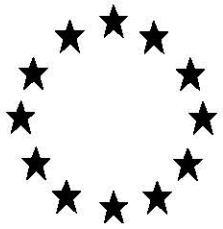
Competent Authority Report

Work Programme for Review of Active Substances in Biocidal Products
Pursuant to Council Directive 98/8/EC



d-Phenothrin (PT18)

Sumitomo Chemical (UK) PLC

Applicant, Identity and Physical and Chemical Properties

Document A1-A3

Rapporteur Member State: Ireland

~~August 2010~~June 2011

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Section A1 Applicant

Annex Point IIA1
IUCLID 1.0.1

1.1 Applicant

Name:- Sumitomo Chemical (UK) PLC

1.2 Manufacturer of Active Substance
(if different)

Telephone: Not available
Fax number: Not available

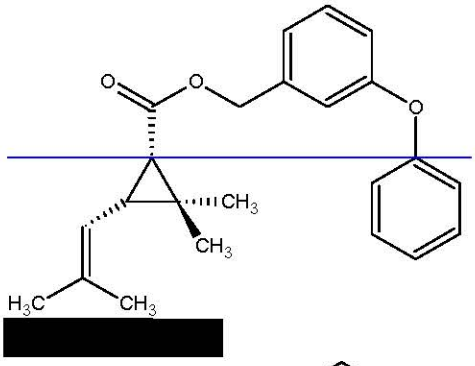
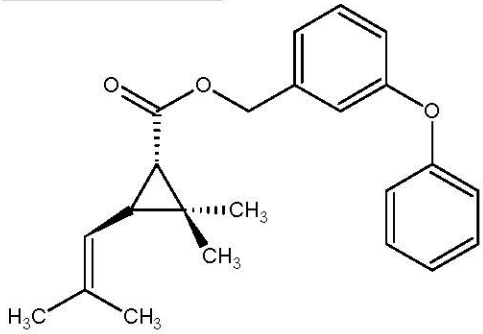
1.3 Manufacturer of Product(s)
(if different)

As above

1) Product – Sumithrin® 10 SEC

Section A2 Identity of Active Substance

Subsection (Annex Point)			Official use only	
2.1	**Common name (IIA2.1)**	*d*-Phenothrin also known as [redacted] Sumithrin®	X	Formatted: Font: Bold
2.2	**Chemical name (IIA2.2)**	**CAS**: (3-phenoxyphenyl)methyl (1*R*)-*cis*-*trans*-2,2-dimethyl- 3-(2-methyl-1-propenyl) cyclopropanecarboxylate **IUPAC**: 3-phenoxybenzyl *(1R)-cis, trans*-chrysanthemate	X	Formatted: Font: Bold
2.3	**Manufacturer´s development code number(s) (IIA2.3)**	Not available		
2.4	**CAS No and EC numbers (IIA2.4)**	*Non-entry field*	X	Formatted: Font: Bold
2.4.1	**CAS-No**	188023-86-1		
	Isomer 1	Not applicable		
2.4.2	**EC-No**	None-plant protection product		
	Isomer 1	Not applicable		
	Isomer n			
2.4.3	**Other**	CIPAC No. 356		
2.5	**Molecular and structural formula, molecular mass (IIA2.5)**	*Non-entry field*		
2.5.1	**Molecular formula**	$C_{23}H_{26}O_3$		

2.5.2	**Structural formula**	 [redacted]  [redacted]
2.5.3	**Molecular mass**	350.46 g/mol
2.6	**Method of manufacture of the active substance (IIA2.1)**	Refer to Confidential Appendix for File IIIA TNG Section 2.6
2.7	**Specification of the purity of the active substance, as appropriate (IIA2.7)**	g/kg g/l % w/w % v/v X~~1~~ [redacted]

2.8	**Identity of impurities and additives, as appropriate (IIA2.8)**	Refer to Confidential Appendix File IIIA TNG Section 2.8 (1) to (7)	
2.8.1	**Isomeric composition**	[redacted]	**X~~2~~**
2.9	**The origin of the natural active substance or the precursor(s) of the active substance (IIA2.9)**	Not Applicable Refer to Justification for Non-Submission of Data TNG Section A2.9	

2.10 Exposure data in conformity with Annex VIIA to Council Directive 92/32/EEC (OJ No L, 05.06.1992, p. 1) amending Council Directive 67/548/EEC

Annex Point IIA, II.2.10	This information is considered confidential and is presented in the Annex Confidential Data and Information

Evaluation by Competent Authorities	
Use separate "evaluation boxes" to provide transparency as to the comments and views submitted	

EVALUATION BY RAPPORTEUR MEMBER STATE ~~(X1 & X2)~~

Identity of the Active Substance (Section A2)

Date

Results and discussion

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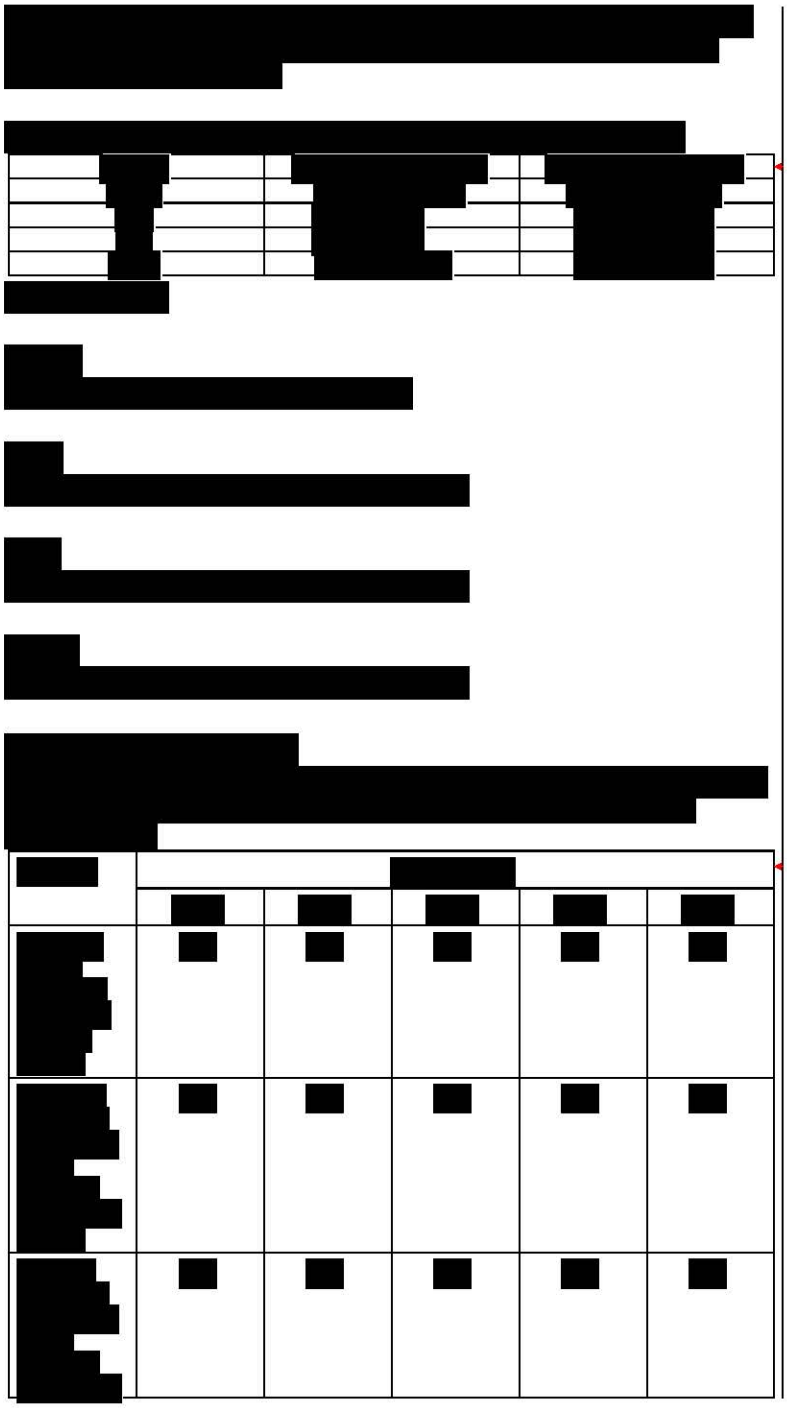

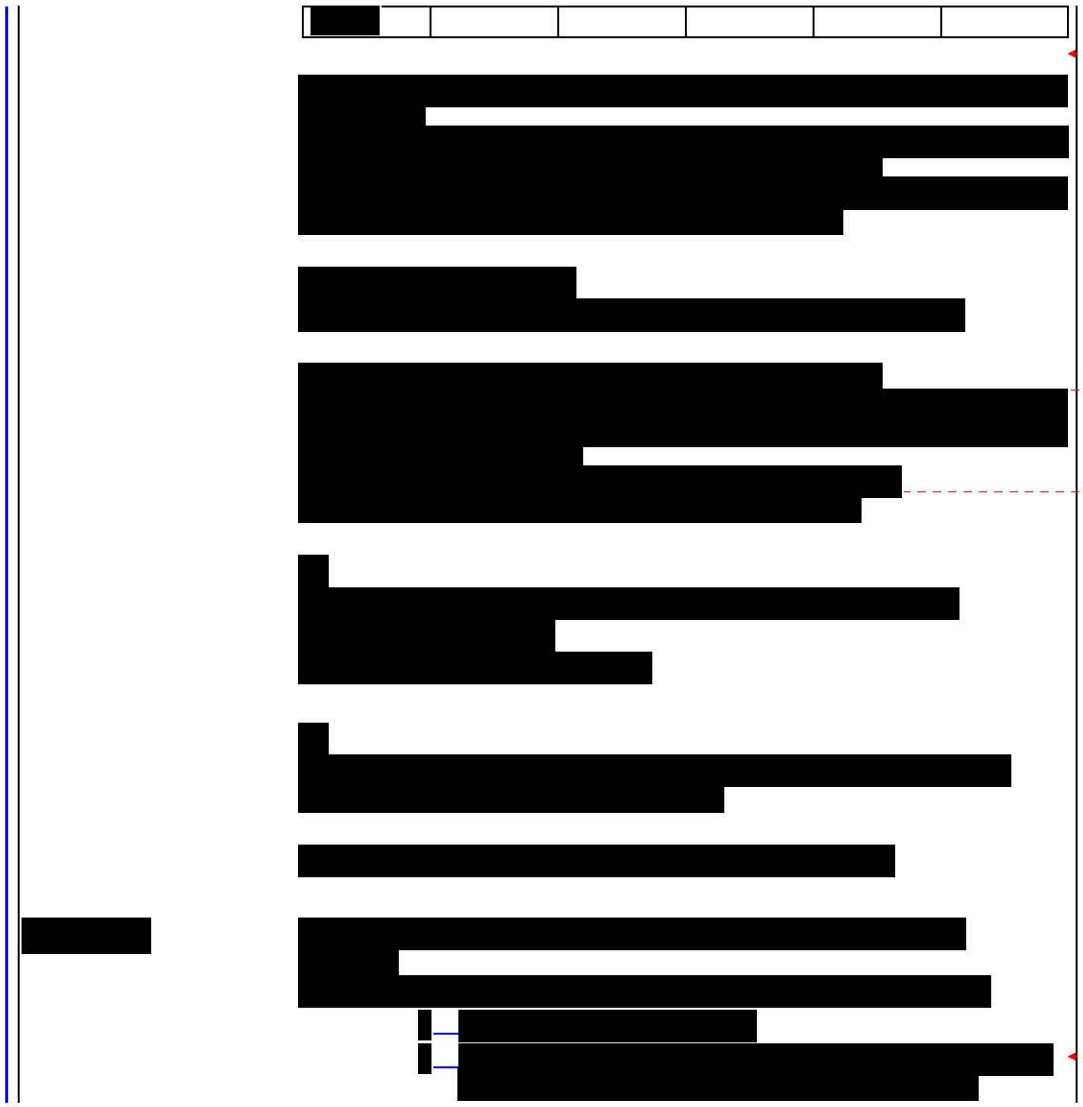

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Reliability	[redacted]
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Conclusion	*Discuss if deviating from view of rapporteur member state*
Reliability	*Discuss if deviating from view of rapporteur member state*
Acceptability	*Discuss if deviating from view of rapporteur member state*
Remarks	

Section A3 Physical and Chemical Properties of Active Substance

Subsection (Annex Point)	Method	Purity/ Specification	Results Give also data on test pressure, temperature, pH and concentration range if necessary	Remarks/ Justification	GLP (Y/N)	Reliability	Reference	Official use only
3.1 Melting point, boiling point, relative density (IIA3.1)								X
3.1.1 Melting point								
Melting pt. 1 IUCLID 2.1/1	EC A1 OECD 102 (Differential Scanning Calorimetry)	[redacted]	***result***: -41.38 °C ***pressure:*** performed at atmospheric pressure	[redacted]	[redacted]	[redacted]	[redacted]	
Melting pt. 1 IUCLID 2.1/2	Method A1 Commission Directive 92/69/EEC.	[redacted]	***result***: -20.16 °C (<253 ± 0.5 K) ***pressure:*** performed at atmospheric pressure	[redacted]	[redacted]	[redacted]	[redacted]	

Section A3 Physical and Chemical Properties of Active Substance

Subsection (Annex Point)	Method	Purity/ Specification	Results Give also data on test pressure, temperature, pH and concentration range if necessary	Remarks/ Justification	GLP (Y/N)	Reliability	Reference	Official use only
Boiling pt. 1 IUCLID 2.2/1	OECD Guideline 103		**result:** >301°C **pressure:** 99.8 kPa					
Boiling pt. 2 IUCLID 2.2/2	OECD Guide-line 103		**result:** >290°C **pressure:** 1030 hPa					

Section A3 Physical and Chemical Properties of Active Substance

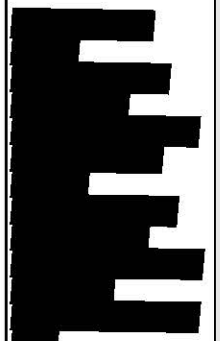
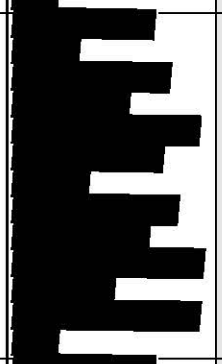
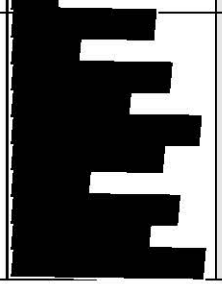
Subsection (Annex Point)	Method	Purity/ Specification	Results Give also data on test pressure, temperature, pH and concentration range if necessary	Remarks/ Justification	GLP (Y/N)	Reliability	Reference	Official use only
				[redacted]			February 1989	
3.1.3 Bulk density/ relative density Bulk/rel. density 1 IUCLID 2.3/1	CIPAC Method MT3	[redacted]	1.06 g/ml at 20°C	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bulk/rel. density 2 IUCLID 2.3/2	CIPAC MT 3.2	[redacted]	1.06 g/ml at 20°C	[redacted]	[redacted]	[redacted]	[redacted]	

Section A3 Physical and Chemical Properties of Active Substance

Subsection (Annex Point)	Method	Purity/ Specification	Results Give also data on test pressure, temperature, pH and concentration range if necessary	Remarks/ Justification	GLP (Y/N)	Reliability	Reference	Official use only
3.2 Vapour pressure (IIA3.2)								
Vapour pressure 1 IUCLID 2.4/1	EEC A4 OECD 104 (Knudsen effusion method)		**temperature:** 20°C and 25°C **result:** 2.372 x 10^{-5} Pa at 20°C and 4.165 x 10^{-5} Pa at 25°C					
3.2.1 Henry´s Law Constant (Pt. I-A3.2) **IUCLID 2.14/1**	Not applicable		**Measured/calculated:** calculated **result:** >6.75 x 10^{-1} Pa m^3 mol^{-1}					

Section A3 Physical and Chemical Properties of Active Substance

Subsection (Annex Point)	Method	Purity/ Specification	Results Give also data on test pressure, temperature, pH and concentration range if necessary	Remarks/ Justification	GLP (Y/N)	Reliability	Reference	Official use only
							[redacted]	

3.3 Appearance (IIA3.3) **3.3.1 Physical state** **IUCLID 1.1.1/1**	Visual OPPTS 830.6302		Liquid, oily	None				X
3.3.2 Colour IUCLID 1.1.1/1	Visual OPPTS 830.6303		Pale yellow	None				
3.3.3 Odour IUCLID 1.1.1/1	OPPTS 830.6304		Slight petrol odour	None				

							Report No. SYN/2201, 13 April 2006	
3.4 Absorption spectra (IIA3.4)								
UV/VIS IUCLID 1.1.2/1	Not applicable	[redacted]	The uv/vis absorbance maxima were observed at 202.96, 202.37 and 217.27 nm at acidic, neutral and alkaline pH. [redacted]		[redacted]	[redacted]	[redacted]	
IR IUCLID 1.1.2/2	Not applicable	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	

NMR IUCLID 1.1.2/3	Not applicable	[redacted]	The ^{1}H and ^{13}C NMR spectra are consistent with the accepted structure.	-	[redacted]	[redacted]	[redacted]	
MS IUCLID 1.1.2/4	Not applicable	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	
3.5 Solubility in water (IIA3.5) Water solubility 1 IUCLID 2.6.1/1	*including effects of pH (5-9)* CIPAC Method MT157	[redacted]	**result:** 2 µg/l **temperature:** 21°C **pH:**5, 7 and 9	[redacted]	[redacted]	[redacted]	[redacted]	

Water solubility 2 IUCLID 2.6.1/3	EPA Chemical Fate Testing Guideline CG-1500.		**result:** <9.7 µg/l **temperature:** 25±1°C **pH:**5.80 to 6.02					
3.6 Dissociation constant (-)								
3.7 Solubility in organic solvents, including the effect of temperature on solubility (IIIA3.1) Organic solvent Solubility 1 IUCLID 2.6.1/2	CIPAC Method MT181		**Result:** The solubility of d-Phenothrin was:- Methanol >250 g/l; Acetone >250 g/l; Ethyl	None				

			acetate>250 g/l; 1,2-dichloroethane>250 g/l; m-xylene>250 g/l; heptane>250 g/l **temperature:**25°C				
Organic solvent Solubility 2 IUCLID 2.6.1/4	OECD Guide-line 105		**Result:** The solubility of Sumithrin was determined to be >4.96 g/mL in hexane and >5.0 g/mL in methanol. **temperature:**25°C	Shake flask method used.			
3.8 Stability in organic solvents used in b.p. and identity of relevant breakdown products (IIIA3.2)			Not applicable.	Only if additional data are required (see BPD, TNsG) Refer to TNG Justification for Non-submission of Data A3.8			

3.9 Partition coefficient n-octanol/water (IIA3.6)	*including effects of pH (5-9)*						
log Pow 1 IUCLID2.5/1	EEC Method A8		**result:** Log P_{ow} = 6.8 **temperature:** not stated **pH:** pH7	None			
log Pow 2 IUCLID2.5/2	OECD Guide-line 107		**result:** Log P_{ow} = 6.01 **temperature:** 20°C ±1°C **pH:** pH7				

3.10 Thermal stability, identity of relevant breakdown products (IIA3.7) IUCLID 2.14/2	OECD Guidelines No.113	[redacted]	Thermally stable	The test substance was exposed to 54ºC for 14 days. [redacted]			[redacted]	
3.11 Flammability, including auto-flammability and identity of combustion products (IIA3.8) Auto-flammability 1 IUCLID 2.8/1	EEC Method A15	[redacted]	385ºC at 102.2 kPa	Auto-ignition			[redacted]	

							[redacted]	
3.12 Flash-point (IIA3.9)								
Flash point 1 IUCLID 2.7/1	EEC Method A9	[redacted]	130°C at 101.2kPa	Pensky-Martens closed cup apparatus	[redacted]	[redacted]	[redacted]	[redacted]
Flash point 2 IUCLID 2.7/2	CIPAC MT12.3	[redacted]	107°C	Pensky-Martens closed cup apparatus	[redacted]	[redacted]	[redacted]	[redacted]

							22 November 1988	
3.13 Surface tension (IIA3.10) Surface tension 1			**result:** Not applicable **temperature:**	[redacted]				
3.14 Viscosity (-) IUCLID 2.13/1	OECD Guideline 114	[redacted]	**result:** [redacted] 75.9 mPa.s at 25°C and 23.1 mPa.s at 45°C	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3.15 Explosive properties (IIA3.11)				Refer to TNG Justification for Non-submission of Data A3.15				
3.16 Oxidizing properties				Refer to TNG				

(IIA3.12)								
3.17 Reactivity towards container material (IIA3.13) IUCLID 1_6_3/1 and 8.8/1			No reactivity against container after storage for 6 months at 40°C.					

Table 1 Ultraviolet-Visible Spectral Characteristics, Sumithrin (d -phenothrin)

Conditions	Concentration (mg/L)	Molar concentration (mole/L)	Maximum absorbance wavelength (nm)	Extinction coefficient (ε) (L/mole)
Acidic	5.645	1.611×10^{-5}	202.96	43327.29
Unadjusted	6.1916	1.767×10^{-5}	202.37	46718.57
Alkaline	5.996	1.711×10^{-5}	217.17	20455.97

Table 2 Ultraviolet-Visible Spectral Characteristics, Sumithrin (d -phenothrin)

As the spectrum in alkaline methanol differed from that in both neutral and acidic methanol, an additional experiment was performed. A sample of the test substance was prepared in alkaline methanol at a nominal concentration of 6 µg/ml and the spectrum recorded. The solution was then neutralised using 0.1M hydrochloric acid (checked using pH indicator paper), as was the blank alkaline methanol. The spectrum of the neutralised solution was then recorded against the neutralised blank.

Conditions	Concentration (mg/L)	Molar concentration (mole/L)	Maximum absorbance wavelength (nm)	Extinction coefficient (ε) (L/mole)
Acidic	7.6846	2.193×10^{-5}	202.01	55739.04
Unadjusted	6.8962	1.968×10^{-5}	203.16	44794.16
Alkaline	13.1636	3.756×10^{-5}	217.18	16713.12

Table 3 Infrared Spectral Details

Functional Group	Mode	Wavenumber (cm^{-1})
Vinyl and Aryl C-H	C-H stretch	3062.84 to 3038.65
Aliphatic C-H	C-H stretch	2969.29 to 2872.97
Ester	C=O stretch	1724.99
Aryl C=C	C=C stretch	1585.30 to 1489.7
Aliphatic C-H	C-H deformations	1447.45 to 1421.25
Methyl	C-H symmetrical deformation	1378.83
Ester and Ether	C-O-C stretch	1257.33 to 1070.37
Vinyl	C-H bend	855.25
Aryl C-H (meta di and mono-substituted)	C-H bend	755.48
Aryl C-H (mono-substituted)	C-H bend	692.24

Table 4 Assignment of the signals (^{1}H-NMR spectrum and ^{13}C spectrum)

The ^{1}H and ^{13}C/Dept135 NMR spectra of the Test Material may be assigned as:

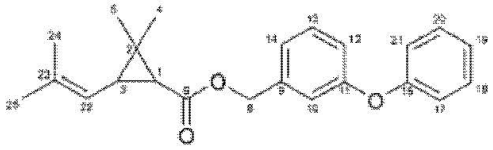


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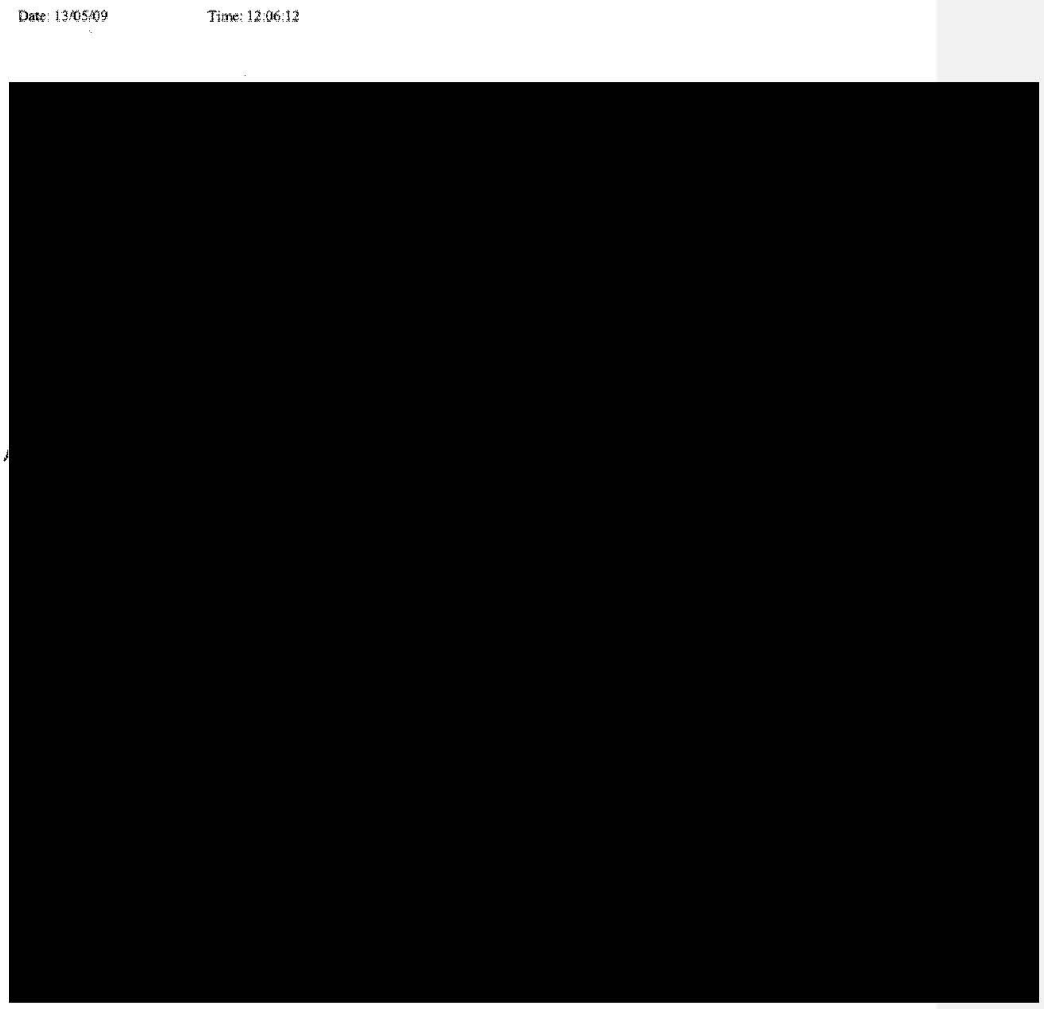
Table 5 MS Spectra

Sumithrin	Observed *m/z*	Elemental composition*	Δm (ppm)
Full scan	351.1955	$C_{23}H_{27}O_3$	+0.1
MS^2	305.1900	$C_{22}H_{25}O$	+0.0
	333.1846	$C_{23}H_{25}O_2$	-0.9

* positive species

Figure 1 Ultraviolet-Visible Spectrum Between 200 and 750 nm of Solutions of Sumithrin (d -phenothrin)



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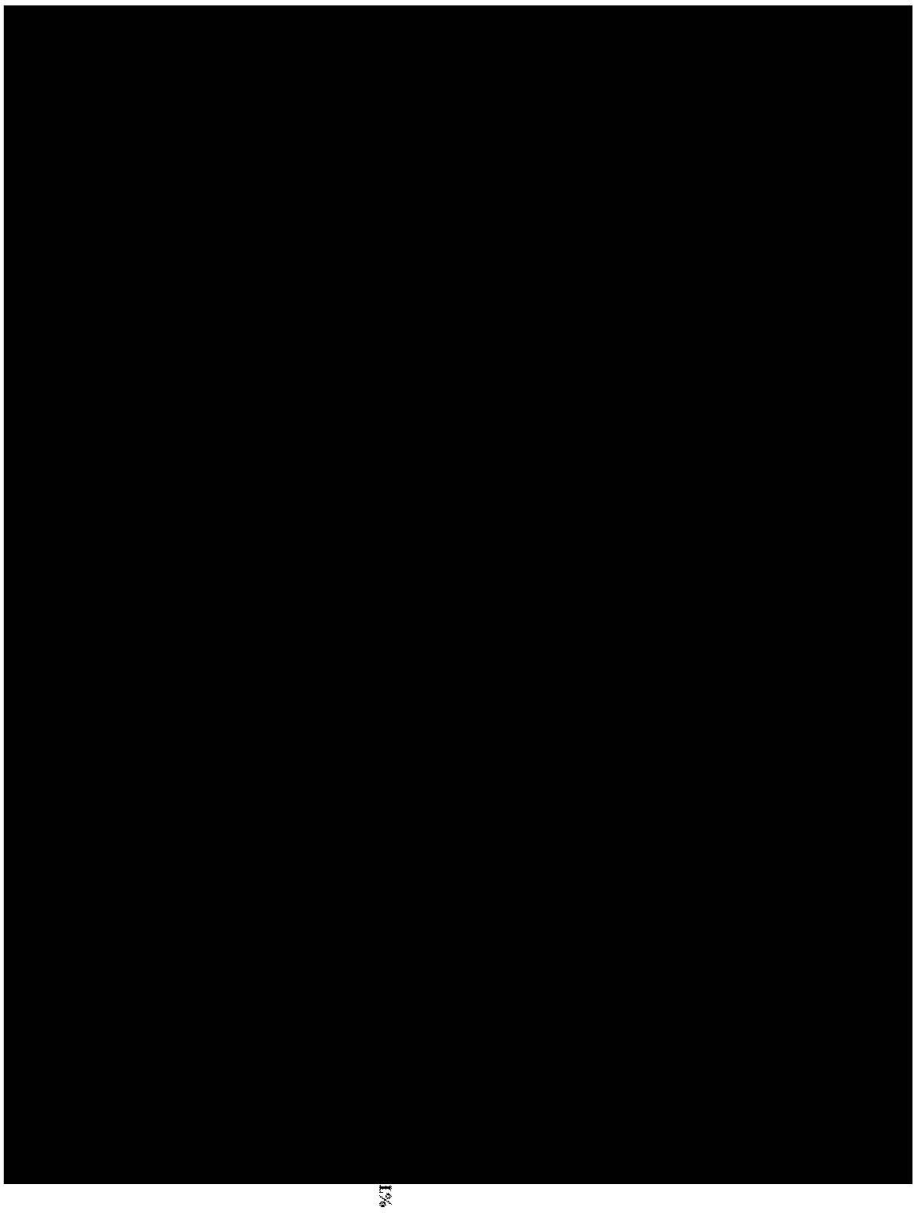

Figure 4 Infrared Spectrum between 2000 and 500 cm^{-1}

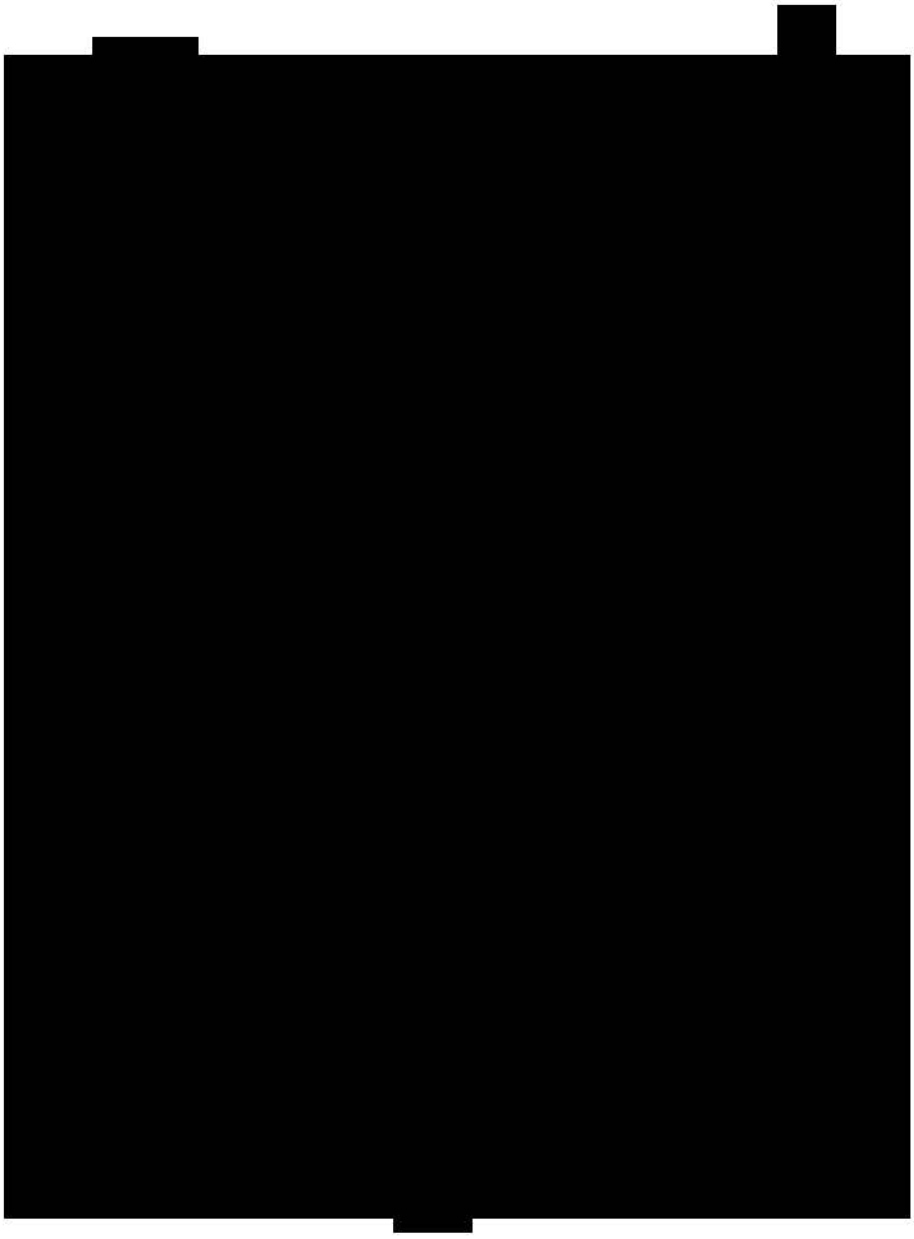

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Figure 8 Product ion spectrum of Sumithrin (d-phenothrin)

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Results and discussion	*Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant's summary and conclusion.* *Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
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Justifications for non-submission of data under Section A3

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Date	Give date of comments submitted
Results and discussion	Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant´s summary and conclusion. Discuss if deviating from view of rapporteur member state
Conclusion	Discuss if deviating from view of rapporteur member state
Reliability	Discuss if deviating from view of rapporteur member state
Acceptability	Discuss if deviating from view of rapporteur member state
Remarks	

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Justifications for non-submission of data under Section A3

Section A3.8 [redacted]	[redacted]	
	[redacted]	[redacted]
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	[redacted]	
	[redacted]	
[redacted]	[redacted]	
	COMMENTS FROM OTHER MEMBER STATE *(specify)*	
Date	*Give date of comments submitted*	
Evaluation of applicant's justification	*Discuss if deviating from view of rapporteur member state*	
Conclusion	*Discuss if deviating from view of rapporteur member state*	

Evaluation by Competent Authorities
Use separate "evaluation boxes" to provide transparency as to the comments and views submitted
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Reliability	*Discuss if deviating from view of rapporteur member state*
Acceptability	*Discuss if deviating from view of rapporteur member state*
Remarks	

Section A3.9 Annex Point **IIIA3.6**	[redacted]
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	COMMENTS FROM OTHER MEMBER STATE *(specify)*
Date	*Give date of comments submitted*
Evaluation of applicant's justification	*Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
Remarks	

Evaluation by Competent Authorities	
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Results and discussion	*Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant's summary and conclusion.* *Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
Reliability	*Discuss if deviating from view of rapporteur member state*
Acceptability	*Discuss if deviating from view of rapporteur member state*
Remarks	

	Evaluation by Competent Authorities
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	COMMENTS FROM ...
Date	*Give date of comments submitted*
Results and discussion	*Discuss additional relevant discrepancies referring to the (sub)heading numbers and to applicant's summary and conclusion.* *Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
Reliability	*Discuss if deviating from view of rapporteur member state*
Acceptability	*Discuss if deviating from view of rapporteur member state*
Remarks	

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Evaluation by Competent Authorities	
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	COMMENTS FROM OTHER MEMBER STATE *(specify)*
Date	*Give date of comments submitted*
Evaluation of applicant's justification	*Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*

Evaluation by Competent Authorities	
	Use separate "evaluation boxes" to provide transparency as to the comments and views submitted
Date Materials and met Conclusion Reliability Acceptability Remarks	[redacted]
	COMMENTS FROM OTHER MEMBER STATE *(specify)*
Date	*Give date of comments submitted*
Materials and methods	*Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
Reliability	*Discuss if deviating from view of rapporteur member state*
Acceptability	*Discuss if deviating from view of rapporteur member state*
Remarks	*Discuss if deviating from view of rapporteur member state*

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Evaluation of applicant's justification	
Conclusion	[redacted]
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	[redacted]
Date	*Give date of comments submitted*
Evaluation of applicant's justification	*Discuss if deviating from view of rapporteur member state*
Conclusion	*Discuss if deviating from view of rapporteur member state*
Remarks	

[redacted]

Remarks

Section A1-A3 Reference list by section number

Section No./Reference No.	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
A2	[redacted]	2001	Analysis Results of Recent Batches of [redacted] (d-Phenothrin) [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3 1 1	[redacted]	2009	Sumithrin (d-phenothrin): Evaluation of Selected Physical Chemistry Properties	Y	[redacted]
A3_1_2	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_1_3	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_1_3	[redacted]	1988	Specific Gravity of Sumithrin®. [redacted]	Y	Sumitomo Chemical Co., Ltd.

Section No./Reference No.	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
A3_2	[redacted]	2009	Phenothrin: Evaluation of Vapour Pressure	Y	[redacted]
A3_2_1	[redacted]	2000	Henry's Law Constant for d-Phenothrin (Sumithrin®) [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_3_1	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_3_2	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_3_3	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3 4	[redacted]	2009	Sumithrin (d-phenothrin): Evaluation of Selected Physical Chemistry Properties	Y	[redacted]

Section No./Reference No.	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
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A3_5	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_5	[redacted]	1989	Water Solubility of Sumithrin®-TGAI. [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_7	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_7	[redacted]	1989	Determination of Solubility of Sumithrin® in Organic Solvents [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_9	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd

Section No./Reference No.	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
			[redacted]		
A3_9	[redacted]	1989	Octanol/ Water Partition Coefficient Determination of Sumithrin®. [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_10	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_11	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_11	[redacted]	1988	Flammability of Sumithrin® [redacted]	Y	Sumitomo Chemical Co., Ltd
A3_12	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin	Y	[redacted]

Section No./Reference No.	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
			[redacted]		
A3_14	[redacted]	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	[redacted]
A3_17	[redacted]	2005	Reactivity of Pyrethroids Technical Materials towards Container Materials [redacted]	Y	Sumitomo Chemical Co., Ltd.
A3_17	[redacted]	2005	Reactivity of Pyrethroids Technical Materials towards Container Materials [redacted]	Y	Sumitomo Chemical Co., Ltd

Reference List by Author

Author(s)	Section No./Reference No.	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published	Data Protection Claimed (Yes/No)	Owner
[redacted]	A3_17	2005	Reactivity of Pyrethroids Technical Materials towards Container Materials [redacted]	Y	Sumitomo Chemical Co., Ltd
[redacted]	A3_1_3	2006	Determination of Physical and Chemical Properties of d-Phenothrin [redacted]	Y	Sumitomo Chemical Co., Ltd
[redacted]	A3_7	1989	Determination of Solubility of Sumithrin® in Organic Solvents [redacted]	Y	Sumitomo Chemical Co., Ltd.
[redacted]	A2	200[redacted]	Analysis Results of Recent Batches of [redacted] d-Phenothrin) [redacted]	Y	Sumitomo Chemical Co., Ltd.

[redacted]	A3_1_3	1988	Specific Gravity of Sumithrin®. [redacted]	Y	Sumitomo Chemical Co., Ltd.
[redacted]	A3_11	1988	Flammability of Sumithrin® [redacted]	Y	Sumitomo Chemical Co., Ltd
[redacted]	A3	1989	Determination of Boiling Point/ Boiling Range of Sumithrin®. [redacted]	Y	Sumitomo Chemical Co., Ltd.
[redacted]	A2	2006	Description of Starting Materials and Manufacturing Process of Sumithrin [redacted]	Y	Sumitomo Chemical Co., Ltd
[redacted]	A 3.1.1	2009	Sumithrin (d-phenothrin): Evaluation of Selected Physical Chemistry Properties	Y	[redacted]
[redacted]	A 3.2	2009	Phenothrin: Evaluation of Vapour Pressure	Y	[redacted]

[redacted]	A 3.4	2009	Sumithrin (d-phenothrin): Evaluation of Selected Physical Chemistry Properties	Y	[redacted]
[redacted]	A3_9	1989	Octanol/ Water Partition Coefficient Determination of Sumithrin®. [redacted]	Y	Sumitomo Chemical Co., Ltd.
[redacted]	A3_5	1989	Water Solubility of Sumithrin®-TGAI. [redacted]	Y	Sumitomo Chemical Co., Ltd.
[redacted]	A3_2_1	2000	Henry's Law Constant for d-Phenothrin (Sumithrin®) [redacted]	Y	Sumitomo Chemical Co., Ltd.

Section A4.2(a) **Annex Point IIA4.2**	**Analytical Methods for Detection and Identification** **Method Validation for the Analysis of Sumithrin in Soil**	
	3 REFERENCE	**use only**
3.1 Reference	[redacted]	
3.2 Data protection	Yes	
3.2.1 Data owner	Sumitomo Chemical Co., Ltd.	
3.2.2		
3.2.3 Criteria for data protection	Data submitted to the MS after 13 May 2000 on existing a.s. for the purpose of its entry into Annex I/IA	
	4 GUIDELINES AND QUALITY ASSURANCE	
4.1 Guideline study	No guideline specified. The method was originally validated under Report No. ER-MT-8941 and was subsequently modified and revalidated under Report No. 40310 to achieve a lower LOQ of 0.01 mg/kg.	
4.2 GLP	[redacted]	
4.3 Deviations		
	5 MATERIALS AND METHODS	
5.1 Preliminary treatment	Non-entry field	
5.1.1 Enrichment	Sumithrin was extracted from soil using methanol. Twenty grams of soil were weighed into a 250-mL polypropylene bottle. Control samples were fortified at this point by application of the appropriate spiking solution directly onto the soil. Forty milliliters of methanol were added to the sample, the jar was capped and placed on a reciprocating shaker for 10 minutes. The sample was then filtered under vacuum through glass-fibre filter paper contained in a Büchner funnel. The liquid portion was collected in a 500-mL separatory funnel. The residue was re-extracted with an additional 40 mL of methanol, filtered, and the extracts combined in the separatory funnel. The sample container and Büchner funnel were rinsed with approximately 30 mL of methanol and the rinse combined with the sample extract.	
5.1.2 Cleanup	The extract was partitioned using 80 mL of a 10% sodium chloride solution and 40 mL of methylene chloride. The methylene chloride was passed through a bed of sodium sulphate to remove water and collected in a 250-mL flat bottom flask. The partitioning was done again using 40 mL of methylene chloride, drained through the sodium sulphate, and collected in the flat bottom flask. The methylene chloride was concentrated to dryness under vacuum with a rotary evaporator and a water bath held at approximately 30 °C.	

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