



Evaluation Report for Category B, Subcategory 2.6 Application

Application Number: 2011-4156
Application: New combination of technical grade active ingredients
Product: Enforcer D Herbicide
Registration Number: 30690
Active ingredients (a.i.): Bromoxynil, 2,4-D and Fluroxypyr
PMRA Document Number : 2142898

Purpose of Application

The purpose of this application was to register an end-use product, Enforcer D Herbicide, with a new combination of technical grade active ingredients (guarantee: 80 g a.i./L fluroxypyr, present as 1-methylheptyl ester, 190 g a.i./L bromoxynil, present as octanoate ester, and 240 g a.i./L 2,4-D, present as 2-ethylhexyl ester) for use in the prairie provinces and the Peace River region of British Columbia, as a selective postemergent herbicide to control annual and perennial broadleaf weeds in wheat (spring and durum) and barley.

Chemistry Assessment

Enforcer D Herbicide is formulated as an emulsifiable concentrate containing fluroxypyr, present as 1-methylheptyl ester, at a nominal concentration of 80 g/L, 2,4-D, present as 2-ethylhexyl ester, at a nominal concentration of 240 g/L and bromoxynil, present as octanoate ester, at a nominal concentration of 190 g/L. This end-use product has a density of 1.156 g/mL and pH of 3.8. The chemistry requirements for Enforcer D Herbicide are complete.

Health Assessments

Enforcer D is of slight toxicity to rats via the oral ($LD_{50} = 1030$ mg/kg bw) and low via the dermal ($LD_{50} > 5000$ mg/kg) and inhalation routes ($LC_{50} > 2.10$ mg/L). It is mildly irritating to the eye and to the skin of rabbits. It is not a dermal sensitizer in guinea pigs.

Exposure by mixing, loading and applying Enforcer D herbicide to wheat (spring and durum) and barley was estimated using PHED Version 1.1. Risk estimates calculated for handlers wearing long sleeves, long pants and gloves are not of concern.

There is potential for post-application exposure to workers re-entering treated wheat and barley fields. Risk estimates for workers re-entering treated fields were calculated using default assumptions for dislodgeable foliar residues and dissipation. Risk estimates for workers re-entering treated wheat and barley fields on the day of application are acceptable after a 24 hour period has passed.

No new residue data were submitted to support the registration of the end-use product Enforcer D Herbicide, a formulation containing the registered active ingredients fluroxypyr, bromoxynil and 2,4-D for use on wheat (spring and durum) and barley. The application rates for each active ingredient are within the currently registered label rates. All other aspects of the use pattern remain the same. The disposition, translocation and magnitude of the residues of each active ingredient are not expected to change when they are formulated. Therefore, the dietary risk is not expected to increase and the formulation will not pose an unacceptable risk to any segment of the population, including infants, children, adults and seniors.

Environmental Assessment

No new environmental data were required for the registration of Enforcer D Herbicide. All three active ingredients in the formulated product have full registration status and the risks to the environment for each active ingredient have been previously assessed at the proposed use rates. Enforcer D Herbicide may pose a risk to aquatic organisms and non-target terrestrial plants. However, the required environmental mitigation statements on the product label are sufficient to mitigate the identified risks from the use of this herbicide.

Value Assessment

Data from 13 field trials conducted in Alberta, Saskatchewan, and Manitoba over a three year period were submitted for review. Efficacy and crop safety were reported for Enforcer D Herbicide applied alone at 0.6 L/ha (equivalent to 48 g a.i./ha fluroxypyr, 114 g a.i./ha bromoxynil and 144 g a.i./ha 2,4-D Ester) and 1.2 L/ha (equivalent to 96 g a.i./ha fluroxypyr, 228 g a.i./ha bromoxynil, and 288 g a.i./ha 2,4-D Ester) or applied at the rate of 1.2 L/ha in tank mix with Axial 100EC (Registration number 28642), Cordon (Registration number 29494), Everest Solupak 70DF (Registration number 26448), Nufarm Clodinafop (Registration number 29962), or Achieve Liquid Herbicide (Registration number 27011) at the respective labeled rate in those trials. Approve Herbicide (Registration number 28123) and Attain Herbicide Tank Mix were included as commercial standard treatments for comparison purposes of efficacy and crop tolerance.

The efficacy of Enforcer D Herbicide for control of volunteer canola, kochia, lamb's-quarters, wild mustard, wild buckwheat, redroot pigweed, smartweed, and Russian thistle was evaluated on three or four occasions during the growing season. The submitted data supported efficacy claims for control of volunteer canola, lamb's-quarters, wild mustard, and kochia at the rate of 0.6 L/ha and for control of wild buckwheat, Russian thistle, and redroot pigweed at the rate of 1.2 L/ha. Data from those trials also demonstrated that the level of control of each of these weed species with Enforcer D Herbicide was not compromised when it is applied in tank mix with a graminicide for additional grassy weed control, e.g. Achieve Liquid Herbicide, Cordon, Everest Solupak 70DF, or Nufarm Clodinafop at the respective labeled rate.

Tolerance ratings to five spring wheat varieties in eight trials, three barley varieties in four trials, and one durum wheat variety in one trial was reported three times for the same treatments at the same rates as indicated above. Crop injury following the application of those treatments was minor at the early season ratings and not detectable in the late season rating and comparable to that of the commercial standard treatments of Approve Herbicide and Attain Herbicide Tank

Mix. Yield data confirmed that spring wheat, durum wheat, and barley exhibited an adequate margin of crop safety to Enforcer D Herbicide when applied in accordance with the label.

Crop safety to Enforcer D Herbicide was further supported since Attain Herbicide Tank Mix (at rates up to 108 g a.i./ha fluroxypyr and 564 g a.i./ha 2,4-D Ester) and Approve Herbicide (at rates up to 279 g a.i./ha bromoxynil and 279 g a.i./ha 2,4-D Ester) are registered for use in spring wheat, durum wheat, and barley.

Rotational crop tolerance claims for Attain Herbicide Tank Mix were extrapolated to Enforcer D Herbicide because the maximum registered rate of Attain Herbicide Tank Mix includes the soil residual herbicide component fluroxypyr that is applied at a higher rate than Enforcer D Herbicide.

Based on the evidence made available, the registration of Enforcer D Herbicide for post-emergent control of broadleaf weeds on spring wheat, durum wheat, and barley was supported from a value standpoint.

Conclusion

The PMRA has completed an assessment of the available information and found that there is sufficient information to support the registration of Enforcer D Herbicide for use in the prairie provinces and the Peace River region of British Columbia, for control of annual and perennial broadleaf weeds in wheat (spring and durum) and barley.

References

PMRA

Document

| Number | Reference |
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