John Elias Baldacci
GOVERNOR

STATE OF MAINE
MAINE DEPARTMENT OF AGRICULTURE, FOOD & RURAL RESOURCES
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

SETH H. BRADSTREET III
COMMISSIONER

HENRY JENNINGS
DIRECTOR

To: Board of Pesticides Control Members
From: Mary Tomlinson, Pesticides Registrar
Re: EPA Special Local Need (SLN) [FIFRA, Section 24(c)] application to approve the use of Asulox Herbicide (EPA Reg. No. 70506-139) for control of bracken fern in wild blueberries
Date: October 18, 2010

****

Enclosed is the SLN application and supporting documents for the use of Asulox Herbicide (EPA Reg. No. 70506-139) for bracken fern control in wild blueberries. This request is in response to reduced yields, reported by growers to Dr. David Yarborough, resulting from the tenacity of bracken fern and the lack of effective control measures.

This product is currently registered, although not for use on blueberries. According to Dr. Yarborough, there was a 24c label for this product and use some years ago, but no SLN records remain for reference. However, the Board and Medical Advisory Committee reviewed Asulox on 2002 (refer to memo from Lebelle Hicks). The proposed SLN use would include the following conditions:

- Application will be made during non-bearing years.
- Application will be no more than once every other year.
- Application will be via spot treatment.

Although the risk to surface and ground water may be reduced due to the application conditions listed above, water quality monitoring is recommended due to the potential for runoff and leaching. An expiration date of five years is also suggested to ensure timely review for continued use.

Your package includes the additional documents listed below for your review:

- Update from Lebelle Hicks
- Cover letter from Rebecca Clemmer, Regulatory Manager, United Phosphorus, Inc.
- Support letter from Bill Malay, Farm Manager, Cherryfield Foods, Inc.
- Support letter from David E. Yarborough, Ph.D, University of Maine Cooperative Extension
- Proposed SLN supplemental label for this use
- State product Section 3 label and MSDS for Asulox Herbicide

Please review these materials and let me know if you have any questions.

Form Approved. OMB No. 2070-0055.

United States Environmental Protection Agency
Office of Pesticide Programs
Registration Division (TS-767)
Washington, DC 20460

Application for/Notification of State Registration of a Pesticide To Meet a Special Local Need

(*Pursuant to Section 24(C) of the Federal Insecticide, Fungicide, and Rodenticide Act, as Amended*)

For State Use Only

Registration No. Assigned

Date Registration Issued

1. Name and Address of Applicant for Registration

United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406

2. Product is (Check one)

EPA Registered [X] — EPA Registration Number: 70506-139

New (not EPA-registered) [ ] Attach EPA Form 8570-4, Confidential Statement of Formula, fix now products. — EPA Company Number: 70506

3. Active Ingredient(s) in Product
sodium salt of asulam

4. Product Name
Asulox Herbicide

5. If this is a food/feed use, a tolerance or other residue clearance is required. Cite appropriate regulations in 40 CFR Part 180, 185, and/or 186.
40 CFR 180.360

6. Type of Registration (Give details in Item 13 or on a separate page, property identified and attached to this form).

- [ ] a. To permit use of a new product.
- [ ] b. To amend EPA registrations for one or more of the following purposes:
  - [X] (1) To permit use on additional crops or animals.
  - [ ] (2) To permit use at additional sites.
  - [ ] (3) To permit use against additional pests.
  - [ ] (4) To permit use of additional application techniques or equipment.
  - [ ] (5) To permit use at different application rates.
  - [ ] (6) Other (specify below).

7. Nature of Special Local Need (check one)

- [ ] There is no pesticide product registered by EPA for such use.
- [X] There is no EPA-registered pesticide product which, under the conditions of use within the State, would be as safe and/or as efficacious for use within the terms and condition of EPA registration
- [ ] An appropriate EPA-registered pesticide product is not available.

8. If this registration is an amendment to an EPA-registered product, is it for a "new use" as defined in 40 CCFR 152.3?

[ ] Yes (discuss in item 12 below) [X] No

9. Has an EPA Registration or Experimental Use Permit for this chemical ever been (check applicable box(es), if known):

[ ] Sought [ ] Issued [ ] Denied [ ] Canceled [ ] Suspended

[ ] Registration [ ] Experimental Use Permit [X] No Previous Permit Action

10. Has FIFRA section 24(c) registration for this use of the product ever, by another State, been (check appropriate box(es), if known):

[ ] Sought [ ] Issued [ ] Denied [ ] Revoked

If any of the above are checked, list States in item 13 below

[X] No FIFRA section 24(c) Action

11. Endangered Species Act: (Give details in Item 13 or on a separate page, properly identified and attached to this form)

Identify the counties where this pesticide will be used. If Statewide, Indicate "all". Provide a list of Federally protected endangered/threatened species which occur in the areas of proposed use.

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

12. Indicate use statue of Special Local Need, i.e., planned dates of use:

From: _____ To: _____

Signature of Applicant or Authorized Representative

Title
Regulatory Manager

Telephone Number
610-491-2828

Date
Sept. 27, 2010

13. Comments (attach additional sheet, if needed)

This product will be applied during non-bearing years.

Determination by State Agency

This registration is for a Special Local Need and is being issued in accordance with section 24(c) of FIFRA as amended. To the best of our knowledge, the information above is correct, except as noted in "Comments" below or in attachments.

Name, Title, and Address of State Agency Official	Comments (by State Agency Only)	Received by EPA
Title		
Telephone Number / Date		

JOHN ELIAS BALDACCI
GOVERNOR

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AUGUSTA, MAINE 04333-0028

SETH BRADSTREET
COMMISSIONER
HENRY JENNINGS
DIRECTOR

TO: Board Members
FROM: Lebelle Hicks PhD DABT
RE: Asulox 2002 Review

September 30, 2010
****

The Board and its' Medical Advisory Committee (MAC) last reviewed Asulox on Blueberries in 2002. I have reformatted those documents and attached them for your review. A search of the federal dockets indicates that the materials in 2002 are the most recent health reviews from EPA. The EPA cancer classification of "C" possible human carcinogen made in 2001 remains unchanged (EPA 2009).

The Maximum Exposure Guideline (MEG) set in 2002 for asulam was 35 ppb (see attached). In their 2010 revised MEG for drinking water exposure, Maine Centers for Disease Control (ME CDC) rounded the MEG up to 40 ppb (ME CDC 2010).

References

Regulations.gov
http://www.regulations.gov/search/Regs/home.html#searchResults?N=0&Ne=11+8+8053+8098+8074+8066+8084+1&Ntk=All&Ntx=mode+matchall&Ntt=asulam%20hed

EPA 2009 Chemicals Evaluated for Carcinogenic Potential Office of Pesticide Programs 2009

ME CDC 2010 Maximum Exposure Guidelines (MEGs) for Drinking Water, Environmental and Occupational Health Program Center for Disease Control and Prevention, August 5th 2010

STATE OF MAINE
MAINE DEPARTMENT OF AGRICULTURE, FOOD & RURAL RESOURCES
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ANGUS S. KING, JR.
GOVERNOR

ROBERT W. SPEAR
COMMISSIONER
ROBERT I. BATTEESE, JR.
DIRECTOR

TO: Board Members
FROM: Lebelle Hicks PhD DABT
RE: Application for 24c Asulox [tm] containing 36.2% Sodium salt of Asulam

April 3, 2002

****

I have reviewed the 24c application package, the 1987 EPA Guidance for Re-registration of Products Containing Asulam as the Active Ingredient and the 1995 Re-registration Eligibility Document (RED) for Asulam. For summary purposes, I have attached copies of the RED Fact sheet.

The major toxicological concern for this compound is the Carcinogenicity classification as a "C" limited evidence of carcinogenicity in animals. EPA decided not to quantify the cancer risks and to use the reference dose approach for dietary exposure. Reasons for this were: no dose response, single sex, single study, common tumor types, no change in latency period and negative results in the mutagenicity studies.

I have requested that the Bureau of Health set an interim Maximum Exposure Guideline of 35 ppb based on the following calculation:

An IRIS reference dose for asulam of 0.05 mg/kg/day, a 70 kg individual drinking 2 liters per day. Asulam is an EPA class "C" carcinogen with no slope factor, this accunts for the Uncertainty Factor (UF) of 10. There is an assumption of 20% contribution f om drinking water. Using the Bureau of Health's January 2000 protocol for setting an MEG, the resulting level is 0.035 ppm (35 ppb).

$$\frac{0.05 \text{ mg/kg/day X } 70 \text{ kg}}{2 \text{ L X } 10 \text{ (UF)}} \quad \text{X} \quad 0.2 = 0.035 \text{ ppm (35 ppb)}$$

There was a earlier 24c was in 1989, was conditioned with a 500 ft set back to wells, used for drinking water and the requirement that a monitoring study be done. **The 500 ft setback is not included in the current application.** Three wells were monitored for asulam and the sulfanilamide metabolite. Asulam was found in one well at 4 ppb and the metabolite was found in 2 wells at less than 1 ppb (Maine Geological survey 1989).

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ANGUS S. KING, JR.
GOVERNOR

ROBERT W. SPEAR
COMMISSIONER
ROBERT I. BATTEESE, JR.
DIRECTOR

TO: Medical Advisory Committee Members and Representative McKee
FROM: Lebelle Hicks, PhD DABT
RE: Background Information on Asulam

July 2002
****

In April 2002, the Maine Cooperative Extension Blueberry Specialist, Dave Yarborough submitted an application to the Board to approve a Special Local Needs (24c) registration for Asulox EPA # 264-447 (containing 36.2% sodium salt of asulam) for use on bracken fern in blueberries. Attached are the EPA 24c form, the section 3 label and the proposed 24c label (Attachment I). Please note the Environmental Hazards section on page 1 reads:

"**This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination. Surface water contamination may occur in areas with poorly draining soils and little or no buffers or in areas where drainage systems flow directly to surface water."**

At their April meeting, the Board voted to ask the MAC to review the proposed use for human health risks prior to pursuing this 24c registration. We will be looking at the EPA Registration database in terms of chronic/ oncogenicity bioassay, developmental and reproduction studies and potential exposure from ground water sources downeast.

From the EPA summary documents available at the time of the request, the major toxicological concern for this compound is the Carcinogenicity classification as a "C" limited evidence of carcinogenicity in animals. EPA decided not to quantify the cancer risks and to use the reference dose approach for dietary exposure. Reasons for this were: no dose response, single sex, single study, common tumor types, no change in latency period and negative results in the mutagenicity studies.

Prior to the Board meeting, I requested that the Bureau of Health set an interim Maximum Exposure Guideline (MEG) using the their January 2000 protocol for setting an MEG. The interim MEG is 35 ppb based on the following information:

> The EPA Integrated Risk Information System (IRIS) reference dose for asulam of 0.05 mg/kg/day. **[This reference dose is based on Low Observable Adverse Effect Level (LOAEL) from the rat developmental study divided by an uncertainty factor of**

1,000. The standard uncertainty factors are 100 (10 for inter and 10 for intra species differences) and 10 for using a LOAEL rather than a No Observable Adverse Effect Level (NOAEL)]. The EPA carcinogen classification of "C" with no slope factor results in another Uncertainty Factor (UF) of 10. **The total uncertainty factor is 10,000.**

Standard assumptions fro drinking water guidelines are: a 70 kg individual drinking 2 liters per day with 20% of total exposure from the drinking water.

In EPA's 1995 Registration Eligibility Document (RED) and the 2002 Health Effects Division (HED) memo the reference dose is based on the chronic rat study with a NOAEL of 36 mg/kg/day. Using the standard uncertainty factor of 100 for inter and intra species variality and the additional safety factor for the "C" carcinogen classification. **The total uncertainty factor is 1,000.** The resulting MEG would be 0.252 ppm (250 ppb).

The major issue that the MAC should resolve is the appropriateness of the choice of study, the endpoint for setting the RfD and the magnitude of uncertainty factors to be used in the MEG calculation.

The label's ground water warning is substantiated by environmental fate information in the EPA documents including results from the Florida and Louisiana surface and ground water monitoring study (summarized below):

Results from Monthly Water Monitoring Data following Sugar cane uses in Florida and Louisiana (EPA, 2002)		
Water source	# sources	Results
Surface community systems	10	7 of 10 (trace)
Potable wells	28	3 of 28 (1 to 1.92 ppb) 10 of 28 (trace) No detects in LA

On June 5th, a request was made to the registrant (Attachment II) to obtain the toxicity studies and details on the water monitoring studies. Per our standard operating procedures, I will review this information, present it for your evaluation prior to our next meeting. Expecting a timely response to my request for information, that meeting should be in late August or September. Please let me know your availability for that time frame. I can be reached at 287-7594 or by E-mail: lebelle.hicks@state.me.us

MAC Report July 2002 Reformatted September 30th 2010

Maine Board of Pesticides Control
Medical Advisory Committee
Review of Asulox tm
for Proposed 24c use on
Bracken Fern in Blueberries

Lebelle Hicks PhD DABT
Pesticides Toxicologist
July 9, 2002

MAC Report July 2002 Reformatted September 30th 2010
BACKGROUND

In April 2002, the Maine Cooperative Extension Blueberry Specialist, Dave Yarborough submitted an application to the Board to approve a Special Local Needs (24c) registration for Asulox EPA # 264-447 (containing 36.2% sodium salt of asulam) for use on bracken fern in blueberries. This is the only asulam containing product registered in Maine 2001 (NSPIRS, 2002). The 24c label would be a supplement to the primary label. The proposed use rates are 4 to 6 pints per acre in the non-bearing year. The method proposed is an airblast sprayer for heavy infestation and a backpack prayer for small patches of ferns.

Oncogenic potential and developmental/ reproductive toxicological endpoints are the primary subject of this review. Other non-cancer toxicological endpoints are summarized adequately by EPA in their 1995 Re-registration Eligibility Decision Document. This assessment predates the Federal Food Quality Protection Act (FQPA) of 1996. FQPA requires an extra safety factor of 10X for compounds with developmental effects. For this reason an evaluation of the reproduction/ developmental studies will be included here.

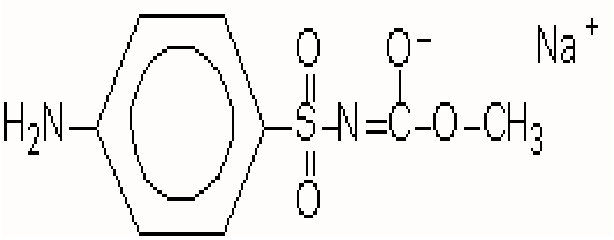
The other major concern with Asulam is exposure, primarily through ground water. This is the label warning regarding use of Asulox (Aventis, 2002):

"This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination. Surface water contamination may occur in areas with poorly draining soils and little or no buffers or in areas where drainage systems flow directly to surface water."

Given the environmental conditions and the history of wide spread low levels of hexazinone in groundwater in Maine, there is high potential for asulam intrusion into groundwater with this use. One major difference between hexazinone and asulam is that the use of Asulox as a Special Local Needs (24c) registration could be limited to a total of two years.

MAC Report July 2002 Reformatted September 30th 2010
TOXICITY REVIEW

Asulam is a post-emergent systemic carbamate herbicide used on a variety of weed species. There were no reported retail or wholesale sales of Asulam in 2000. Likewise trhere were no reports of commercial use for this product (BPC, 2002). The 24c request is specific for bracken fern control in blueberries. The structure of the sodium salt of asulam is presented in Figure 1.



Absorption, Distribution, Metabolism and Excretion

There are two reports on the metabolism of asulam; 1995 RED and Heijbroek et al, 1984. The RED summarized the asulam metabolism study. Male and female Sprague Dawley rats received asulam as a single oral dose, single intravenous dose or repeated (14 day) intravenous doses. Phamacokinetics were similar for all dosing regimens and for both sexes. Peak levels were obtained 30 minutes post administration and no bio-accumulation was observed after 72 hours. Elimination was rapid, mostly within 24 hrs. Urine was the major route of elimination. 76.5 to 101.5 % of the administered dose appearing in the urine. The major metabolites are summarized in table 1.

Table 1. Major Metabolites of Asulam in the Rat (EPA, 1995)

Metabolite	Percent
Parent compound	70 - 80 %
Acetyl asulam	3 - 8 %
Acetyl sulphanilimide	< 3 %

Heijbroek et al, 1984, shows the same metabolic pattern. The dosing regimen was 10 mg/kg as either an intravenous or oral dose. Some rats received the oral dose for 8 to 510 days. [Have abstract, need to get a copy of the full study]

Acute and Subchronic Studies

The Acute and subchronic studies with asulam are summarized in Table 1.

Table 1. Asulam; Acute and Sub-chronic Toxicity Studies (EPA, 1995)			
Endpoint	**Species**	**Results**	**EPA toxicity Category (a)**
Oral LD50	Rat	> 5,000 mg/kg	IV
Dermal LD50	Rabbit	> 4,000 mg/kg	III
Inhalation LD50	Rat	> 5 mg/L	IV
Eye Irritation	Rabbit	Mild irritant	III
Dermal Irritation	Rabbit	Not an irritant	IV
Dermal sensitization	Guinea pig	No sensitization	-
Dermal 21-day	Rabbit	No Observable Effect Level (NOEL) Highest Dose Tested (HDT) 1,000 mg/kg/day	-

a) See Appendix I.

Chronic Toxicity Studies

Chronic toxicity studies for asulam have been in rats and dogs. The 2-year chronic bioassay in rats utilized concentrations of 0, 1,000, 5,000 and 25,000 ppm in the diet. Resulting doses were: 0, 36, 180 and 953 mg/kg/day in males and 0, 47, 243 and 1,280 mg/kg/day in females. Hyperplastic lesions in the adrenal medulla and follicular tissue in the thyroid were observed in the males at the 180 and 953 mg/kg/day dose levels. The No Observable Effect Level (NOEL) for the non-carcinogenic endpoints is 36 mg/kg/day (EPA, 1995).

In the 6 month dog study the dose levels were 0, 60, 300 and 1,500 mg/kg/day. The NOEL was 60 mg/kg/day. Effects at the higher doses included decreases in food consumption, testes weight and body weight gain, changes in hematological parameters and increases in kidney and thyroid weights and the incidence of emesis and diarrhea (EPA, 1995).

Cancer Studies

Mice received a diet containing 0, 500, 5,000 or 50,000 ppm asulam. There were no increases in the incidence of tumors observed in this study. The NOEL The incidence of tumors in rats from the chronic bioassay described above are presented in Table 2.

Table 2. Tumor Incidence In Males from the Rat Chronic Bioassay (EPA, 1995; 1987)							
Concentration (ppm)	**mg/kg/day**	**Tumor Type and Incidence (%)**					
	Dose (males)	**Thyroid (c-cell)**			**Adrenal (pheochromcytoma)**		
		Adenoma	**Carcinoma**	**Combined**	**Benign**	**Malignant**	**Combined**
0	0	0/43	0/34	0/43	3/44	0/30	3/44
1,000	36	4/43	5/38*	9/43*	4/44	1/36	5/44
5,000	180	2/43	5/31*	7/43*	4/45	0/26	4/45
25,000	953	0/40	2/33	2/40	10/43*	0/32	10/43*

Mutagenicity Studies

Mutagenicity studies with asulam are negative. These studies fulfill the EPA testing guidelines for mutagenicity and are summarized in table 3

Table 3 Mutagenicity Summary (EPA, 1995)	
System	Results
Ames Assay ± S9	Negative
Chromosomal Aberrations	Negative
Dominant Lethal test in mice *in vitro* cytogenetics human lymphocytes	Negative
C3H/10T1/2 cell transformation	Negative

References

NSPIRS (National States Pesticide Information Retrieval System) (2002) Purdue Research Foundation; State Registration Data base

EPA (Environmental Protection Agency) (1995) Re-registration Eligibility Decision Document for Asulam

BPC (Board of Pesticides Control) (2002) Retail, Wholesale Sales and Commercial Use report for 2000.

Aventis (1999) Label for Asulox EPA # 264-447

WSSA (Weed Science Society of America) (2002) website: http://www.wssa.net/

Appendix I

Hazard indicators	**Toxicity Categories**			
	I	**II**	**III**	**IV**
Oral LD_{50}	# 50 mg/kg	50 to 500 mg/kg	500 to 5,000 mg/kg	> 5,000 mg/kg
Inhalation LD_{50}	# 0.2 mg/L	0.2 to 2 mg/L	2 to 20 mg/L	> 20 mg/L
Dermal LD_{50}	# 200 mg/kg	200 to 2,000 mg/kg	2,000 to 20,000 mg/kg	> 20,000
Eye effects	Corrosive: corneal opacity not reversible within 7 days	Corneal opacity reversible within 7 days	No corneal opacity; irritation reversible within 7 days	No irritation
Skin effects	Corrosive	Severe irritation at 72 hrs	Moderate irritation at 72 hrs	Mild or slight irritation at 72 hrs

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MAC Report July 2002 Reformatted September 30th 2010

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ROBERT W. SPEAR
COMMISSIONER
ROBERT I. BATTEESE, JR.
DIRECTOR

TO: Andrew Smith Ph.D. State Toxicologist Bureau of Health
FROM: Lebelle Hicks Ph.D. DABT, Pesticides Toxicologist, Board of Pesticides Control
RE: Establishing an interim Maximum Exposure Guideline for Asulam

April 3, 2002

****

Per our recent conversation, Asulam is an herbicide with potential to leach into ground water with no EPA Health Advisory or Maine Maximum Exposure Guideline (MEGs). The Board of Pesticides Control will be considering a Special Local Needs registration for Asulox (containing Asulam) on Low bush blueberries at their next meeting.

The IRIS reference dose for asulam is 0.05 mg/kg/day. Asulam is an EPA class "C" carcinogen with no slope factor. Using the Bureau of Health's January 2000 protocol for setting an MEG, the resulting level is 0.035 ppm (35 ppb).

$$\frac{0.05 \text{ mg/kg/day} \times 70 \text{ kg}}{2 \text{ L} \times 10 \text{ (UF)}} \times 0.2 = 0.035 \text{ ppm (35 ppb)}$$

Please confirm the addition of this compound to the Maine Maximum Exposure Guidelines for Drinking water list as an interim MEG

cc: Robert Batteese, Director Board of Pesticides Control

United Phosphorus, Inc.

630 Freedom Business Center
Suite 402
King of Prussia, PA 19406
(610) 491-2828 (phone)
(610) 491-2810 (fax)

Rebecca A. Clemmer
Regulatory Manager

Sept. 27, 2010

Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333-0028
Attn: Mary Tomlinson

Re: Application for Section 24(c) Registration
Asulox Herbicide (EPA Reg. No. 70506-139)

Dear Ms. Tomlinson:

United Phosphorus, Inc. is applying for a FIFRA Section 24(c) registration for the use of Asulox Herbicide on wild blueberries in your state, to control bracken fern. Asulox Herbicide is registered in the state of Maine under EPA Reg. No. 70506-139.

There is no tolerance for asulam on blueberries, but the proposed use is one which was previously been active in Maine some years ago Application is made during the non-bearing year in the cycle of these blueberries and thus there would not be any residues anticipated in the blueberries themselves in the subsequent cropping year. Additionally, this use pattern is as a spot treatment not a broadcast spray, thereby lowering the amount of product used.

In support of this application, attached please find the following:

- Letter from Cherryfield Foods, Inc., a grower which would be interested in this use. Cherryfield's letter provides details on the steps which need to be taken to control bracken fern in wild blueberries, what other treatments are available, and why there is a need for Asulox for this use.
- Letter from David E. Yarborough, Ph.D. of the University of Maine.
- EPA SLN application form
- The Section 3 label for Asulox.
- The proposed SLN label for this use.

Please don't hesitate to contact me if you have any questions.

Sincerely,

Rebecca A. Clemmer

Rebecca Clemmer
Regulatory Manager

RAC-2010-125

CHERRYFIELD FOODS, INC.
Park Street . P.O. Box 128 . Cherryfield, Maine 04622
Phone (207) 546-7134. Fax (207) 546-2182

September 10, 2010

Dear Sirs and/or Madams:

I am writing on behalf of Cherryfield Foods Inc. and our growers for the request of a Maine State 24C label for the use of the herbicide Asulox for bracken fern control in our indigenous Maine wild blueberries.

Despite being leading farmers and advisors using current best management practices through Integrated Crop Management (ICM), we are continually challenged by increasing and shifting weed pressures.

One of our greatest present weed challenges is bracken fern (*Pteridium aquilinum*). Bracken fern continues to increase in prevalence as wild blueberry culture fosters its growth as the crop and weed are both rhizomatous perennials. Present bracken fern control methods include mowing, the use of the herbicide Callisto and wiping with the herbicide glyphosate. Both mowing and Callisto use are frivolous attempts and often end up with crop damage. These methods only "prune" the aerial portion of the fern leaving the underground root storage system full of energy for re-growth. Glyphosate applications are directed by selectively attempting to wipe each individual fern frond. This is next to impossible in highly infested patches due to the sheer number of fronds. As well, the fern frond architecture makes it nearly impossible to effectively wipe. All other effective bracken fern controls end up with severe crop damage.

Bracken fern reduces crop potential by shading the understory blueberries and interfering with harvest by plugging mechanical harvester heads and making it too difficult for hand harvesters to work through. Consequent loss of production is nearly 100% where the fern grows in its thick dense patches. Presently bracken fern infests an estimated 10-20% of wild blueberry fields in the state of Maine.

Asulox has been used in the past to successfully manage bracken fern infestations. It is specific to bracken fern and should only be used as a spot application to manage the target pest to minimize herbicide usage and meet ICM objectives.

Thank you for your continued cooperation to help keep the wild blueberry industry competitive. Please feel free to contact me with further questions, suggestions or comments.

Sincerely yours,

Bill Malay

Farm Manager, Cherryfield Foods Inc.
Email: bmalay@cherryfieldfoods.com
Phone: 207.546.7134.3104

August 6, 2010

John Estes
United Phosphorus, Inc.
John.Estes@uniphos.com

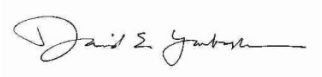
Dear John:

I am writing to support the request for wild blueberry growers in Maine to obtain a State of Maine 24C label for the use of Asulox for bracken fern control in wild blueberries. Growers have indicated to me that there is no effective measure for the control of bracken fern. The fern shades the wild blueberry and can reduce yields by 75% in areas where wild blueberries are fully shaded. We did have a 24C label in Maine, but it was more than 10 years ago, so I was unable to locate a copy.

I did find a copy for Asulox F which was registered in Canada for the Control of Bracken Fern in Lowbush Blueberries. This label provides for the application as a spot treatment to the ferns when they are fully unfurled, but before they turn brown only in the non-bearing year. June and July would be the timing for the applications in Maine. The rate on the Canadian label is 5.5 liter per hectare in 200 liters of water, this would convert to a rate of 5 pints in 20 gallons of water. The use of a surfactant at 0.25% would also improve uptake of Asulox and should be included. Also included on the label should be the statement: Control will also be observed the year following application of ASULOX. No visible controlsymptoms will be seen the year of application.

Please let me know if you have any further questions on this request. You may contact me at the address below.

Sincerely,



David E. Yarborough, PhD.
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EMailDavidy@Maine.edu

Special Local Need

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF MAINE

ASULOX® HERBICIDE

EPA Reg. No. 70506-139 EPA SLN No. ME-_____

ASULOX FOR CONTROL OF BRACKEN FERN IN LOWBUSH BLUEBERRIES
Non-bearing fields only

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. This label and the federal label for this product must be in the possession of the user at the time of pesticide application.

Weed Species	Rate	Special Instructions
Bracken Fern (*Pteridium aquilinum*)	1 gal/acre	Bracken should be in full frond prior to application. Use Asulox only as a spot treatment. The use of a non ionic surfactant at 0.25% v/v may improve uptake of the Asulox. Treatment is limited to non bearing fields. Do not apply more than once every other year. Control will be observed the year following application of the Asulox. No visible control symptoms will be observed the year of application.

Rev. 9/27/10

United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406
www.upi-usa.com
1-800-438-6071

GROUP	18	HERBICIDE

Asulox®

Herbicide

FOR AGRICULTURAL OR COMMERCIAL USE ONLY

NOT FOR USE BY HOMEOWNERS

For Postemergent Weed Control in Sugarcane, Turf, Ornamentals, Christmas Tree Plantings and Non-Cropland

ACTIVE INGREDIENT: Sodium salt of asulam (methyl sulfanilylcarbamate)*	36.2%
OTHER INGREDIENTS:	63.8%
TOTAL:	100.0%

*Equivalent to 33.1% asulam or not less than 3.34 lbs. per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID	
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact the Rocky Mountain Poison Center at 1-866-673-6671 for emergency medical treatment information.	

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300

Net Contents: 2.5 Gallons

UPI
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EPA Reg. No. 70506-139
EPA Est. No. 5905-FL-06

PRECAUTIONARY STATEMENTS
HAZARD TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if absorbed through skin. Avoid contact with eyes, skin or clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear long-sleeved shirt and long pants, chemical-resistant gloves (such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate), and shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROL STATEMENTS

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should leave the treated area, remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination. Surface water contamination may occur in areas with poorly draining soils and little or no buffers or in areas where drainage systems flow directly to surface water.

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 clean equipment or dispose of equipment washwater in a manner that will contaminate resources. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water by cleaning of equipment or disposal of wastes.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.
Read entire label before using this product.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated such as plants, soil or water is coveralls, chemical resistant gloves, and shoes plus socks.

GENERAL INSTRUCTIONS AND INFORMATION

APPLICATION INSTRUCTIONS

Do not apply ASULOX® Herbicide through any type of irrigation systems.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

SPRAY DRIFT

SENSITIVE AREAS: This herbicide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulation.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information.

INFORMATION ON DROPLET SIZE: (This section is advisory in nature and does not supersede the mandatory label requirements)

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions below).

CONTROLLING DROPLET SIZE: (This section is advisory in nature and does not supersede the mandatory label requirements)

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM LENGTH: (This section is advisory in nature and does not supersede the mandatory label requirements)

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

APPLICATION HEIGHT: (This section is advisory in nature and does not supersede the mandatory label requirements)

Applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

SWATH ADJUSTMENT: (This section is advisory in nature and does not supersede the mandatory label requirements)

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator should compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

WIND: (This section is advisory in nature and does not supersede the mandatory label requirements)

Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: (This section is advisory in nature and does not supersede the mandatory label requirements)

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: (This section is advisory in nature and does not supersede the mandatory label requirements)

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SUGARCANE

ASULOX Herbicide can be applied to either plant cane or cane grown from stubble. Apply ASULOX as a water mix spray for ground applications. Use 15 to 100 gallons of water per acre, depending on local practice. For aerial application, ASULOX Herbicide should be mixed in 3 to 5 gallons of water per acre, except in Hawaii, where 5 to 10 gallons of water per acre should be used.

Addition of an adjuvant cleared for use on growing crops to the ASULOX Herbicide water mix spray will improve weed control when environmental conditions are not optimal. Use either a non-ionic surfactant containing a minimum of 80% active ingredient at the rate of 1 to 2 quarts per 100 gallons (0.25 to 0.5% V/V) of water mix spray or a crop oil concentrate containing 80 to 85% paraffin based petroleum oil and 15 to 20% non-ionic surfactant at the rate of 4 quarts per 100 gallons (1% V/V) of water mix spray.

The rates of ASULOX Herbicide given below are for broadcast applications. For banded application, reduce the rate proportionally to the width of the band according to the following formula:

$$\frac{\text{BAND WIDTH (inches)}}{\text{ROW WIDTH (inches)}} \times \text{Broadcast Rate} = \text{Band Rate/Acre}$$

For spot treatments, use a 5% v/v ASULOX spray (1 gallon per 20 gallons of water). Do not exceed 8 pints of ASULOX per acre per treatment.

Single Application Per Growing Season

WEED SPECIES	SPECIAL INSTRUCTIONS	RATE
Itchgrass or Raoulgrass *(Rottboellia exaltata)*	Apply when the grass is 8 inches tall or less (addition of surfactant is necessary).	8 pints/acre
Johnsongrass *(Sorghum halepense)*	Apply when the grass is between 12 to 18 inches tall. Johnsongrass should be actively growing and the average air temperature should be at least 60°F or higher.	
Paragrass or Californiagrass *(Brachiaria mutica or Panicum purpurascens)*	Apply when the grass is 6 to 8 inches tall or less.	
Crabgrass *(Digitaria spp.)*	If treatment is made before the grass reaches seed head formation then the lower rate should be used. If the grass is in early seed head formation then the higher rate should be used.	6 to 8 pints/acre
Alexandergrass *(Brachiaria plantaginea)* Foxtail *(Setaria spp.)* Goosegrass *(Eleusine indica)* Broadleaf Panicum *(Panicum adspersum)* Barnyardgrass *(Echinochloa crusgalli)*	If treatment is made when the grass is 6 to 8 inches tall or less, then the lower rate should be used. If the grass is greater than 8 inches tall, then the higher rate should be used.	

Two Applications Per Growing Season

This may be required when initial weed infestations are heavy and/or when rhizome Johnsongrass is present. Two applications may also be used when treating weed species which germinate at different times during one growing season.

WEED SPECIES	SPECIAL INSTRUCTIONS	1ST APPLICATION	2ND APPLICATION
Crabgrass *(Digitaria spp.)*	At each application the grass should be treated before seed head formation.	6 to 8 pints/acre	6 to 8 pints/acre
Itchgrass or Raoulgrass *(Rottboellia exaltata)*	At each application the grass should be 8 inches tall or less (Addition of surfactant is necessary).	8 pints/acre	8 pints/acre
Johnsongrass *(Sorghum halepense)*	At each application the grass should be between 12 and 18 inches tall.	8 pints/acre	8 pints/acre

RESTRICTIONS AND PRECAUTIONS: Sugarcane

- ASULOX Herbicide should be used when the weeds are actively growing.
- Cover crops may be planted if plowed under and not grazed.
- The following pre-harvest intervals for ASULOX Herbicide applications to sugarcane must be observed: 1) Mainland U.S.A. (except Louisiana) – 140 days; 2) Louisiana only – 100 days; 3) Hawaii – 400 days.
- Do not graze or feed sugarcane fodder and forage to livestock.
- Cultivation and/or fertilizer applications or any other cultural practice that disturbs the root system of targeted weed species may result in less than optimum control when applying ASULOX Herbicide. These practices are not recommended within 7 days prior to or within 7 days after applications of ASULOX Herbicide.
- Differences in crop tolerance to ASULOX among Sugarcane varieties has been reported in Louisiana. Contact your local County Agent or University Extension Specialist for further information.

NON-CROPLAND

ASULOX Herbicide may be used as a postemergent treatment to control weeds on non-cropland areas such as:

Boundary fences
Fence rows
Highway and roadside rights-of-way
Lumberyards
Pipeline rights-of-way
Railroad rights-of-way and yards
Storage areas and industrial plant sites
Utility rights-of-way and yards
Warehouse lots

A surfactant may be added to the spray solution at 0.25% by volume. (Use an approved non-ionic surfactant.)

Apply ASULOX as a single water-mix spray for ground applications using 20 to 100 gallons of solution per acre, depending on local practice, to control the following weed species. Apply one application per season. Aerial application is prohibited.

WEED SPECIES	SPECIAL INSTRUCTIONS	RATE
Crabgrass *(Digitaria spp.)*	Apply before the grass reaches seed head formation.	1 gal/acre
Johnsongrass *(Sorghum halepense)*	Apply when the grass is 18 inches or taller. Use the higher rate in well established heavy infestations. For spot treatment in Hawaii, use the higher rate in 100 gallons of solution and apply an amount not to exceed 50 gallons of total solution per acre.	
Paragrass or Californiagrass *(Brachiaria mutica or Panicum purpurascens)*	Apply before the grass reaches seed head formation. For spot treatment in Hawaii, use the same rate in 100 gallons of solution and apply an amount not to exceed 50 gallons of total solution per acre.	
Western Bracken *(Pteridium aquilinum var. pubescens)*	Apply when the fern is in full frond.	7 to 8 pints/acre

CHRISTMAS TREE PLANTINGS

ASULOX Herbicide may be used as a postemergent treatment in Christmas Tree Plantings where Douglas Fir, Grand Fir, Noble Fir or Scotch Pine are grown. Do not graze or feed foliage from treated areas to livestock.

ASULOX Herbicide should be applied as a water mix spray. For ground application, use a minimum of 20 gallons of solution per acre. Do not use a wetting agent with ASULOX Herbicide. Apply one application per season. Aerial application is prohibited.

WEED SPECIES	SPECIAL INSTRUCTIONS	RATE
Western Bracken *(Pteridium aquilinum var. pubescens)*	Apply after bud break and hardening or firming of new tree growth. Bracken should be in full frond prior to treatment.	1 gal/acre

TURF
(Sod Farms Only)

ASULOX Herbicide can be applied on St. Augustinegrass and Tifway 419 Bermudagrass turf. Apply one application per season postemergence to the weeds listed below. Use 20 to 50 gallons of water per acre in the spray solution.

TURF SPECIES	WEED SPECIES	RATE
St. Augustinegrass	Bullgrass *(Paspalum supinum),* Crabgrass *(Digitaria sp.),* Goosegrass *(Eleusine indica)*	5 pints/acre
Tifway 419 Bermudagrass	Sandbur *(Cenchrus sp.)*	

Do not use a surfactant. Do not apply to turf which is under stress or freshly mowed.

ORNAMENTALS

ASULOX Herbicide can be applied as a single, postemergent, broadcast application on the following ornamentals:

JUNIPERS		YEWS
Juniperus andorra	Juniperus horizontalis	Taxus cuspidata
Juniperus chinensis	Juniperus litoralis	Taxus media
Juniperus conferta	Juniperus sabina	Podocarpus macrophyllus

Treatment should be made with a minimum of 20 gallons of water per acre. Do not use a surfactant.

WEED SPECIES	SPECIAL INSTRUCTIONS	RATE
Barnyardgrass *(Echinochloa crusgali)* Crabgrass *(Digitaria sp.)* Fall Panicum *(Panicum dichotomiflorum)* Foxtails *(Setaria sp.)* Goosegrass *(Eleusine indica)* Horseweed (marestail) *(Conyza canadensis)*	Apply when the weeds are between the stages of early seedling and early seed head formation.	1 gal/acre

Local conditions may affect the use of this chemical. Consult State Agricultural Extension or Experiment Station weed specialists for specific recommendations for local weed problems and for information on possible lower dosages.

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Store at temperatures above 20° F.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container.

[for containers less than 5 gallons] Triple rinse as follows: empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a rinse tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[for containers greater than 5 gallons] Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

IMPORTANT INFORMATION
READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

To the extent consistent with applicable law, United Phosphorus, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or United Phosphorus, Inc., and Buyer and User assume the risk of any such use. To the extent consistent with applicable law, UNITED PHOSPHORUS, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, United Phosphorus, Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS, INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UNITED PHOSPHORUS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Phosphorus, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of United Phosphorus, Inc.

Asulox is a registered trademark of United Phosphorus, Inc.

Rev. 7/01/09

70506-139(010410-3651)

Material Safety Data Sheet

United Phosphorus, Inc.

NFPA	PPE
	 

Issued Date 19-Apr-2007 **Revision Date** 17-Feb-2010 **Revision Number:** 2

1. PRODUCT AND COMPANY IDENTIFICATION

UPI
630 Freedom Business Center
Suite 402
King of Prussia,PA 19406

Emergency Telephone Number
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 673-6671 (24hrs)

Company Information	Contact Information	Phone Number	Available Hrs
UPI	Customer Service	1-800-438-6071	8:00 am to 5:00 pm EST
	R&D Technical Service	610-878-6100	8:00 am - 5:00 pm (EST)

Product Name	Asulox Herbicide
EPA Reg #	70506-139
Recommended Use	herbicide
Product Code	12U-109

2. HAZARDS IDENTIFICATION

Emergency Overview

Vapours may be irritating to eyes, nose, throat, and lungs
May be harmful if inhaled.
May cause eye and skin irritation
May cause allergic skin reaction

CAUTION

Appearance Brown. **Physical State** Liquid. **Odor** Odorless.

Potential Health Effects

- Inhalation
- Skin contact

Eyes	Causes reddness, irritation, tearing..
Skin	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Inhalation	May cause irritation of respiratory tract.
Ingestion	Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients Name

Chemical Name	CAS-No	Weight %	OSHA PEL
Asulam Technical	2302-17-2	35-37	N/A

4. FIRST AID MEASURES

Eye Contact

Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye.
Call a poison control center or doctor for treatment advice.

Skin Contact

Rinse skin immediately with plenty of water for 15-20 minutes.
If symptoms persist, call a physician

Inhalation

Move person to fresh air.
If person is not breathing, call 911 or an ambulance, then give artifical respiration.
Call a physician or Poison Control Centre immediately

Ingestion

Call a physician or Poison Control Center immediately
Have person sip a glass of water if able to swallow
Never give anything by mouth to an unconscious person
Do not induce vomiting unless told to do so by a poison control center or doctor

Notes to Physician

No information available
Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Explosive Properties

Flash Point	Not available
Autoignition Temperature	Not available
Flammability Limits in Air	Not available
Extnguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Fire/Explosion Hazard	Under fire conditions, toxic, corrosive fumes may be emitted.
Hazardous Combustion Products	Carbon oxides, Oxides of nitrogen, Sulfur oxides.

NFPA **Health** 2 **Flammability** 0 **Instability** 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with the skin and the eyes. Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions	Keep material out of lakes, streams, ponds and sewer drains. Dike to confine spill and absorb with an absorbant such as clay, sand or soil. . Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinenet environmental permits..
Methods for Clean-up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. . Remove and wash contaminated clothing before re-use.
Storage	Keep in a dry, cool and well-ventilated place. Do not transport or store below -6 C..

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Controls Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems. .

Personal Protective Equipment

Eye/face Protection Use eye protection to avoid eye contact. . Goggles. Where there is potential for eye contact have eye flushing equipment available..

Skin Protection Neoprene gloves. Nitrile rubber. Impervious butyl rubber gloves. Chemical resistant protective clothing.

Respiratory Protection Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection programs must comply with 29 CFR 1910.134. .

General Hygiene Considerations
Do not eat, drink or smoke when using this product. Wash hands and face before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Brown	**Odor**	Odorless
Physical State	Liquid	**pH**	approx.7.5
Boiling Point/Range	104°C	**Melting Point/Range**	-6°C
Specific Gravity	1.18 @ 20 C	**Solubility**	Soluble
Evaporation Rate	Not available	**Vapor Pressure**	Not available
Vapor Density	Not available	**VOC Content**	Not available
Viscosity	Not available	**Molecular Weight**	253.24 g/mol
Bulk Density	10 lb/gal	**Percent Solids**	Not available
Percent Volatiles	Not available		

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions

Conditions to Avoid Freezing temperatures.

Incompatible Materials Acids.

Hazardous Decomposition Products Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur.

Possibility of Hazardous Polymerization None under normal processing

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Asulox:

Acute oral LD50:	**>5,000 mg/kg (rat)**
Acute dermal LD50:	**>2,000 mg/kg (rabbit)**
Acute inhalation LC50:	**>5 mg/L 4 hr (rat)**
Skin irritation:	**Non-irritating (rabbit)**
Eye irritation:	**Slightly irritating (rabbit)**

Chronic Toxicity

There are no known carcinogenic chemicals in this product

Carcinogenicity

12. ECOLOGICAL INFORMATION

Ecotoxicity

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not clean equipment or dispose of equipment washwaters in a manner that will contaminate water resources or arable land. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water be cleaning equipment or disposal of waste. .

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. . Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. Do not apply directly to wetlands or water..

Contaminated Packaging

Empty containers may container hazardous residues. Containers should be handled as instructed by following all container disposal directions .

14. TRANSPORT INFORMATION

DOT Not regulated

ICAO Not regulated

IATA Not regulated

14. TRANSPORT INFORMATION

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Asulam Technical

EINECS/ELINCS	Listed

USA

Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	No
Acute Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any HAPs.

CERCLA
RCRA
Pesticide Information

State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know
International Regulations

Mexico - Grade	Not available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
Not determined

16. OTHER INFORMATION

Revision Date 17-Feb-2010

Revision Summary
System check

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End of MSDS