Chemistry data review for the registration of a technical grade of active ingredient (TGAI) or an integrated system product (ISP).

Product Chemistry Data Requirements

(UNDATED)

Submission Number / DP Bar Code: 2003-0839

Registration Number: Not yet assigned

Source Code / PC Code: MTN-BAZ-31

Manufacturing Plant Location:

BASF Corporation
Agricultural Products Group
P.O. Box 13528
Research Triangle Park, NC
27709-3528
Phone: 919-547-2000

Applicant's / Registrant's Name and address:

BASF Canada Inc.
345 Carlingview Drive
Toronto, Ontario
M9W 6N9
Phone: 416-674-3611

Guarantee: On the label:
BAS 670H.....99.2%

On the SPSF:
BAS 670H Technical, [3-(4,5-dihydro-isoxazol-3-yl)-4-methylsulfonyl-2-methylphenyl](5-hydroxy-1-methyl-1 H-pyrazol-4-yl)methanone...99.2% (97.0 - 100%)

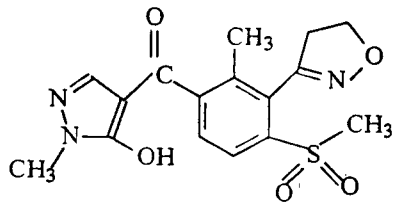
Reviewer: B. Boutin-Muma

INTRODUCTION:

The purpose of this Category A submission is to register a new technical herbicide for corn, containing the active ingredient BAS 670 H. In support of the registration, Part 0-Index, Part 1- label, the Product Statement of Specification Form and Part 2 (in V:\Subs-E-Info\2003 subs\2003-0839\BAS H, 2nd set), have been submitted.

Table 1. Product Identity of BAS 670 H:

DACO # / GLN	Title	Data/Information
2.3 / 830.1000	Trade Name	To be assigned
2.3.1 / 830.1000	Other Name	BAS 670H

Table 1. Product Identity of BAS 670 H:		
DACO # / GLN	Title	Data/Information
2.4 / 830.1550	Common Name	To be assigned
2.5 / 830.1550	IUPAC Chemical Name	[3-(4,5-dihydro-isoxazol-3-yl)-4-methylsulfonyl-2-methylphenyl](5-hydroxy-1-methyl-1 H-pyrazol-4-yl)methanone
	CAS Chemical Name	Methanone, [3-(4,5-dihydro-3-isoxazolyl)-2-methyl-4-(methylsulfonyl)phenyl](5-hydroxy-1-methyl-1 H-pyrazol-4-yl)-
2.6 / 830.1550	CAS Number	210631-68-8
2.7 / 830.1550	Structural Formula	
2.8 / 830.1550	Molecular Formula	$C_{16}H_{17}N_3O_5S$
2.9 / 830.1550	Molecular Weight	363.39

SUMMARY OF FINDINGS:

BAS 670 H is synthesized in a pilot plant at BASF Ludwigshafen, Germany by a process involving several steps. Each step of the process has been described in detail and supported by chemical reactions. A discussion on the formation of the impurities occurring at each step was provided.

The TGAI is guaranteed to contain the active ingredient at a nominal concentration of 99.2% with lower and upper limits of 97 and 100%. [redacted] impurities including [redacted] and [redacted] were specified. Of the [redacted] impurities, [redacted] and two below [redacted] The specifications are based on a pilot plant production batch data.

Five representative batches of BAS 670 H technical grade active ingredient were analyzed for the active ingredient and the content of impurities including [redacted] The level of the active ingredient ranged between 99.0 % and 99.5 % with an average value of 99.2%. The mean closure for the five batches examined was reported to be 100.1%.

The identity of the active ingredient, (BAS 670H) has been confirmed by UV, NMR, IR and MS-spectrometry. The proposed structure is consistent with the spectra. Identity of BAS 670 H TGAI and structurally related impurities has been confirmed by LC retention time comparison with corresponding reference standards.

The chemical and physical properties were either provided or are not applicable.

CONCLUSIONS: The chemistry requirements are not complete. The following requirements remain to be addressed.

DACO	1.0
Title	Label
Deficiencies	A BASF code " BAS 670 H" is used for the active ingredient instead of the common name.
Required Data:	**An ISO common name should be used on the label once one is accepted. This issue can be addressed at the level E review stage.**
DACO	2.2
Title	Manufacturer's Name and Office Address and Manufacturing Plant's Name and Address
Deficiencies	The manufacturing plant location is listed as "BASF, Research Triangle Park, NC" under DACO 2.2 in the chemistry data package and as "BASF, Germany" in box 6 of the SPSF.
Required Data:	**The applicant is required to confirm the correct plant location where the TGAI is manufactured.**
DACO	2.13.3
Title	Batch data
Deficiencies:	The data submitted in support of the specifications of the TGAI, manufactured at the BASF Ludwigshafen, are based on five batches of the TGAI produced in pilot scale.
Required Data:	**Analytical data from five batches of the TGAI from full scale production are required when available, to support the specifications as per the requirements of DIR 98-04.** **The requirement of full scale batch data can be addressed at the level E review stage. In the interim, the applicant is required to provide the expected date of such data.**
DACO:	2.15
Title:	Sample of Chemical Standard
Deficiencies:	A 2.5 g analytical standard of the active ingredient was not submitted.
Required Data:	**As per Dir98-04, a 2.5 g analytical standard of the active ingredient is required. It should be sent directly to:** Laboratory Services Pest Management Regulatory Agency Health Canada Laboratory Services Building, No. 22 Central Experimental Farm Ottawa, Ontario K1A 0C6 Attn: Mary O'Neil

Review status: C1-passed.

Good Laboratory Practices Compliance Statement:

The studies contained within this report were conducted in accordance with the Good Laboratory Practice Standards as specified in 40 CFR 160 or equivalent.

yes [x] no [ ] not stated / applicable [ ]

OECD Principles of Good Laboratory practice and the GLP Principles of the German "Chemikaliengesetz"(Chemicals Act) were used.

1. Chemical and Physical Properties: See Table 2.

Reference:

1.Roland Kastel, July 25, 200, Physical and chemical Properties of the Technical Active Ingredient of BAS 670 H, PCP02480

2. Summary of Chemical and Physical Properties, Anonymous, August 24, 2000; K II A 2.16 Other Studies/Data (Data #1 in V:drive).

Table 2. Chemical & physical properties.

DACO # / GLN	Title	Test substance purity (%)	MRID / Report #	Status[1]	Result[2] or Deficiency
[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable. [2] For example, "brown" for 830.6302; "155°C" for 830.7200.					
2.14.1 / 830.6302	Colour		Ansgar Daum November 2, 1999 PCP02480	A	White
2.14.2 / 830.6303	Physical state		Ansgar Daum November 2, 1999 PCP02480	A	Solid
2.14.3 / 830.6304	Odour		Ansgar Daum November 2, 1999 PCP02480	A	Odourless
2.14.4 / 830.7200	Melting point/range	99.8	Ansgar Daum November 2, 1999 PCP05410 OECD Test Guideline102	A	220.9°C - 222 .2°C.
2.14.5 / 830.7220	Boiling point/range			N/A	The product is a solid
2.14.6 / 830.7300	Density or specific gravity at 20°C	99.7	Roland Kastel, September 20, 1999 OECD Test Guideline 109	A	1.425 g/cm^3

Table 2. Chemical & physical properties.

DACO # / GLN	Title	Test substance purity (%)	MRID / Report #	Status[1]	Result[2] or Deficiency
[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable. [2] For example, "brown" for 830.6302; "155°C" for 830.7200.					
2.14.7 / 830.7840	Water solubility at 20°C	99.7	Ansgar Daum, October 4, 1999 PCP05405 OECD 105	A	pH / Solubility 3 / 0.06 g/L 5 / 0.98 g/L 7 / 15g/L 9 / 23.4 g/L
2.14.8 / 830.7860	Solvent solubility at 20°C	99.9	Ansgar Daum, January 13, 2000 PCP05408	A	Solvent / Solubility (g/100mL) Acetone / < 1.0 Acetonitrile / < 1.0 Dichloromethane / 2.5 -2.9 N,N-dimethylformamide / 11.4 -13.3 Ethyl acetate / < 1.0 Other solvents* / < 1.0 *N-heptane, methanol, 1-octanol, olive oil, 2-propanol, and toluene are each < 1.0.
2.14.9 / 830.7950	Vapour pressure at 20°C	99.7	Roland Kastel, September 20, 1999	A	Temperature (°C) / Vapor pressure (mbar) 20 / < 1x 10^{-12} 25 / < 1x 10^{-12}
830.7	pH		Roland Kastel, July, 2000 PCP02480 CIPAC MT 75	A	2.9 (1% de-ionized water)
2.14.10 / 830.7370	Dissociation constant (pK_a)	99.7	Ansgar Daum, September 21, 1999 PCP05406, OECD 112 'Dissociation	A	4.06
2.14.11 / 830.7550 830.75608 30.7570	Octanol/water partition coefficient (K_{ow}) at 20°C	99.9	Ansgar Daum, August 24, 2000 PCP05828 OECD 107	A	pH / log Kow 4 / -0.81 7 / -1.52 9 / -2.34
2.14.12 / 830.7050	UV/visible absorption spectrum (indicate conditions, if any)	99.7	Ansgar Daum, January 13, 2000 PCP05409 OECD 101	A	λ,nm / ε, $mol^{-1}cm^{-1}$ 207 / 27077 272 / 8601 300 / 5800 410 / 410
2.14.13 / 830.6313	Stability (temperature, metals, sunlight)	Not provided	R. Yacoub November 1, 2002 FR0221	A	Stable to normal and elevated temperatures 54°C for 14 days, in the presence of aluminum, aluminum acetate and iron filings. The test substance may not be stable in the presence of iron acetate after 14 days at elevated temperature.

Table 2. Chemical & physical properties.					
DACO # / GLN	Title	Test substance purity (%)	MRID / Report #	Status[1]	Result[2] or Deficiency
[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable. [2] For example, "brown" for 830.6302; "155°C" for 830.7200.					
2.14.14 / 830.6317	Storage stability		Wemer Konig March 7, 2002 PCF02075	A	After 24 months at 20°C and 30°C no significant change in active ingredient concentration (less then 5%) was observed.

Data Submitted: See Table 3.

Table 3. Identity and Composition Data for BAS 670 H TGAI				
DACO # / GLN	Title	MRID / Report #	Status[1]	Details and/or Deficiency[2]
2.12.2 / 830.1550	Product Identity and Disclosure of Ingredients		A	No deficiencies
2.11.2, 2.11.3 / 830.1600 830.1620	Starting Materials & Manufacturing Process		A	No deficiencies
2.11.4 / 830.1670	Discussion of Impurities		A	No deficiencies
2.13.3 / 830.1700	Preliminary Analysis		N	The specifications are based on batches from a pilot plant production.
2.12.1 / 830.1750	Certification of Limits		A	No deficiencies
2.13.1 / 830.1800	Enforcement Analytical Methods		A	No deficiencies
[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable. [2] Refer to CBI Appendix A for details				

ATTACHMENT: CONFIDENTIAL APPENDIX

Chem. Data Review for the Reg of TGAI Oxa...

Page ____ is not included in this copy.

Pages 7 through 17 are not included.

The material not included contains the following type of information:

✓ Identity of product inert ingredients.

____ Identity of product impurities.

✓ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

____ Sales or other commercial/financial information.

____ A draft product label.

____ The product confidential statement of formula.

____ Information about a pending registration action.

____ FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
