to				

	<p>intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  This pesticide is toxic to aquatic invertebrates.</p>				
Chemigation/Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Boom sprayer/Sprinkler irrigation	.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Postharvest</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	Rotational/plant back crop restriction. Geographic allowable: MN MT ND SD
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	
<b>RYE</b>	<p>45 day(s) pregrazing interval.  Buffer zone restriction.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  This pesticide is toxic to aquatic invertebrates.</p>				
Chemigation/Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Boom sprayer/Sprinkler irrigation	.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Postharvest</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	Rotational/plant back crop restriction. Geographic allowable: MN MT ND SD
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	
<b>WHEAT</b>	<p>45 day(s) pregrazing interval.  Buffer zone restriction.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply directly to water.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.</p>				

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	This pesticide is toxic to aquatic invertebrates.				
Chemigation/Low volume spray (concentrate)/Spray <b>Internode elongation</b> Aircraft/Boom sprayer/Sprinkler irrigation	.5 lb (AE) A	NS	NS NS	NS	
Low volume spray (concentrate)/Spray <b>Postharvest</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	Rotational/plant back crop restriction. Geographic allowable: MN MT ND SD
Low volume spray (concentrate)/Spray <b>Tillering</b> Aircraft/Boom sprayer	.5 lb (AE) A	NS	NS NS	NS	
Product Number(s) Contained in this Report : 009779-00347					

SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
<b>AGRICULTURAL UNCULTIVATED AREAS</b>	Conservation Reserve Acres. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not feed or graze animals on treated areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Rotational/plant back crop restriction. This pesticide is toxic to wildlife. This product is toxic to fish.					
<b>When needed</b> Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Low volume ground sprayer	.5 lb (AE) A	.5 lb (AE)/cc	NS NS	NS	24 h	
<b>BARLEY</b>	7 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (dairy animals). 14 day(s) pregrazing interval (dairy animals). 14 day(s) preharvest interval (dry hay). 40 day(s) preharvest interval (grain). 45 day(s) pregrazing interval. 57 day(s) preharvest interval. 7 day(s) prefeeding interval. 7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. 7 day(s) preharvest interval (forage). Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water except as specified on the product label. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not harvest foliage or hay from treated areas. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.					



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SITE NAME	LIMITATIONS					
Application Timing (for any Reg.# at any rate) Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
	Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to aquatic invertebrates. This pesticide is toxic to wildlife. This product is toxic to fish. Geographic disallowable: Other					
<b>Early spring</b> Low volume spray (concentrate)/Spray Aircraft/Ground	1.3875 lb (AE) A	NS	NS NS	NS	12 h	
<b>Fall</b> Low volume spray (concentrate)/Spray Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	12 h	
<b>Postemergence</b> Broadcast/Chemigation/Low volume spray (concentrate)/Spot treatment/Spray Aircraft/Backpack sprayer/Boom sprayer/Ground/Hand held sprayer/Low pressure ground sprayer/Low volume ground sprayer/Sprinkler irrigation	1.5 lb (AE) A	.97625 lb (AE)/cc	1/cc NS	AN	12 h	Do not apply when wind velocity is 10 mph or greater. Do not apply when wind velocity is 2 mph or less. Do not apply when wind velocity is 6 mph or greater.
<b>Postharvest</b> Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Low volume ground sprayer	.5 lb (AE) A	NS	NS NS	NS	12 h	Do not apply when wind velocity is 10 mph or greater. Geographic allowable: MN MT ND SD
<b>Spring</b> Low volume spray (concentrate)/Spot treatment Aircraft/Hand held sprayer/Low volume ground sprayer	.6844 lb (AE) A	NS	1/cc NS	NS	48 h	
<b>Tillering</b> Low volume spray (concentrate)/Spray Aircraft/Ground/Low volume ground sprayer	.4875 lb (AE) A	.3719 lb (AE)/cc	1/cc NS	NS	12 h	
<b>FLAX</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes).					

SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
	Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to wildlife. This product is toxic to fish.					
<b>Foliar</b> Low volume spray (concentrate)/Spray Aircraft/Ground	.3469 lb (AE) A	NS	NS NS	NS	12 h	
<b>Postemergence</b> Broadcast/Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Ground/Low volume ground sprayer	.375 lb (AE) A	.225 lb (AE)/cc	NS NS	NS	12 h	Do not apply when wind velocity is 6 mph or greater.
<b>GRASS FORAGE/FODDER/HAY</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Grown for seed only.					
<b>Established plantings</b> Spray Aircraft/Ground	1.5 lb (AE) A	NS	NS NS	NS	12 h	Do not apply when wind velocity is 6 mph or greater.

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SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
<b>Fall</b> Low volume spray (concentrate)/Spray Aircraft/Ground	1.3875 lb (AE) A	NS	NS NS	NS	12 h	
<b>Spring</b> Low volume spray (concentrate)/Spray Aircraft/Ground	1.3875 lb (AE) A	NS	NS NS	NS	12 h	
<b>GRASSES GROWN FOR SEED</b>	7 day(s) prefeeding interval. 7 day(s) pregrazing interval. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. This pesticide is toxic to aquatic invertebrates. This product is toxic to fish.					
<b>Established plantings</b> Spray Aircraft/Ground	.925 lb (AE) A	NS	NS NS	AN	12 h	
<b>Fall</b> Spray Aircraft/Ground	.925 lb (AE) A	NS	NS NS	NS	12 h	
<b>Spring</b> Low volume spray (concentrate)/Spray Aircraft/Ground/Sprayer	.925 lb (AE) A	NS	NS NS	AN	12 h	
<b>OATS</b>	7 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (dairy animals). 14 day(s) pregrazing interval (dairy animals). 14 day(s) preharvest interval (dry hay). 40 day(s) preharvest interval (grain). 45 day(s) pregrazing interval. 7 day(s) prefeeding interval. 7 day(s) preforage interval (animals being finished for slaughter).					

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SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
	7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. 7 day(s) preharvest interval (forage). Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water except as specified on the product label. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not harvest foliage or hay from treated areas. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to aquatic invertebrates. This pesticide is toxic to wildlife. This product is toxic to fish. Geographic disallowable: Other					
<b>Postemergence</b> Broadcast/Chemigation/Low volume spray (concentrate)/Spot treatment/Spray Aircraft/Backpack sprayer/Boom sprayer/Ground/Hand held sprayer/Low pressure ground sprayer/Low volume ground sprayer/Sprinkler irrigation	1.5 lb (AE) A	.97625 lb (AE)/cc	1/cc NS	AN	12 h	Do not apply when wind velocity is 10 mph or greater. Do not apply when wind velocity is 2 mph or less. Do not apply when wind velocity is 6 mph or greater.
<b>Postharvest</b> Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Low volume ground sprayer	.5 lb (AE) A	NS	NS NS	NS	12 h	Do not apply when wind velocity is 10 mph or greater. Geographic allowable: MN MT ND SD
<b>Spring</b> Low volume spray (concentrate)/Spot treatment	.6844 lb (AE) A	NS	1/cc NS	NS	48 h	

SITE NAME	LIMITATIONS					
Application Timing (for any Reg.# at any rate) Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
Aircraft/Hand held sprayer/Low volume ground sprayer						
<b>Tillering</b> Low volume spray (concentrate)/Spray Aircraft/Ground	(L)	NS	NS NS	NS	12 h	
<b>PASTURES</b>	<p>7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) prefeeding interval.  7 day(s) preforage interval (animals being finished for slaughter).  7 day(s) preforage interval (dairy animals).  7 day(s) pregrazing interval (dairy animals).  7 day(s) pregrazing interval (meat animals being finished for slaughter).  7 day(s) pregrazing interval.  Do not allow children or pets on treated areas until surfaces are dry.  Do not apply directly to water except as specified on the product label.  Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.  Do not apply through any type of irrigation system.  Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.  Do not contaminate water, food, or feed by storage or disposal.  Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.  Drift and runoff may be hazardous to aquatic organisms in neighboring areas.  For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark.  Groundwater restriction.  Rotational/plant back crop restriction.  This pesticide is toxic to aquatic invertebrates.  This product is toxic to fish.  Geographic disallowable: Other</p>					
<b>Established plantings</b> Spot treatment/Spray Aircraft/Ground	1.5 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	AN	12 h	Do not apply when wind velocity is 6 mph or greater.
<b>Fall</b> Broadcast/Low volume spray (concentrate)/Spray Aircraft/Ground	2 lb (AE) A	NS	NS NS	AN	12 h	
<b>Spring</b> Broadcast/Low volume spray (concentrate)/Spray Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	12 h	
<b>When needed</b> Low volume spray (concentrate)/Spot treatment	2.35 lb (AE) A	NS	NS NS	NS	48 h	

SITE NAME	LIMITATIONS					
Application Timing (for any Reg.# at any rate) Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
Aircraft/Hand held sprayer/Low volume ground sprayer						
<b>PEAS (UNSPECIFIED)</b>	Do not allow the feeding or grazing of foliage by livestock. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Groundwater restriction. Geographic allowable: Pacific NW States (Label verbatim)					
<b>Postemergence</b> Spray Aircraft/Ground	.375 lb (AE) A	NS	NS NS	NS	24 h	
<b>RANGELAND</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) prefeeding interval. 7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water except as specified on the product label. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to aquatic invertebrates. This product is toxic to fish. Geographic disallowable: Other					
<b>Established plantings</b> Spot treatment/Spray Aircraft/Ground	1.5 lb (AE) A .125 lb (AE)/3 gal	NS	NS NS	AN	12 h	Do not apply when wind velocity is 6 mph or greater.
<b>Fall</b>	2 lb (AE) A	NS	NS	AN	12 h	

SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
Broadcast/Low volume spray (concentrate)/Spray Aircraft/Ground			NS			
<b>Spring</b> Broadcast/Low volume spray (concentrate)/Spray Aircraft/Ground	2 lb (AE) A	NS	NS NS	NS	12 h	
<b>When needed</b> Low volume spray (concentrate)/Spot treatment Aircraft/Hand held sprayer/Low volume ground sprayer	2.35 lb (AE) A	NS	NS NS	NS	48 h	
<b>RICE</b>	Do not apply through any type of irrigation system. Do not apply when wind velocity is 5 mph or greater. Do not apply when wind velocity is 5 mph or greater. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Geographic allowable: MS					
<b>Late tillering</b> Spray Ground	1.156 lb (AE) A	NS	NS NS	NS	12 h	
<b>RYE</b>	14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (dairy animals). 14 day(s) pregrazing interval (dairy animals). 45 day(s) pregrazing interval. 7 day(s) prefeeding interval. 7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water except as specified on the product label. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. Drift and runoff may be hazardous to aquatic organisms in neighboring areas.					

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SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
	For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to aquatic invertebrates. This pesticide is toxic to wildlife. This product is toxic to fish.					
<b>Early spring</b> Low volume spray (concentrate)/Spray Aircraft/Ground	1.3875 lb (AE) A	NS	NS NS	NS	12 h	
<b>Fall</b> Low volume spray (concentrate)/Spray Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	12 h	
<b>Postemergence</b> Broadcast/Chemigation/Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Ground/Low volume ground sprayer/Sprinkler irrigation	1.5 lb (AE) A	NS	NS NS	AN	12 h	Do not apply when wind velocity is 10 mph or greater. Do not apply when wind velocity is 6 mph or greater.
<b>Postharvest</b> Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Low volume ground sprayer	.5 lb (AE) A	NS	NS NS	NS	12 h	Do not apply when wind velocity is 10 mph or greater. Geographic allowable: MN MT ND SD
<b>Tillering</b> Low volume spray (concentrate)/Spray Aircraft/Ground	.4875 lb (AE) A	NS	NS NS	NS	12 h	
<b>SMALL GRAIN-LEGUME MIXTURE</b>	7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction.					



SITE NAME	LIMITATIONS					
<b>Application Timing (for any Reg.# at any rate)</b> Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/ cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
<b>Foliar</b> Low volume spray (concentrate) Aircraft/Low pressure ground sprayer	.24375 lb (AE) A	NS	NS NS	NS	12 h	
<b>TRITICALE</b>	Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. This pesticide is toxic to wildlife. This product is toxic to fish. Geographic allowable: OR					
<b>Postemergence</b> Chemigation/Spray Aircraft/Ground/Sprinkler irrigation	.5 lb (AE) A	NS	NS NS	NS	12 h	
<b>WHEAT</b>	7 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (animals being finished for slaughter). 14 day(s) preforage interval (dairy animals). 14 day(s) pregrazing interval (dairy animals). 14 day(s) preharvest interval (dry hay). 40 day(s) preharvest interval (grain). 45 day(s) pregrazing interval. 60 day(s) preharvest interval. 7 day(s) prefeeding interval. 7 day(s) preforage interval (animals being finished for slaughter). 7 day(s) preforage interval (dairy animals). 7 day(s) pregrazing interval (dairy animals). 7 day(s) pregrazing interval (meat animals being finished for slaughter). 7 day(s) pregrazing interval. 7 day(s) preharvest interval (forage). Do not allow children or pets on treated areas until surfaces are dry. Do not apply directly to water except as specified on the product label. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply through any type of irrigation system. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal. Do not enter treated areas without protective clothing until sprays have dried. Do not graze or feed forage or hay from treated areas to livestock. Do not harvest foliage or hay from treated areas. Do not use where treated water will come into contact with lawns, trees, shrubs, or other desirable plants, since injury may result.					

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SITE NAME	LIMITATIONS					
Application Timing (for any Reg.# at any rate) Application Type (for any Reg.# at any rate) Application Equipment (for any Reg.# at any rate)	Max. Single Appl. Rate to a Single Site	Max. Seasonal Rate	Max. # Apps/cc & yr	M R I	R E I	PHI/PGI/PSI Use Limitations (May not apply to all Reg. #s)
	Drift and runoff may be hazardous to aquatic organisms in neighboring areas. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Groundwater restriction. Rotational/plant back crop restriction. This pesticide is toxic to aquatic invertebrates. This pesticide is toxic to wildlife. This product is toxic to fish. Geographic disallowable: Other					
<b>Early spring</b> Low volume spray (concentrate)/Spray Aircraft/Ground	1.3875 lb (AE) A	NS	NS NS	NS	12 h	
<b>Fall</b> Low volume spray (concentrate)/Spray Aircraft/Ground	.4625 lb (AE) A	NS	NS NS	NS	12 h	
<b>Foliar</b> Broadcast/Low volume spray (concentrate) Aircraft/Boom sprayer/Low volume ground sprayer	.39375 lb (AE) A	NS	1/cc NS	NS	24 h	
<b>Postemergence</b> Broadcast/Chemigation/Low volume spray (concentrate)/Spot treatment/Spray Aircraft/Backpack sprayer/Boom sprayer/Ground/Hand held sprayer/Low pressure ground sprayer/Low volume ground sprayer/Sprinkler irrigation	1.5 lb (AE) A	.97625 lb (AE)/cc	1/cc NS	AN	12 h	Do not apply when wind velocity is 10 mph or greater. Do not apply when wind velocity is 2 mph or less. Do not apply when wind velocity is 6 mph or greater.
<b>Postharvest</b> Low volume spray (concentrate)/Spray Aircraft/Boom sprayer/Low volume ground sprayer	.5 lb (AE) A	NS	NS NS	NS	12 h	Do not apply when wind velocity is 10 mph or greater. Geographic allowable: MN MT ND SD
<b>Spring</b> Low volume spray (concentrate)/Spot treatment Aircraft/Hand held sprayer/Low volume ground sprayer	.6844 lb (AE) A	NS	1/cc NS	NS	48 h	
<b>Tillering</b> Low volume spray (concentrate)/Spray Aircraft/Ground/Low volume ground sprayer	.4875 lb (AE) A	.3719 lb (AE)/cc	1/cc NS	NS	12 h	

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**PRODUCT NUMBERS CONTAINED IN THIS REPORT**

000228-00156, 000228-00267, 000264-00438, 000264-00649, 000264-00654, 000264-00655, 000554-00125, 001381-00098, 005905-00506, 009779-00265, 011685-00021, 035935-00020, 042750-00023, 042750-00025, 042750-00052, 051036-00254, 051036-00360, 062719-00059, 062719-00086, 062719-00307, 071368-00016, 071368-00017, MS93000500, OR01003200

**HOMEOWNER PRODUCTS CONTAINED IN THIS REPORT**

None

**HEADER ABBREVIATIONS**

Site Name - The site name refers to the entity (crop, building, surface or article) where a pesticide is applied and/or which is being protected.

Limitations - Precautionary statements related to the use of the product(s).

Application Timing - The timing of pesticide application and is the primary application sort (not aggregated).

Application Type - The type of pesticide application (aggregated).

Application Equipment - The equipment used to apply pesticide (aggregated).

Max. Single Appl. Rate to a Single Site - Maximum Dose for a single application to a single site. System calculated.

Max Seasonal Rate - The maximum amount of pesticide that can be applied to a site in one growing season (/cc) and during the span of one year (/yr).

Max. # Apps/cc & yr - Maximum Number of Applications per crop cycle and per year.

M R I - Minimum Retreatment Interval (days) (at any rate). The minimum interval between pesticide application (days).

R E I - ReEntry Interval - The minimum amount of time that must elapse before workers can reenter a treated area.

PHI/PGI/PSI Use Limitations (May not apply to all Reg.#s) - Preharvest/Pregrazing/Preslaughter Interval use limitations pertinent to the application.

Current As Of: - The label data for the listed products in this report is current of this date.

**ABBREVIATIONS**

AN - As needed

NA - Not Applicable

NS - Not Specified (on label)

(L) - The dosage information provided is from the label in terms of product (e.g., ounces, gallons, or pounds of the product) because there was insufficient information (e.g., missing density, area, or active ingredient percentages) to provide converted dosage information. This report provides active ingredient percentage in the product for the reported chemical for all unconverted label dosage information if this information is available. This active ingredient percentage information is displayed next to the form code abbreviations (e.g., 80% WP).

**APPLICATION RATE**

cwt : Hundred Weight

nnE-xx : nn times (10 power -xx), for instance, "1.234E-04" is equivalent to ".0001234"

End of Report

For questions and comments please contact the OPP Label Data Team through e-mail.