

62719-581

7/30/2009

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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Diego Fonseca
Regulatory Leader
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

JUL 30 2009

SUBJECT: Application for Pesticide Notification – Added Alternate Brand Name (Pallas 45 OD)
GF-1847
EPA Reg. No. 62719-581
Application Dated May 22, 2009

Dear Mr. Fonseca:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The label with the alternate brand name "Pallas 45 OD" submitted with the application has been date-stamped "Notification" and will be placed in our records.

If you have any questions, please call me directly at 703-305-6249 or Terri Stowe of my staff at 703-305-6117.

Sincerely,

A handwritten signature in black ink, appearing to be "Linda", is located below the "Sincerely," text.

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

308/2E
May 22, 2009



Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
U. S. Environmental Protection Agency
One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202

GF-1847 (A.I. PYROXSULAM)
EPA REGISTRATION NUMBER: 62719-581
NOTIFICATION OF MINOR LABEL CHANGE PER PR NOTICE 98-10

Enclosed please find labeling for the notification action of GF-1847 herbicide based on EPA accepted copy dated February 27, 2008 and notification dated March 12, 2008. The following changes have been made by notification:

1. Add alternate brand name Pallas 45 OD

This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Contents of Submission

- Transmittal document (this letter)
- Application for Pesticide, EPA Form 8570-1
- Label entitled Pallas 45 OD (Q9F / Pallas 45 OD / MSTR ABN Notif / 05-22-09)
(16 Pages plus Registration Notes) (5 Copies)

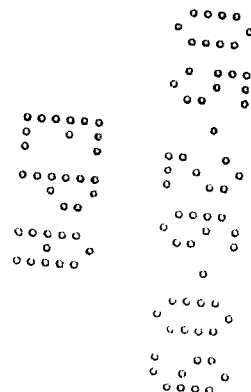
If you require further information, please contact Amy Hudson, Regulatory Specialist at (317) 337-3967 or Paula McKinnies, Registration Assistant for this product, at (317) 337-4679.

Sincerely,

A handwritten signature in black ink, appearing to read "Amy Hudson".

Diego Fonseca
Regulatory Leader
(317) 337-4693
(317) 337-4649 (FAX)

DF/akh
Enclosures



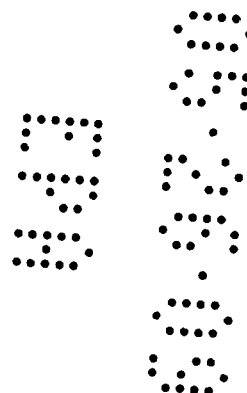
Pallas 45 OD

EPA Reg. No.: 62719-581

Registration Notes:

Source label text based on EPA accepted label dated February 27, 2008 and notification dated March 12, 2008. Following are changes by notification:

1. Add alternate brand name Pallas 45 OD



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(Base label):

Pallas 45 OD

Herbicide

For postemergent control of annual grass and broadleaf weeds in spring and winter wheat (including durum).

Group	2	HERBICIDE
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Active Ingredient:

pyroxsulam: N-(5,7-dimethoxy[1,2,4]triazolo
[1,5-a]pyrimidin-2-yl)-2-methoxy-
4-(trifluoromethyl)-3-pyridinesulfonamide 4.31%

Other Ingredients 95.69%

Total..... 100.00%

Contains petroleum distillates.

Contains 0.38 lb of active ingredient per gallon.

Keep Out of Reach of Children

WARNING AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Substantial But Temporary Eye Injury • Causes Skin Irritation • Harmful If Swallowed Or Inhaled • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals

Do not get in skin, eyes or on clothing. Avoid breathing spray mist.

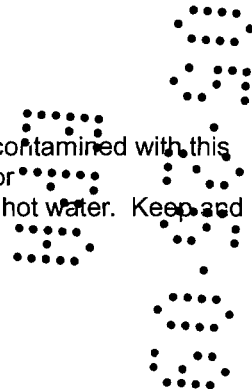
Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selections chart.

Applicators and other handlers must wear:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant gloves \geq 14 mils made of barrier laminate, nitrile rubber, neoprene rubber, or viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- When mixing and loading or cleaning equipment wear a chemical-resistant apron
- For overhead exposure wear chemical-resistant headgear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.



Engineering Controls

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:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

First Aid

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 eye. Call a poison control center or doctor for treatment advice.

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 swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 day or night, for emergency treatment information.

Environmental Hazards

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 contaminate water when disposing of equipment washwater or rinsate.

This product may contaminate surface water due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water.

This product is classified as having high potential for runoff for several days after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from runoff of rainwater. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

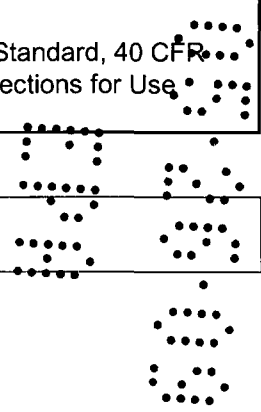
Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Nonrefillable containers 5 gallons or less:

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal.



Pesticide Storage: Store in original container only. Do not store below 15°F. Allow product to warm above 45°F before using and thoroughly mix the product prior to use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site according to label use directions or at an approved waste disposal facility.

Container Reuse: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **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 mix 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. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons:

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal.

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Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site according to label use directions or at an approved waste disposal facility.

Container Reuse: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refer to label booklet for Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

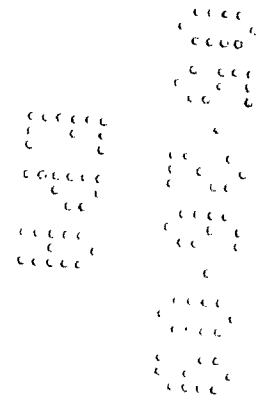
Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-581

EPA Est. _____

Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

Net Contents _____



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(cover):

Pallas 45 OD

Herbicide

For postemergent control of annual grass and broadleaf weeds in spring and winter wheat (including durum).

Group	2	HERBICIDE
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Active Ingredients:

pyroxsulam: N-(5,7-dimethoxy[1,2,4]triazolo

[1,5-a]pyrimidin-2-yl)-2-methoxy-

4-(trifluoromethyl)-3-pyridinesulfonamide 4.31%

Other Ingredients 95.69%

Total 100.00%

Contains petroleum distillates.

Contains 0.38 lb of active ingredient per gallon.

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Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for additional precautionary information including Personal Protective Equipment (PPE) and Directions for Use including Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

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EPA Reg. No. 62719-581

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Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

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(Page 1 through end):

Precautionary Statements

Hazards to Humans and Domestic Animals**WARNING**

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Applicators and other handlers must wear:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant gloves ≥ 14 mills made of barrier laminate, nitrile rubber, neoprene rubber, or viton
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Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

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If swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

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If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 day or night, for emergency treatment information.

Environmental Hazards

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 contaminate water when disposing of equipment washwater or rinsate.

This product may contaminate surface water due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water.

This product is classified as having high potential for runoff for several days after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from runoff of rainwater. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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 regulation.

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 the label about personal protective equipment, restricted-entry interval, and notification to workers (as applicable). The requirements in this box 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 24 hours.

For early entry into 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, wear:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant gloves ≥ 14 mils made of barrier laminate, nitrile rubber, neoprene rubber, or viton
- Chemical-resistant footwear plus socks
- Protective eyewear

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in original container only. Do not store below 15°F. Allow product to warm above 45°F before using and thoroughly mix the product prior to use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site according to label use directions or at an approved waste disposal facility.

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Nonrefillable containers 5 gallons or less:

Container Reuse: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **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 mix 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. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons:

Container Reuse: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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General Information

Use Pallas 45 OD herbicide as a postemergence herbicide for the control of annual grass and broadleaf weeds in wheat (including durum).

Pallas 45 OD rapidly stops growth of susceptible weeds. However, typical symptoms (discoloration) of controlled or suppressed weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent upon weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

Use Precautions and Restrictions

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When applying this product in tank mix combination, follow all applicable use directions, precautions, and limitations on each manufacturer's label.

Chemigation: Do not apply this product through any type of irrigation system.

Do not apply Pallas 45 OD directly to, or otherwise permit it to come into direct contact with, susceptible crops or desirable plants including alfalfa, barley, canola, beans, cotton, flowers, grapes, lettuce, lentils, mustard, oats, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes, vegetables, or other desirable broadleaf crops or ornamental plants. Do not permit spray mists containing Pallas 45 OD to drift onto such plants.

Do not apply to crops underseeded with legumes.

Crop Rotation Intervals

The following rotational crops may be planted at the indicated interval following application of Pallas 45 OD.

Numbers in parentheses (-) refer to Specific Crop Rotation Information.

Crop	Rotation Interval (1) (Months)
wheat	1
barley, field corn, grasses, millet, oats, popcorn, seed corn, sweet corn, sorghum	9
alfalfa, canola, chickpea, soybean, dry bean, field pea, flax, lentil, mustard, potato, safflower, sugar beet, sunflower	9
other crops not listed	12

Specific Crop Rotation Information:

1. Minimum number of months that must elapse before planting other crops after application of Pallas 45 OD.

Note: Pallas 45 OD is degraded primarily by microbial activity and breaks down more rapidly under favorable soil moisture and temperature conditions. Correspondingly, the rate of degradation may be slower under extreme conditions of drought or cold temperatures. When soil moisture conditions are abnormally dry during the interval between application of Pallas 45 OD and planting the next crop, conduct a field bio-assay by planting test strips of the desired rotational crop. Monitor the test strips during germination and emergence for any abnormal growth to determine if the rotational crop can be grown successfully.

Avoiding Injurious Spray Drift

This product can affect broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Do not apply Pallas 45 OD directly to, or allow spray drift to come into contact with, broadleaf crops including, but not limited to, alfalfa, barley, canola, beans, cotton, flowers, grapes, lettuce, lentils, mustard, oats, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes, vegetables, or other desirable broadleaf crops or ornamental plants or soil where sensitive crops will be planted the same season. (See Crop Rotation Intervals section.)

Make applications only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible, may seriously injure crops, whether dormant or actively growing. When applying Pallas 45 OD, use low pressure equipment capable of producing sprays of uniform droplet size with a minimum of fine spray droplets. Under adverse weather conditions, fine spray droplets that do not settle

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rapidly onto target vegetation may be carried a considerable distance from the treatment area. A drift control or spray thickening agent may be used with this product to improve spray deposition and minimize the potential for spray drift. If used, follow all use recommendations and precautions on the product label.

Ground Applications: To minimize spray drift, apply Pallas 45 OD in a total spray volume of 10 gallons or more per acre using spray equipment designed to produce large-droplet, low pressure sprays. Refer to the spray equipment manufacturer's recommendations for detailed information on nozzle types, arrangement, spacing and operating height and pressure. Spot treatments should be applied only with a calibrated boom to prevent over application. Operate equipment at spray pressures no greater than is necessary to produce a uniform spray pattern. Operate the spray boom no higher than is necessary to produce a uniformly overlapping pattern between spray nozzles. Do not apply with hollow cone-type insecticide nozzles or other nozzles that produce a fine-droplet spray.

Aerial Application: To minimize spray drift, apply Pallas 45 OD in a total spray volume of 5 gallons or more per acre. 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 potential for temperature inversion. Spray drift from aerial application can be minimized by applying a coarse spray at spray boom pressure no greater than 30 psi; by using straight-stream nozzles directed straight back; and by using a spray boom no longer than 3/4 the rotor or wing span of the aircraft. Spray pattern and droplet size distribution can be evaluated by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape). Mechanical flagging devices may also be used.

Do not apply under conditions of a low level air temperature inversion. A temperature inversion is characterized by little or no wind and lower air temperature near the ground than at higher levels. The behavior of smoke generated by an aircraft-mounted device or continuous smoke column released at or near site of application will indicate the direction and velocity of air movement. A temperature inversion is indicated by layering of smoke at some level above the ground and little or no lateral movement.

Spray Drift Management

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 and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or 90% of rotor diameter.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward 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 following Aerial Drift Reduction Advisory. This information is advisory in nature and does not supersede mandatory label requirements.

Aerial Drift Reduction Advisory

Information on Droplet Size: 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).

Controlling Droplet Size:

- **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: For some use patterns, reducing the effective boom length to less than 75% of the wingspan or 90% of rotor length may further reduce drift without reducing swath width.

Application Height: Applications should not be made at a height greater than 10 feet above the top of the largest 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: 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 must 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: 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: 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.

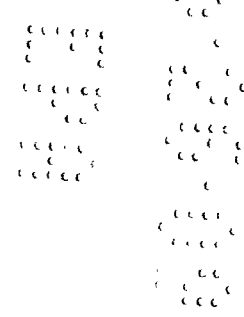
Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions 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 the 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.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Mixing

Mixing Pallas 45 OD Alone

1. Fill the tank with 1/2 of the total amount of water.



2. Start agitation.
3. Add the required amount of Pallas 45 OD.
4. Add the required amount of adjuvant (refer to Adjuvants section).
5. Continue agitation while filling the spray tank to the required volume.
6. To ensure a uniform spray mixture, continuous agitation is required during application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

Pallas 45 OD Applied in Tank Mix Combination

If a broader spectrum of weed control is needed, Pallas 45 OD may be tank mixed with labeled rates of other herbicides provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not mix with products containing dicamba or amine formulations of 2,4-D or MCPA as these products may reduce grass control provided by Pallas 45 OD.
- Do not tank mix with organophosphate insecticides as these mixtures may result in unacceptable crop injury.
- Do not exceed recommended application rates for respective products or maximum allowable application rates for any active ingredient in the tank mix.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of Pallas 45 OD and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

Mixing Order for Tank Mixes:

1. Fill the spray tank to 3/4 of the total spray volume required with water.
2. Start agitation.
3. Add Pallas 45 OD and agitate for 2 to 3 minutes
4. After adding Pallas 45 OD, add different formulation types in the following order: (1) dry flowables; (2) wettable powders; (3) aqueous suspensions, flowables and liquids. Maintain agitation and add: (4) emulsifiable concentrates; (5) solutions; and (6) adjuvants. Allow time for complete mixing and dispersion after each addition.
5. Finish filling the spray tank. Maintain continuous agitation during mixing and throughout application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

If application or agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled material may be more difficult to resuspend than when originally mixed.

Clean-Out Procedures for Spray Equipment

1. Drain any remaining spray mixture from the application equipment.
2. Hose down the interior surfaces of the tank while filling the tank 1/2 full of water.

3. Add household ammonia at a rate of 1 gallon per 100 gallons of water. Recirculate for 5 minutes and spray out part of this mixture for 5 minutes through the boom. Drain tank.
4. Remove all spray nozzles and screens and clean separately.
5. If spray equipment will be used for pesticide application to crops sensitive to Pallas 45 OD, steps 1 to 3 should be repeated. Exterior surfaces of spray equipment should also be thoroughly cleaned.

Note: Rinsate may be disposed of on site according to label use directions or at an approved waste disposal facility.

Weeds Controlled (C) or Suppressed (S) by Pallas 45 OD

Best results are obtained when grass weeds are treated at the 2-leaf to 2-tiller stage of growth and before broadleaf weeds are larger than 2 inches tall or 2 inches in diameter. Best control is achieved when applications are made to actively growing weeds. Control may be reduced when weeds are exposed to drought or extreme temperatures.

Common Name	Scientific Name	Fall Application	Spring Application
Grass			
blackgrass	<i>Alopecurus myosuroides</i>	C	C
brome, downy	<i>Bromus tectorum</i>	C	S
brome, Japanese	<i>Bromus japonicus</i>	C	C
brome, ripgut	<i>Bromus rigidum</i>	C	C
canarygrass, hood	<i>Phalaris paradoxa</i>	C	C
canarygrass, littleseed	<i>Phalaris minor</i>	C	C
cheat	<i>Bromus secalinus</i>	C	C
foxtail barley	<i>Hordeum jubatum</i>	S	S
foxtail, green	<i>Setaria viridis</i>		S
foxtail, yellow	<i>Pennisetum glaucum</i>		C ⁴
hairy chess	<i>Bromus commutatus</i>	C	C
rattail fescue	<i>Vulpia myuros</i>	S	S
quackgrass	<i>Elytrigia repens</i>	S	S
rescuegrass	<i>Bromus catharticus</i>	S	S
ryegrass, Italian	<i>Lolium multiflorum</i>	C	C
wild oat	<i>Avena fatua</i>	C	C
windgrass	<i>Apera spica-venti</i>	C	C
Broadleaf			
buckwheat, wild	<i>Polygonum convolvulus</i>		S
bushy wallflower ¹	<i>Erysimum repandum</i>	C	C
canola, volunteer (wild turnip) ²	<i>Brassica rapa</i>	C	C
chickweed, common	<i>Stellaria media</i>	C	C
chickweed, mouseear	<i>Cerastium vulgatum</i>	C	C
catchweed bedstraw (cleavers)	<i>Galium aparine</i>	S	C
flixweed ²	<i>Descurainia sophia</i>	C	C
gromwell, corn	<i>Lithospermum arvense</i>	C	C
hempnettle, common	<i>Galeopsis tetrahit</i>		C
henbit	<i>Lamium amplexicaule</i>	S	S
lambquarters, common	<i>Chenopodium album</i>		C ³
mustard, black	<i>Brassica nigra</i>	C	C
mustard, blue ¹	<i>Chorispora tenella</i>	C	C
mustard, tumble ¹	<i>Sisymbrium altissimum</i>	C	C
mustard, wild	<i>Sinapis arvensis</i>	C	C
mustard, wormseed ¹	<i>Erysimum cheiranthoides</i>	C	C
pennycress, field ¹	<i>Thlaspi arvense</i>	C	C

pinnate tansymustard ¹	<i>Descurainia pinnata</i>	C	C
pigweed, redroot	<i>Amaranthus retroflexus</i>		C
shepherdspurse ¹	<i>Capsella bursa-pastoris</i>	C	C
smallseed falseflax ¹	<i>Camelina microcarpa</i>	C	C
smartweed, annual	<i>Polygonum sp.</i>		C
thistle, Russian	<i>Salsola iberica</i>		C ³

¹Control may be reduced when application is made after bolting

²Including herbicide-tolerant canola varieties except Clearfield (imidazolinone-tolerant) canola.

³Less than 2 inches tall. For control of lambsquarters over 2 inches tall, tank mix with 0.25 lb ae MCPA or 2,4-D. For control of Russian thistle over 2 inches tall, tank mix with 0.25 lb ae 2,4-D.

⁴One to four-leaf stage of growth.

Resistance Management Recommendations

Pallas 45 OD is an ALS mode of action (Group 2) herbicide. Any weed population may contain or develop plants naturally resistant to this product and other ALS herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- For best resistance management stewardship, do not use more than once per season.
- Where possible, rotate the use of Pallas 45 OD or other ALS herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisers for any additional pesticide resistance management and/or integrated weed management recommendations for specific crops and weed biotypes.

Application Directions

Application Timing

Apply Pallas 45 OD postemergence to the main flush of actively growing weeds according to the target weed stage shown in the above table. Extreme growing conditions such as drought or near freezing temperatures prior to, at, or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.

Warm, moist growing conditions promote active weed growth and enhance the activity of Pallas 45 OD by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds.

If foliage is wet at the time of application, control may be decreased. Applications of Pallas 45 OD are rainfast within 4 hours after application.

Spray Coverage

Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Do not broadcast apply in less than 5 gallons of total spray volume per acre. For best results and to minimize spray drift,

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apply in a spray volume of 10 gallons or more per acre. As vegetative canopy and weed density increase, spray volume should be increased to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under Avoiding Injurious Spray Drift.

Adjuvants

When Pallas 45 OD is applied alone, use one of the following surfactants or adjuvants:

- Non-ionic surfactant with at least 80% active ingredient at 0.25% to 0.50% v/v (1 to 2 qt per 100 gallons spray solution). In conditions of moisture stress or low relative humidity, add spray grade ammonium sulfate at 1.5 to 3 lb per acre.
- Crop oil concentrate adjuvant at 0.8% v/v (0.8 gallons per 100 gallons spray solution)
- Methylated seed oil adjuvant at 0.8% v/v (0.8 gallons per 100 gallons spray solution).

When Pallas 45 OD is applied in spray solutions containing liquid fertilizer, use a non-ionic surfactant with at least 80% active ingredient at a maximum of 0.25% v/v (1 qt per 100 gallons spray solution).

When Pallas 45 OD is applied in combination with emulsifiable concentrate (EC) formulations, such as 2,4-D ester, MCPA ester, Starane® herbicide or bromoxynil+MCPA products, do not use an adjuvant.

Do not use additives that lower the spray solution below a pH of 6.0.

Application in Fluid Fertilizer

Pallas 45 OD may be applied in spray solutions containing liquid nitrogen. The spray solution should not be composed of more than 50% liquid nitrogen and should not exceed 30 lb of actual nitrogen per acre. When Pallas 45 OD is applied in spray solutions containing liquid nitrogen, use a non-ionic surfactant at a maximum of 0.25% v/v, instead of crop oil concentrate or methylated seed oil. Temporary crop injury may result when liquid nitrogen is used as the spray carrier. Foliar applied liquid nitrogen may cause foliar leaf burn, yellowing or reduced growth due to the activity of the liquid fertilizer on the crop. Do not foliar apply fluid fertilizer to spring wheat.

Spring and Winter Wheat (Including Durum)

Apply 4.5 to 5.75 fl oz of Pallas 45 OD per acre to actively growing wheat (including spring, winter and durum) from the 3-leaf to jointing stage (Zadoks scale 31). Apply Pallas 45 OD in either a fall or spring timing for control or suppression of target weeds (refer to section above entitled Weeds Controlled (C) or Suppressed (S) by Pallas 45 OD). Treat after the majority of weeds have emerged. Best results are obtained when application is made to weeds that are actively growing.

Occasionally slight yellowing or height reduction may be observed in the treated crop. These transient symptoms disappear within 14 days with no reduction to yield. Do not apply to crops suffering from drought, nutrient deficiency or exposed to frost or other agronomic factors affecting plant growth. Do not use on wheat varieties that are sensitive to ALS herbicides.

Tank Mixtures:

Pallas 45 OD may be applied in tank mix combination with labeled rates of other products registered for postemergence application in wheat. See Tank Mixing Precautions under Mixing. When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

Crop Specific Use Restrictions:

- Do not apply more than 4.5 to 5.75 fl oz of Pallas 45 OD per acre per growing season.
- Do not graze the treated crop within 7 days following application.
- Do not cut the treated crop for hay within 28 days following application.
- **Preharvest Interval:** Do not harvest the treated crop within 60 days after application.

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