Document Title

Tier 2 Summary of the Physical, Chemical and Technical Properties of the Plant Protection Product for

Flupyradifurone (BYI 02960) SL 200

Specification number

102000021884

Data Requirements

Regulation (EC) No 1107/2009

Regulatory Directive 2003-01/Canada/PMRA
OPPTS guidelines/US/EPA

Annex IIIA
Section 1, Point 2
Document M

According to OECD format guidance for industry data submissions on plant protection products and their active substances

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OWNERSHIP STATEMENT

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IIIA1 2 Physical, Chemical and Technical Properties of the Plant Protection Product

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.1 Physical state of the preparation and its colour and odour						
IIIA1 2.1 Physical state of the preparation and its colour and odour	Visual Olfactory	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	soluble concentrate, clear brown liquid weak characteristic		N	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.2 Explosivity and oxidizing properties						
IIIA1 2.2.1 Explosive properties of the preparation	EC A.14	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	The test item causes no danger of explosion.		Y	M-401926-01-1 Rexer, K.; Schumacher, R.
IIIA1 2.2.2 Oxidizing properties of the preparation	EC A.21	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	The test item is a non oxidizing material		Y	M-401926-01-1 Rexer, K.; Schumacher, R.

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.3 Flash point & other indication of flammability or spontaneous ignition						
IIIA1 2.3.1 The flash point of the preparation	EC A.9	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	Higher than 100 °C		Y	M-401926-01-1 Rexer, K.; Schumacher, R.
IIIA1 2.3.2 The flammability of the preparation				Not applicable as the preparation is a liquid		
IIIA1 2.3.3 The auto-flammability of the preparation	EC A.15	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	Auto-ignition temperature: 420 °C			M-401926-01-1 Rexer, K.; Schumacher, R.
IIIA1 2.4 Acidity/alkalinity and if necessary pH value						
IIIA1 2.4.1 Acidity or alkalinity and pH value				Not applicable, since $4 \leq pH \leq 10$		

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.4.2 pH of a 1% aqueous dilution, emulsion or dispersion	CIPAC MT 75.3	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	5.4	electrometric determination (pH-meter) of sample (1 **%**) in de-ionized water at room temperature	Y	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.5 Viscosity and surface tension						
IIIA1 2.5.1 Kinematic viscosity of the preparation	CIPAC MT 192	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	at 20°C: ν= 1.13E-04 m^2/s (shear rate of 20 s^{-1}) ν= 1.13E-04 m^2/s (shear rate of 100 s^{-1}) at 40°C: ν= 4.76E-05 m^2/s (shear rate of 20 s^{-1}) ν= 4.75E-05 m^2/s (shear rate of 100 s^{-1})		Y	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.5.2 Viscosity of the preparation and details of the test conditions	CIPAC MT 192	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	at 20°C: η= 0.1323 Pa • s (shear rate of 20 s^{-1}) η= 0.1323 Pa • s (shear rate of 100 s^{-1}) at 40°C: η= 0.0550 Pa • s (shear rate of 20 s^{-1}) η= 0.0550 Pa • s (shear rate of 100 s^{-1})	Dynamic viscosity	Y	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.5.3 Surface tension of the preparation	OECD 115	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	34 mN/m (undiluted at 25 °C) 41 mN/m (1 g/L (Milli-Q water) at 20 °C)		Y	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.6 Relative density and bulk density						
IIIA1 2.6.1 Relative density of the preparation	OECD 109	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	mean value D420: 1.174 mean value D440: 1.156		Y	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.6.2 Bulk or tap density of the preparation				Not applicable since liquid (SL) formulation		
IIIA1 2.7 Storage stability and shelf-life						
IIIA1 2.7.1 Stability after storage for 14 days at 54°C	According to CIPAC MT 46.3	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	Stable for 2 weeks at 54 °C in HDPE			M-402996-01-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.7.2 Stability after storage for other periods and/or temperature	According to CIPAC MT 46.3	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	Stable for 1 year	Interim finding of the 2 years study	Y	M-432583-01-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.7.3 Minimum content after heat stability testing	According to CIPAC MT 46.3	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	The active substance determined after two weeks storage at 54°C was 16.7% as compared to the initial value of 16.9% (packaging material: HDPE)			M-402996-01-1 Hennig-Gizewski, S. Hoppe, M.

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.7.4 Effect of low temperature on stability	According to CIPAC MT 39.3	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	No separated (precipitated) material found			M-402996-01-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.7.5 Shelf life following storage at ambient temperature	According to GIFAP Monograph No. 17, 6.1		Taking into account the results from the accelerated storage stability study (s. 2.7.1), the formulation is expected to be stable under shelf life conditions	Shelf life study is still in progress and is scheduled to be finalized in July 2012		
IIIA1 2.7.6 Shelf life in months				The active substance is expected to be stable for 24 months (see IIIA1 2.7.5)		
IIIA1 2.8 Technical characteristics of the product						
IIIA1 2.8.1 Wettability				Not applicable since liquid (SL) formulation		
IIIA1 2.8.2 Persistent foaming	CIPAC MT 47.2	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	19 mL after 10 sec 0 mL after 1 min 0 mL after 3 min 0 mL after 12 min 29 mL after 10 sec 0 mL after 1 min 0 mL after 3 min 0 mL after 12 min	**0.05 %** of the preparation in CIPAC D water **0.75 %** of the preparation in CIPAC D water	N	M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.8.3 Suspensibility and suspension stability						
IIIA1 2.8.3.1 Suspensibility				Not applicable since liquid (SL) formulation		
IIIA1 2.8.3.2 Spontaneity of dispersion				Not applicable since liquid (SL) formulation		
IIIA1 2.8.4 Dilution stability	CIPAC MT 41	Batch–Number: 2010-001067; 17.1% w/w BYI 2960 The specification and purity are given under point 1.4.	completely solved completely solved	**0.05%** of the preparation in CIPAC D water **0.75 %** of the preparation in CIPAC D water		M-402943-02-1 Hennig-Gizewski, S. Hoppe, M.
IIIA1 2.8.5 Sieve test						
IIIA1 2.8.5.1 Dry sieve test				Not applicable since liquid (SL) formulation		
IIIA1 2.8.5.2 Wet sieve test				Not applicable since liquid (SL) formulation		
IIIA1 2.8.6 Particle size distribution						
IIIA1 2.8.6.1 Size distribution of particles				Not applicable since liquid (SL) formulation		
IIIA1 2.8.6.2 Nominal size range of granules				Not applicable since liquid (SL) formulation		

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.8.6.3 Dust content				Not applicable since liquid (SL) formulation		
IIIA1 2.8.6.4 Particle size of dust						
IIIA1 2.8.6.5 Friability and attrition characteristics of granules				Not applicable since liquid (SL) formulation		
IIIA1 2.8.7 Emulsion characteristics						
IIIA1 2.8.7.1 Emulsifiability				Not applicable since not an emulsifiable formulation		
IIIA1 2.8.7.2 Emulsion stability				Not applicable since not an emulsifiable formulation		
IIIA1 2.8.7.3 Re-emulsifiability				Not applicable since not an emulsifiable formulation		
IIIA1 2.8.7.4 Stability of dilute emulsions				Not applicable since not an emulsifiable formulation		
IIIA1 2.8.7.5 Stability of emulsions				Not applicable since not an emulsifiable formulation		
IIIA1 2.8.8 Flowability, pourability and dustability						

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.8.8.1 Flowability				Not applicable since liquid (SL) formulation		
IIIA1 2.8.8.2 Pourability (including rinsed residue)				Not applicable since liquid (SL) formulation		
IIIA1 2.8.8.3 Dustability following accelerate storage				Not applicable since liquid (SL) formulation		
IIIA1 2.9 Physical compatibility with other products						
IIIA1 2.9.1 Physical compatibility of tank mixes				Not applicable (tank mixtures with other pesticides are not recommended)		
IIIA1 2.9.2 Chemical compatibility of tank mixes				Not applicable (tank mixtures with other pesticides are not recommended)		
IIIA1 2.10 Distribution and adherence to seed						
IIIA1 2.10.1 Distribution (seed treatment)				Not applicable since not used for seed treatment		
IIIA1 2.10.2 Adhesion (seed treatment)				Not applicable since not used for seed treatment		

Test or Study & Annex point	Guideline and method	Test material purity and specification	Findings	Comments	GLP Y/N	Reference
IIIA1 2.11 Miscibility						
IIIA1 2.11 Miscibility	Not required by Regulation 1107/2009.					
IIIA1 2.12 Dielectric breakdown voltage						
IIIA1 2.12 Dielectric breakdown voltage	Not required by Regulation 1107/2009.					
IIIA1 2.13 Corrosion characteristics						
IIIA1 2.13 Corrosion characteristics	Not required by Regulation 1107/2009.					
IIIA1 2.14 Container material						
IIIA1 2.14 Container Material	Not required by Regulation 1107/2009.					
IIIA1 2.15 Other/special studies						
IIIA1 2.15 Other/special studies	none					

IIIA1 2.16 Summary and evaluation of points 2.1 to 2.15

Flupyradifurone (BYI 2960) SL 200(200 g/L) is not explosive and has no oxidizing properties. Its pH is within the range that naturally occurs *e.g.* in soil. Its stability allows storage under practical and commercial conditions. Its technical properties indicate that no particular problems have to be expected, when it is used as recommended.