

## Evaluation Report for Category B, Subcategory 2.6, 3.1, 3.5, 3.11, 3.12 Application

**Application Number:** 2015-5757  
**Application:** New End-use Product/ Product Chemistry - New combination of TGAIs; New Product Label - Application Rate Increase; New Pests; New Site or Host; Rotational Crops\Plantback Interval  
**Product:** Authority Supreme Herbicide  
**Registration Number:** 32562  
**Active ingredients (a.i.):** Pyroxasulfone and Sulfentrazone  
**PMRA Document Number:** 2709493

### Purpose of Application

The purpose of this application was to register the end-use product Authority Supreme Herbicide for preplant and pre-emergent control or suppression of annual grasses and broadleaf weeds on soybeans, chickpeas and field peas.

### Chemistry Assessment

Authority Supreme Herbicide is formulated as a suspension containing sulfentrazone at a nominal concentration of 250 g/L and pyroxasulfone at a nominal concentration of 250 g/L. This end-use product has a density of 1.2103 g/mL and pH of 5.22. The required chemistry data for Authority Supreme Herbicide have been provided, reviewed and found to be acceptable.

### Health Assessments

Authority Supreme Herbicide was of low acute toxic via the oral, dermal and inhalation routes in rats. It was minimally irritating to the eye and to the skin of rabbits. It was not a dermal sensitizer in mice when tested using the local lymph node assay (LLNA).

The use of Authority Supreme Herbicide on field peas, chickpeas and soybeans is not expected to result in potential occupational or bystander exposure over the registered use of pyroxasulfone. No health risks of concern are expected when workers follow label directions and wear personal protective equipment as stated on the label. For sulfentrazone, an updated health risk assessment was conducted for chemical handlers and no health risks of concern are expected when workers follow the label directions and wear the personal protective equipment identified on the label.

Residue data from field trials conducted in Canada and the United States were submitted to support the use of Authority Supreme Herbicide on chickpeas, field peas and soybeans. Pyroxasulfone was applied to dry peas and dry beans at the proposed rate or greater, and

harvested according to label directions. Previously reviewed residue data from field trials conducted in/on soybeans with pyroxasulfone and in/on chickpeas, dry beans, dry peas and soybeans with sulfentrazone were reassessed in the framework of this petition.

The currently established MRLs for pyroxasulfone on soybeans and for sulfentrazone on chickpeas, field peas and soybeans are sufficient to cover residues resulting from use of this end-use product and will therefore be unaffected.

### Maximum Residue Limits

The recommendation for a maximum residue limit (MRL) for pyroxasulfone was based upon the submitted field trial data, and the guidance provided in the [OECD MRL Calculator](#). An MRL to cover residues of pyroxasulfone, including the metabolites M-1, M-3, M-25 and M-28, in/on crops are proposed as shown in Table 1. Residues in processed commodities not listed in Table 1 are covered under the proposed MRLs for the raw agricultural commodities (RACs).

**Table 1. Summary of Field Trial and Processing Data Used to Support Maximum Residue Limits (MRLs)**

Commodity	Application Method/ Total Application Rate (g a.i./ha)	PHI (days)	Residues <sup>1</sup> (ppm)		Experimental Processing Factor	Currently Established MRL (ppm)	Recommended MRL
			LAFT	HAFT			
Dry peas	Soil/pre-emergence + foliar/post-emergence 298-306	74-90	<0.06 4	0.088	Not applicable	None	Dry shelled peas and beans (Crop Subgroup 6C): 0.15 ppm
Dry beans	Soil/pre-emergence + foliar/post-emergence 297-311	65- 105	<0.06 4	0.081	Not applicable	None	

LAFT = Lowest Average Field Trial; HAFT = Highest Average Field Trial

<sup>1</sup> The combined residues include pyroxasulfone and metabolites M-1, M-3, M-25 and M-28 in terms of parent equivalent.

Following the review of all available data, the MRL as proposed in Table 1 is recommended to cover residues of pyroxasulfone, including the metabolites M-1, M-3, M-25 and M-28, in dry shelled peas and beans. Furthermore, the use of pyroxasulfone in/on soybeans and of sulfentrazone in/on chickpeas, field peas and soybeans can be supported with the current MRLs being unaffected by the use of this end-use product. Based on this assessment, dietary exposure to pyroxasulfone, including the metabolites M-1, M-3, M-25 and M-28, and sulfentrazone, including metabolites HMS and DMS, will not pose an unacceptable risk to any segment of the population, including infants, children, adults and seniors.

### Environmental Assessment

The registration of Authority Supreme Herbicide for preplant/pre-emergent use in chickpeas, soybeans and field peas is acceptable from an environmental perspective. Environmental concerns have been mitigated through adequate statements on the product label.

## **Value Assessment**

The co-formulation of the two active ingredients pyroxasulfone and sulfentrazone into a single product will be easily handled and convenient to apply for the control of both grasses and broadleaf weeds. As the product contains herbicides from mode of action groups 14 and 15, Authority Supreme Herbicide would contribute to resistance management by reducing the potential for the development of resistance to either individual mode of action, or by providing control of weed species that may already have developed resistance to one of these modes of action.

The efficacy and crop tolerance of Authority Supreme Herbicide applied alone or in tank-mix with glyphosate herbicide was determined to be acceptable by the value information submitted. This information included data from 37 small plot replicated field trials, scientific rationale, and the previously registered formulations containing pyroxasulfone or sulfentrazone.

## **Conclusion**

The Pest Management Regulatory Agency has completed an assessment of the information submitted, and has found the information sufficient to support the registration of Authority Supreme Herbicide for use on soybeans, chickpeas and field peas.

## References

PMRA Document Number	Reference
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2596579	2014, F6180 + sulfentrazone - flax - evaluate PRE for weed control and crop safety, conventional till, DACO: 10.2.3 and 10.3.2
2596580	2015, F6180 + sulfentrazone - flax - evaluate PRE for weed control and crop safety, DACO: 10.2.3 and 10.3.2
2596582	2015, Pyroxasulfone + sulfentrazone - flax efficacy and tolerance no till, DACO: 10.2.3 and 10.3.2
2596583	2015, F6180 + sulfentrazone in flax, DACO: 10.2.3 and 10.3.2
2596584	2015, Crop tolerance of flax and control of wild oats with residues of F6180 + Authority + glyphosate as a pre-seed burn off, DACO: 10.2.3 and 10.3.2
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