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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

February 13, 2003

MEMORANDUM

TO: Chlorsulfuron Reregistration Eligibility Decision (RED) Team Members

FROM: Christina Scheltema, Chemical Review Manager
Special Review and Reregistration Division (7508C)
Reregistration Branch III

Christina Scheltema

SUBJECT: Use Closure Memo for Chlorsulfuron; PC Code: 118601; RED Case No.: 0631; CAS No.:64902-72-3

This memorandum was developed to summarize the results of communications between the RED team members and DuPont, the technical registrant, and to serve as the Agency's record of common understanding on the uses of chlorsulfuron to be considered in risk assessments for reregistration. This memo includes information on all registered products; agricultural and ornamental uses; and the status of the existing database. A draft of this memo was reviewed by the Environmental Fate and Effects Division (EFED) RED team and by DuPont, and comments were included as appropriate.

BACKGROUND:

The Agency reassessed all of the chlorsulfuron tolerances in 2002 in conjunction with its review of a new food use on pasture and rangeland grasses. This TRED decision was published in the ***Federal Register*** on August 14, 2002. EPA completed a drinking water assessment on June 25, 2002 and a human health risk assessment on July 18, 2002 to support the registration of the new use described above (Shanaman 2002 and Fort 2002, respectively). These assessments will also be used to support the RED. This memorandum serves primarily to clarify use information to be included in the ecological risk assessment for chlorsulfuron. This memorandum also lists the studies submitted to support reregistration that are currently undergoing Agency review.

FORMULATIONS, USES AND USE SITES:

FORMULATIONS

The following chlorsulfuron formulations will be included in the Agency's reregistration risk assessment:

EPA Registration Number	Product Name	% Active Ingredient	Formulation Type	Registered Uses/ Use Sites
Registrations/Use Patterns Supported by DuPont				
228-375	Riverdale Corsair Selective Herbicide	75	Water dispersible granules	Turf grass
352-522 352-404	DuPont Telar DF Herbicide and DuPont Telar Herbicide	75	Water dispersible granules	Noncrop industrial sites, unimproved industrial turf, and/or pastures and rangeland
352-445	DuPont Finesse Herbicide (Also contains 12.5% Metsulfuron Methyl)	62.5	Water dispersible granule	Wheat, pre- and post-emergence; Barley, post-emergence, fallow
352-516	DuPont Chlorsulfuron Technical	98	Technical	Manufacturing use only
352-522	DuPont Glean Fertilizer Compatible Herbicide	75	Water dispersible granules	Wheat, pre- and post-emergence; Barley, post- emergence; Oats, pre- and post-emergence
352-620	DuPont Landmark II MP (twinpack) (Also contains 56.25% Sulfometuron Methyl)	18.75	Water dispersible granules	Noncrop industrial sites, unimproved industrial turf, non-cropland restoration
352-621	DuPont Landmark MP (twinpack) (Also contains 50% Sulfometuron Methyl)	25	Water dispersible granules	Noncrop industrial sites, unimproved industrial turf, non-cropland restoration
Other Chlorsulfuron Registrations*				
10404-59	Lesco TFC Dispersible Granule Turf Herbicide	75	Water dispersible granules	Turf grass

(Vuckich, 2003a and b; USEPA REFS Database) *EPA has not yet received confirmation that this registration/use pattern is being supported for reregistration.

There are no FIFRA Section 24(c) Special Local Need registrations for chlorsulfuron or FIFRA Section 18 registrations for emergency exemptions.

USE AND USE SITES

Chlorsulfuron is used as a pre and post emergent herbicide to control a variety of weeds on cereal grains, pasture and rangeland, industrial sites, and turf grass. These use patterns are being supported by DuPont, the technical registrant. Chlorsulfuron is applied as a granule suspended in water. Use sites and maximum and typical use rates are given in the following table.

Crop/Formulation	Chlorsulfuron Application Rate, lbs ai/A	Maximum number of Applications per Season	Maximum Seasonal/Yearly Application Rate
Wheat, pre-emergent			
GLEAN FC	up to 0.023	Once per crop season to once per 36 months	0.023 lb ai/A
FINESSE*	0.0078-0.0195	Not specified	Not specified
Wheat, post emergent			
GLEAN FC	0.0078-0.016	Once per crop season to once per 36 months	0.016 lb ai/A
FINESSE*	0.0078-0.016	Not specified	Not specified
Barley, post-emergence			
GLEAN FC	0.0078-0.016	Once per crop season to once per 36 months	0.016 lb ai/A
FINESSE*	0.0078-0.016	Not specified	Not specified
Oats, pre-emergence			
GLEAN FC	up to 0.023	Once per crop season to once per 36 months	0.023 lb ai/A
Oats, post-emergence			
GLEAN FC	0.0078-0.016	Once per crop season to once per 36 months	0.016 lb ai/A
Pastures & Rangeland			
TELAR DF	0.012-0.0625	Not specified	0.0625 lb ai/A
Fallow			
FINESSE*	0.0078-0.016	Not specified	Not specified
Non-Crop Industrial Sites			
TELAR DF	0.012-0.14	Not specified	Not specified
LANDMARK MP	0.0625-0.125	Not specified	0.125 lb ai/A per year

Crop/Formulation	Chlorsulfuron Application Rate, lbs ai/A	Maximum number of Applications per Season	Maximum Seasonal/Yearly Application Rate
LANDMARK II MP	0.047-0.12	Not specified	0.12 lb ai/A per year
Unimproved Industrial Turf			
TELAR DF	0.012-0.023	Not specified	0.023 lb ai/A per year
LANDMARK MP	0.0125	2 per year	0.025 lb ai/A per year
LANDMARK II MP	0.012	Not specified	0.023 lb ai/A per year
Non-cropland Restoration			
LANDMARK MP	0.021-0.031	Not specified	0.125 lb ai/A per year
LANDMARK II MP	0.016-0.023	Not specified	0.12 lb ai/A per year
Ornamentals/Fine Turf			
CORSAIR Selective Herbicide	0.13-0.25	2 per year, 60-day interval	0.26-0.50 lb ai/A per year

*According to the registrant, Finesse herbicide is generally only applied once per year, although this is not specified on the label. Data are from Vukich 2003b.

RELATIVE USAGE BY STATE

For cereal grains, the greatest chlorsulfuron usage is in Kansas, followed by Oklahoma, Montana, Washington, Texas, Nebraska, North Dakota, and California (Vukich 2003c). For the non-crop market, the greatest usage is in Iowa, followed by Washington, Oregon, Colorado, Idaho, Minnesota, Mississippi, and Nebraska. States are listed in decreasing order of amount of chlorsulfuron used.

The Biological and Economic Effects Division (BEAD) completed a quantitative usage analysis (QUA) for chlorsulfuron in 2000 (attached), which was used for the TRED. The QUA is supplemented by more recent information from DuPont (Lomax 2000 and Vukich 2003c), which contains some confidential business information (CBI) and is therefore not attached, but made available separately.

APPLICATION METHODS

Aerial application is permitted only for two formulations of chlorsulfuron: Glean and Finesse (Vukich 2003c). As previously mentioned, these products are registered for use on wheat, oats, barley, and fallow land (Finesse only). All other formulations of chlorsulfuron are applied with ground equipment, such as groundboom. Handheld equipment, such as high pressure handwand, may be used for spot treatments.

STATUS OF DATABASE

The database to support the reregistration of chlorsulfuron is substantially complete. A few studies are currently undergoing Agency review. As study reviews are completed, they will be sent to the technical registrant. Studies in review are listed below.

71-4(a)	Avian Reproduction Study in Quail	MRID 42634001
71-4(b)	Avian Reproduction in Duck	MRID 42634002
72-3(b)	Estuarine/Marine Toxicity Mollusk	MRID 42328601
72-4(b)	Life Cycle Invertebrate	MRID 42309701
123-1(a)	Seed germination/Seedling Emergence	MRIDs 42587201, 42201001
122-1(b)	Vegetative Vigor	MRIDs 42587201, 42201001
123-2	Aquatic Plant Growth	MRIDs 42186801, 45832901, 45832902, 45832903, 45832904

Although some data gaps were identified in the 2002 TRED, EPA does not believe these data are necessary to complete the RED. However, the new food use will be conditioned upon submission of these data.

References

David Donaldson. 2000. Chlorsulfuron Quantitative Usage Analysis. June 15, 2002.

Felicia Fort. 2002. Chlorsulfuron in/on pasture grasses. Health Effects Division (HED) Risk Assessment. July 18, 2002.

Nancy Lomax. 2000. DuPont Agricultural Products. Chlorsulfuron Reregistration - Quantitative Usage Analysis 30 day Response to EPA Letter of July 17, 2000.

Lucy Shanaman. 2002. Drinking water assessment for chlorsulfuron. June 25, 2002.

Jacob Vukich. 2003a. DuPont Crop Protection. *Chlorsulfuron Reregistration.* January 16, 2003.

Jacob Vukich. 2003b. DuPont Crop Protection. *Additional Chlorsulfuron Labels and Application Parameters.* January 28, 2003.

Jacob Vukich. 2003c. DuPont Crop Protection. *Chlorsulfuron Reregistration: DuPont's Comments/Updates to the Chlorsulfuron Quantitative Use Analysis* ***and*** *Chlorsulfuron - DuPont's Response to EPA's SMART Questions.*" January 31, 2003. Contains Confidential Business Information.

Chlorosulfuron
Quantitative Usage Analysis

Case #	***0631***	***PC Code***	***118601***
Date	***June 15, 2000***	***analyst***	***David Donaldson***

Based on available pesticide survey usage information for the years of 1988 through 1999, an annual estimate of Chlorsulfuron's total domestic usage averaged approximately 72,000 pounds active ingredient (a.i.) for 5,541,000 acres treated. Most of the acreage is treated with 0.01 pounds a.i. or less per application and 0.01 pounds a.i. per year. Chlorosulfuron is an herbicide with its largest markets in terms of total pounds active ingredient allocated to winter wheat (90%) and spring wheat (5%). The remaining usage is primarily on barley, oats, and pasture/hay. Crops with a high percentage of the total U.S. planted acres treated include winter wheat (11%) and oats (2%) while registered sites with little or no usage include lawn and ornamental turf. Most Chlorsulfuron usage is in California, Idaho, Kansas, Minnesota, North Dakota, Oklahoma, Oregon, South Dakota, Texas, and Washington.

Chlorosulfuron
Quantitative Usage Analysis

Case # *0631* *PC Code* *118601*
Date *June 15, 2000* *analyst* *David Donaldson*

Site	Acres (000) Grown	Acres (000) Treated		% of Crop Treated		Lb ai (000) applied		Average Application Rates			States of Most Usage
		Wtd Avg	Est Max	Wtd Avg	Est Max	Wtd Avg	Est Max	lb ai / A / yr	# appl / yr	lb ai / A / appl	% of total lb ai used on this site
Barley	7,326	94	268	1%	4%	1	2	0.01	1.01	0.01	WA ND CA MN ID 81%
Oats	4,364	85	174	2%	4%	1	2	0.01	1.00	0.01	OK WY WA OR 88%
Pasture and Hay, Other	92,000	101	150	0%	< 1%	1	1	0.01	1.08	0.01	KS CA OK 95%
Wheat, Spring	21,311	260	622	1%	3%	4	7	0.01	1.02	0.01	ND MT WA SD 80%
Wheat, Winter	44,907	5,000	7,467	11%	17%	65	100	0.01	1.00	0.01	KS OK WA TX 81%
Lawns and Ornamental Turf	-	1	5	-	-	< 1	1	-	-	-	-
Total	-	5,541	7,114	-	-	72	93	-	-	-	-

COLUMN HEADINGS

Weighted average--the most recent years and more reliable data are weighted more heavily.
Est Max = Estimated maximum, which is estimated from available data.
Average application rates are calculated from the weighted averages.

NOTES ON TABLE DATA

Usage data primarily covers 1988 - 1999.
Calculations of the above numbers may not appear to agree because they are displayed as rounded:
to the nearest 1000 for acres treated or lb. a.i. (Therefore 0 = < 500)
to the nearest whole percentage point for % of crop treated. (Therefore 0% = < 0.5%)

0* = Available EPA sources indicate that no usage is observed in the reported data for this site, which implies that there is little or no usage.
A dash (-) indicates that information on this site is NOT available in EPA sources or is insufficient.

SOURCES: EPA data, USDA/NASS, CAL EPA, and National Center for Food and Agricultural Policy.