



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

EPA Reg. Number:

7969-345

Date of Issuance:

12/20/2016

Date of Expiration:

12/20/2018

NOTICE OF PESTICIDE:

Registration
 Reregistration
(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Engenia Herbicide

Name and Address of Registrant (include ZIP Code):

Dr. Jeffrey Birk
BASF
26 Davis Drive
Research Triangle Park, NC 27709-3258

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A). You must comply with the following conditions:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Date:

12/20/2016

Kathryn V. Montague, Product Manager 23
Herbicide Branch, Registration Division (7505P)

2. Be aware that proposed data requirements have been identified in a Preliminary Work Plan under Docket ID EPA-HQ-OPP-2016-0223-0010 at www.regulations.gov . For more information on these proposed data requirements, you may contact the Chemical Review Manager in the Pesticide Re-Evaluation Division.
3. This registration will automatically expire on 12/20/2018.
4. You must maintain a website at <http://www.engeniatankmix.com> . That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Engenia Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Engenia Herbicide. The website will state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.
5. All test data relating to the impact of tank-mixing any product with Engenia Herbicide on drift properties of Engenia Herbicide generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, at the following address: Chief of Environmental Risk Branch 1, Environmental Fate and Effects Division, Office of Pesticide Programs. If the certification states that the study was performed either pursuant to the testing protocol identified on the website or pursuant to another protocol approved by EPA, and the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, you may add the product to the list.
6. The prohibition of using products in a tank-mix with Engenia Herbicide unless the product used is contained on the list at <http://www.engeniatankmix.com>, and the identification of the website address, shall be included in educational and information materials developed for Engenia Herbicide, including the materials identified in Appendix D, Section B(1).

7. You must develop and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).
8. Make the following label changes before you release the product for shipment:
 - Revise the EPA Registration Number to read, “EPA Reg. No. 7969-345.”
9. Submit one copy of the final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you fail to satisfy these data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 08/24/2015
- Alternate CSF 1 dated 08/24/2015

If you have any questions, please contact Grant Rowland by phone at 703-347-0254, or via email at Rowland.grant@epa.gov.

Enclosure

APPENDIX A

Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide:

Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September 2013)

Testing Media: Engenia Herbicide + Engenia Herbicide Proposed Tank Mix Product

Test Nozzle: Tee Jet® TTI 11004 at 63 psi

Number of Replicates: 3 for each tested medium

Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test ($p=Q.1$) to determine if proposed tank-mix product is above Engenia Herbicide 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition

Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Engenia Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for Engenia Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

APPENDIX B

Validation Criteria

- a. Detailed information of instrument setting and measurements
 - The distance from the nozzle tips to the laser settings
 - Measurements of airspeed and flow rate of liquid
- b. Detailed information of test substances
 - Volume composition and density of Engenia Herbicide formulation and tank mixes
- c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.
- d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum
Report of DvO.1 (SD), DvO.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

APPENDIX C
AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of "nozzle type"
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Engenia Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of "crops" cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	Engenia (60.8% BAPMA salt of Dicamba)	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes.

APPENDIX D

HERBICIDE RESISTANCE MANAGEMENT PLAN

BASF must:

A. Field Detection and Remediation Components:

1. Develop and implement an education program for growers, as set forth under the “Educational / Informational Component,” below, that identifies appropriate best management practices (BMPs), as set forth under the “Best Management Practices (BMPs) Component,” below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.
2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for “likely resistance” to Engenia herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al.*, “Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations,” *Weed Science* 2012 Special Issue:31–62 (*hereinafter* “Norsworthy criteria”)¹ in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then BASF must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but BASF must continue to make an effort to help address of lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for “likely resistance” for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, BASF will:
 - a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower, BASF or their agent will become actively involved in implementation of weed control measures;

¹ The Norsworthy “likely herbicide resistance” criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that “likely herbicide resistance” is present.

- b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if possible (or, alternatively, request that the grower provide such specimens to you, at your expense);
- c. Commence greenhouse or laboratory¹¹ studies to confirm resistance as soon as practicable following sample collection;
- d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and
- e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:
 - i. Work with the grower to determine the reason(s) why the additional control measures were not successful;
 - ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and
 - iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

B. Educational / Informational Component:

1. Develop and implement an education program for growers that includes the following elements:
 - a. The education program shall identify appropriate best management practices (BMPs), set forth under the “Best Management Practices (BMPs) Component,” below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;
 - b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Engenia Herbicide herbicide for use over-the-top on dicamba tolerant soybean or cotton; and
 - c. You must make the education program available to BASF sales representatives for distribution to growers.
2. Provide to EPA the original education program within three months of the issuance of this registration.

C. Evaluation Component:

1. BASF will annually conduct a survey directed to users of Engenia Herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative

sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

- a. Growers' adherence to the terms of the Engenia Herbicide Use Directions and Label Restrictions, and
 - b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Engenia Herbicide and, if so, how growers have responded.
2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:
- a. Efforts aimed at achieving adoption of BMP's;
 - b. Responses to incidents of likely resistance and confirmed resistance; and
 - c. The education program. At the initiative of either EPA or BASF, EPA and BASF shall consult about possible modifications of the education program.

D. Reporting Component:

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2018. Such reports shall include:
 - a. Annual sales of Engenia herbicide by state;
 - b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;
 - c. Summary of your efforts aimed at achieving implementation of BMP's;
 - d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, BASF will list the cases of likely resistance by county and state.
 - e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and
 - f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, BASF following up on incidents of likely resistance, performed in the previous year. Data

pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

2. Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

E. Best Management Practices (BMPs) Component:

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:
 - a. Regarding crop selection and cultural practices:
 - i. Understand the biology of the weeds present.
 - ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.
 - iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.
 - iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.
 - v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.
 - vi. Do not allow weed escapes to produce seeds, roots or tubers.
 - vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.
 - viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.
 - ix. Thoroughly clean plant residues from equipment before leaving fields.
 - x. Prevent an influx of weeds into the field by managing field borders.
 - xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.
 - xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.
 - xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

- i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.
- ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.
- iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.
- iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.
- v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.
- vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.
- vii. Report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

This list may be updated or revised as new information becomes available.