LEVEL 1

ENDOSULFAN

Statement of Subject Matter and Purpose of Monograph

1 Statement of subject matter and purpose for which the monograph was prepared

1.1 Purpose for which the monograph was prepared (Dossier Document A)

This monograph has been prepared for submission to the Standing Commitee on Plant Health so as to enable a decision to be made on the listing of Endosulfan in ANNEX I to Council Directive 91/414/EEC. The documentation considered during its preparation was provided by Hoechst Schering AgrEvo & Makhteshim Agan International (as a Task Force) , Calliope, S.A. and B.V. Luxan.

1.2 Summary and assessment of information relating to the collective assessment of dossiers (Dossier Document B)

Hoechst Schering AgrEvo & Makhteshim Agan International have submitted a collective dossier as a Task Force.

Calliope S. A. has submitted his own individual dossier.

B.V. Luxan has submitted his own individual dossier as representant in Europe of Excel Industries Ltd.

On February 2 th of 1994 Agro-Evo sent a letter to Calliope S.A., Helen A.G., Ind. Afresa, Luxe Makhteshim-Agan and United Phosphorus suggesting the formation of a Task Force to notify collectively Endosulfan for its inclusion on ANNEX I of Directive 91 / 414.

Makhteshim-Agan was the only company to finally join this Task Force. No subsequent correspondence with the other manufacturers has been submitted by Agro-Evo.

On June 4th of 1993 Calliope has sent a letter to Makhteshim-Agan to ask for the participation in a Task-Force. An important fact is revealed in this letter. Calliope introduced itself not as a manufacturer of the active substance but as a manufacturer of the formulate ROCKY (French Registration N° 9100591) for which Makhteshim-Agan is recognised to be the supplier of the active ingredient ENDOSULFAN. Thus, if this is true, **Calliope was not a manufacturer of ENDOSULFAN at the time of starting the elaboration of the dossier**. In the definition of a PRODUCER (Article 2, Reglament 3600/92 CEE it is quite clear that Companies acting as manufacturers or representatives or importers from manufacturers in countries outside the EU have to substantiate the manufacture of products they aim to defend. In that sense those **Companies having plans to produce in the future, and non manufacturing actually, will not be in the situation of including their products in the EU list**.

Calliope should clarify this point indicating at which time and where they have started to produce ENDOSULFAN and if the substance employed to characterise their technical product was actually produced by them. (This information was required to the applicant by the Rapporteur on July 16th 1998). **The applicant, Calliope, answered to the Rapporteur requested information by letter on July 24th, 1998. They argued that although Makthesim Agan is their Endosulfan supplier in**

France for Rocky, for EU revaluation they submitted the dossier Annex II based on SEO HAN Chemical's Endosulfan and an Annex III for the Plant Protection Product, Callistar containing Endosulfan SEO HAN Chemicals. Both companies, Calliope, S.A. and SEO HAN chemicals are subsidiary companies of Nichimen Corporation, situated at 4-1-23 Shiba Minato-ku TOKYO JAPAN.

According Japan Chemical Week of August 29th, 1996 (http://www.chemnews-japan.com) Nichimen purchased up to the 34% of Calliope in February 1994, and up to 81% in 1996. Therefore and taking into account this information Calliope did not inform of this new situation to the Rapporteur and also they did not introduce to Makhteshim Agan as possible subsidiary company of an non-European company. Thus Calliope did not take the reasonable steps with Makhteshim-Agan to form a Task-force.

Calliope inform of a meeting with AgrEvo on February 23 th (no year specified) in order to join the Task Force formed by AgrEvo and Makhteshim, giving the following explanation:

" After multiple phone calls in order to participate in the Task Force formed by AgrEvo and Makhteshim, Calliope has organised a meeting.

Mrs. [redacted] (Calliope) has met Dr. [redacted] from AgrEvo on the 23th of February in Frankfurt.

Their answer was they thought Calliope did not have enough data to integrate their group, so they told [redacted] they would send a letter to Calliope in wich they will explain their conditions. [redacted] has not received their proposals until now.

But in this meeting, they informed Calliope on the possibility to use their protected data, to get a registration in each country Calliope wants to sell the product to, but after endosulfan has been accepted in the first list using their Task Force.

But anyway, Calliope will have to pay first the fees to AgrEvo in order to get the information if they want to give it and at the price they want."

The reasons for AgrEvo to exclude Calliope from the Task Force are not clear if Calliope was actually a manufacturer at the moment of the application.

Calliope has submitted also some correspondence with other manufacturers that is not relevant because they finally are not notifiers neither individually or in a Task Force.

On October 18 th 1994 Excel asked to Makhteshim Agan and Hoechst Aktiengesellschaft to join them to form a task force with their representants in Europe (Luxan) for the submission a collective dossier on ENDOSULFAN. On November 8 th 1994, Makhteshim Agan suggests Excel to address their

inquires to AgrEvo (Hoechst) as the leadership of the Task Force already working at that date. No further correspondence between Excel or Luxan and AgrEvo has been submitted in the dossier. Thus, **Luxan has not proved to have taken all reasonable steps to present a collective dossier.**

1.3 Identity of the active substance (IIA, 1)

1.3.1 Name and address of applicant(s) for inclusion of the active substance in Annex I (IIA, 1.1)

a) Task Force: Hoechst Schering AgrEvo GmbH

[redacted]

Person to contact:
Telephone Nº:
Telefax Nº:

Makhteshim Agan International Co-ordination Centre

[redacted]

Person to contact:
Telephone Nº:
Telefax Nº:

b) Applicant: Calliope, S.A.

[redacted]

Person to contact:
Telephone Nº:
Telefax Nº:

c**) Applicant:** B.V. Luxan

[redacted]

1.3.2 Common name and synonyms (IIA, 1.3)

Endosulfan, Hoe 002671 (AgrEvo)

Endosulfan (BSO, ISO-E, ISO-F, ANSI, ESA) (Calliope)

Synonyms: thiodan (Iran, USSR), benzoepin (JMAF) (Calliope)

Endosulfan (B. V. Luxan)

1.3.3 Chemical name (IIA, 1.4)

IUPAC: 6,7,8,9,10,10-hexachloro-1,5,5^{a},6,9,9^{a}-hexahydro-6,9-methano-2,4,3-benzo-dioxathiepin-3-oxide

CA: 6,9-methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5^{a},6,9,9^{a}-hexahydro-3-oxide

1.3.4 Manufacturer's development code number (IIA, 1.5)

AgrEvo: Hoe 002671

Calliope: FR 11 316 203 736

B. V. Luxan: None

1.3.5 CAS, EEC and CIPAC numbers (IIA, 1.6)

Agrevo:

CAS Registry Nº: 115-29-7

EEC: 204-079-9

CIPAC: 89

Calliope:

CAS Registry Nº: 115-29-7

EEC: 602-052-00-5

EINECS: 204-079-4

CIPAC: not allocated

B. V. Luxan:

CAS Registry Nº: 115-29-7

EEC: 21

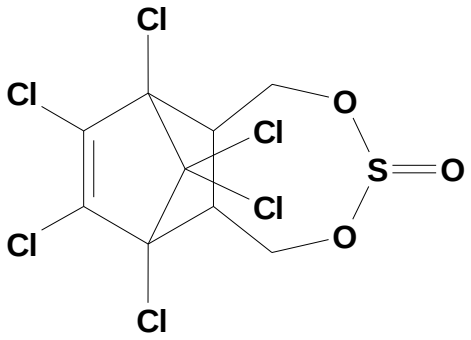
CIPAC: 89

1.3.6 Molecular and structural formulae, molecular mass (IIA, 1.7)

Empirical formula: $C_9H_6Cl_6O_3S$

Molecular mass: 406.96 g/mol

Structural formula:



1.3.7 Manufacturer or manufacturers of the active substance (IIA, 1.2)

a) Hoechst Schering AgrEvo GmbH

[redacted]

b) Makhteshim Chemical Works Limited

[redacted]

c) **Information provided on July 24th, 1998:**

Headquarters Adress: SEO HAN Chemicals

[redacted]

Person to contact: [redacted]

Location of the Plant: [redacted]

KOREA

d) Excel Industries Ltd.

Head Office:

[redacted]

Location of plant:

[redacted]

1.3.8 Method or methods of manufacture (IIA, 1.8)

The applicant B.V. Luxan (Excel Industries Limited) has not submitted any data concerning this point

Confidential information see Annex C.

1.3.9 Specification of purity of the active substance (IIA, 1.9)

The applicant B.V. Luxan (Excel Industries Limited) has not submitted any data concerning this point

Confidential information see Annex C.

1.3.10 Identity of isomers, impurities and additives (IIA, 1.10)

Confidential information see Annex C.

1.3.10.1 Maximum content of isomers and impurities

The applicant B.V. Luxan (Excel Industries Limited) has not submitted any data concerning this point

Confidential information see Annex C.

1.3.10.2 Identity, method of determination and content of all toxicologically or environmentally significant components

The applicant B.V. Luxan (Excel Industries Limited) has not submitted any data concerning this point

Confidential information see Annex C.

1.3.10.3 Identity, content and function of additives

During the production process toluene is used for filtering and washing the crystallized endosulfandiol. Endosulfan melt is stabilised by small amounts of exposidized soybeen oil (Edenol) (see also point 1.8).

The applicant B.V. Luxan (Excel Industries Ltd.) has not submitted any data concerning this point, this information will be required.

1.3.11 Analytical profile of batches (IIA, 1.11)

The applicant B.V. Luxan (Excel Industries Ltd.) has not submitted any data concerning this point, this information will be required.

Confidential information see Annex C.

1.4a Identity of the plant protection product (IIA, 3.1; IIIA, 1)

1.4.1a Current, former and proposed trade names and development code numbers (IIIA, 1.3)

Tradenames:	Thiodan, Cyclodan, Thionex, Endofan, Thyonex, FAN 35
Development code number:	Hoe 002671
Code for preparation:	Hoe 002671 00 EC33 B300

1.4.2a Manufacturer or manufacturers of the plant protection product (IIIA, 1.2)

a) Hoechst Schering AgrEvo GmbH

b) Makhteshim Chemical Works Limited
P.O Box 60

1.4.3a Type of the preparation and code (IIIA, 1.5)

Emulsifiable concentrate liquid at normal temperatures (EC)

1.4.4a Function (IIA, 3.1; IIIA, 1.6)

Endosulfan is successfully used for controlling numerous insect pests and some mites in a wide variety of different crops.

In addition to numerous insects Thiodan also controls gall mites *(Eriophyidae)* and soft or broad mites *(Tarsonemidae*) damaging crops.

Endosulfan is a versatile insecticide with acaricidal properties. The product is used for controlling numerous insect pests and some mites in a wide variety of crops grown in temperate, subtropical and tropical climate zones.

1.4.5a Composition of the preparation (IIIA, 1.4)

Confidential information. See Annex C.

1.5a Uses of the plant protection product (IIA, 3.2 to 3.4; IIIA, 3.1 to 3.7, 3.9 and 12.1)

1.5.1a Field of use (IIA, 3.3; IIIA, 3.1)

Arable crops and greenhouse use in agriculture, horticulture, orchards, forestry and nurseries.

1.5.2a Effects on harmful organisms (IIA, 3.2; IIIA, 3.2)

Endosulfan acts via the GABA receptor system (opening the chloride transport, increasing glutamate level). It penetrates into the insect via the tracheas, by ingestion, and has some contact activity.

When applied to plants, endosulfan can penetrate into plant tissue without developing systemic action.

The product is hydrolysed by aqueous alkalis and acids to produce endosulfan diol.

The lethal effect on the insect may be seen only after several hours (12-24), there is no “knock down effect” first symptom is mainly tremor.

1.5.3a Summary of intended uses (IIA, 3.4; IIIA, 3.3 to 3.7, 3.9)

The applicant reviewed the GAP on January of 1999. In the table 1.5.3a-1 are summarised the GAP for the European Union countries and in the table 1.5.3a-2 are summarised for the imported crops.

Table 1.5.3a-1: Summary of Good Agricultural Practices for European Union

CROP	F/G	FORM TYPE	COUNTRY	APPLICATION			APPLICATION RATE			PHI	REMARKS
				Method	Growth stage	N	kg ai/hl	Water l/ha	kg ai/ha		
1. Fruits											
(i) Citrus fruit	F	EC (350 g/l)	Southern Europe	Medium/High vol spray	During fruiting	1-2	0.035	3000	1.05	21	Spraying interval : 14 – 21
(ii) Hazel nuts	F	EC (350 g/l)	Southern Europe	High volume spray	At any stage	2	0.08	1000	0.8	28	Spraying interval : 14-21
(iii) Pome fruit	F	EC (350 g/l)	Southern Europe	High volume spray	During fruiting	2	0.053 – 0.105	1000 – 1500	max. 1.05	14	Spraying interval : 14 – 21
(iv) Stone fruit (peaches)	F	EC (350 g/l)	Southern Europe	High volume spray	During fruiting	3	0.053	1500	0.8	21	Spraying interval : 14 – 21
(v) Berries and small fruit (a) Table and wine grapes	F	EC (350 g/l)	Southern Europe	Medium/High volume spray	At any syage	2	0.053-0.105	500-1000	max 1.05	28	Spraying interval : 14 – 21 days
2. Vegetables (i) Root and tuber vegetables Sugar beet	F	EC (350 g/l)	Southern Europe	High colume spraying	At any stage	2	0.125	400	0.50	25	Spraying interval: 14 – 21 days
(iii) Fruiting vegetables (a) Solanacea (Tomatoes)	F	EC (350 g/l)	Southern Europe	High volume spray	At any stage	2	0.053 - 0.105	500 - 1000	max. 0.53	3	Spraying interval: 14 – 21 days
	G	EC (350 g/l)	Southern Europe	High volume spray	At any stage	2	0.053	1500	0.8	3	Spraying interval: 7 – 14 days
(c) Cucurbits inedible peel	F	EC (350 g/l)	Southern Europe	High volume spray	At any stage	3	0.053	600 – 1000	0.32 – 0.53	7	Spraying interval: 7 – 14
4. Oil seed											
Cotton	F	EC (350 g/l)	Southern Europe	High volume spray	Last application: When balls are partly open	3	0.105	800	0.84	15	Spraying interval: 14-21
5. Potatoes	F	EC (350 g/l)	Southern Europe	High and low volume spray	At any stage	2	0.088	600	0.53	14	Spraying interval: 14 – 21 days

Table 1.5.3a-2: Summary of Good Agricultural Practices for Imported crops

CROP	F/G	FORM TYPE	COUNTRY	APPLICATION			APPLICATION RATE			PHI	REMARKS
				Method	Growth stage	N	kg ai/hl	Water l/ha	kg ai/ha		
Citrus fruit	F	EC (350 g/l)	Imported crop	High volume spray	During fruiting	1-2	0.035	3000	max. 1.05	21	Outside Europe, use in citrus is registered in South Africa, Brazil, U.S.A.
Soybeans	F	EC (350 g/l)	Imported crops	High volume spray	At any stage	2	0.13 - 0.26	200 – 400	0.53	30	Outside Europe, use is registered in Brazil, Australia, Argentina a.o. countries
Cotton	F	EC (350 g/l)	Imported crops	High volume spray	Last application: When balls are partly open	1 - 3	0.105	800	0.84	15	Outside Europe registrations exist in Brazil, Columbia, Equador a.o. countries.
Tea	F	EC (350 g/l)	Imported crops	High volume spray	At any stage	3	0.126	350	0.44	7	Amongst other use is registered in India
Coffee	F	EC (350 g/l)	Imported crops	High volume spray	At any stage	3	0.175 – 1.05	100 - 600	1.05	30	Use is registered in Latin american and African countries
Cacao	F	EC (350 g/l)	Imported crops	Medium to low volume spray	At any stage	3	0.21 – 0.875	40 - 120	0.25 – 0.35	28	
Pineaples	F	EC (350 g/l)	Imported crops	Medium to low volume spray	At any stage	2	0.41 – 0.84	200 - 400	1.68	60	Spraying interval 7 –14 days

Types of harmful organism controlled by crop

Table 1.5.3a-3: Types of harmful organism controlled by crop

Crop Type	Pests Controlled	
Citrus	Aphids	*Aphis craccivora*
		Aphis spiraecola
		Toxoptera aurantii
	White flies	*Aleurothrixus floccosus*
	Thrips	*Scirtothrips aurantii*
	Lepidoptera	*Prays citri*
Peach	Aphids	*Myzus persicae*
	Peach twig and tree borer	*Anarsia lineatella*
		Sanninoidae exitiosa
		Synanthedon pictipes
Nuts	Aphids	*Chromaphis juglandicola*
	Coleoptera	*Curculio nucum*
	Lepidoptera	*Homoeosoma vagella*
	Bugs	*Amblypelta spp.*
Apple, Pear	Aphids	*Eriosoma lanigerum*
		Myzus persicae
		Aphis pomi
	Psyllids	*Psylla mali*
		Psylla pyri
		Psylla pyricola
	Coleoptera	*Anthonomus pomorum*
		Phyllobius oblongus
		Xyleborus spp.
	Lepidoptera	*Cheimatobia brumata*
		Erannis defoliaria
		Euproctis similis
		Hyponomeuta malinella
		Lymantria spp.
		Malacosoma neustria
	Gall midge	*Dasyneura piri*
	Mites	*Eriophyes piri*
Currants	Bud mites	*Cecidophyopsis ribis*
Table and Wine Grapes	Aphids	*Phylloxera vitifoliae*
	Lepidoptera	*Clysia ambiguella*
		Paralobesia viteana
		Lobesia botrana
		Sparganothis pilleriana
	Gall mites	*Eriophyes vitis*
Vegetables incl. Potatoes	Aphids	*Myzus persicae*
		Aphis fabae
		Semiaphis dauci
	Coleoptera	*Diabrotica spp.*
		Epilachna spp.
		Epitrix spp.
		Leptinotarsa decemlineata
		Crioceris asparagi
	Bugs	*Nezara viridula*
		Lygus spp.
	Lepidoptera	*Earias spp.*
		Heliothis spp.
		Mamestra brassicae
		Pieris rapae
		Plusia spp.
		Plutella xylostella
		Plutella maculipennis
Vegetables incl.	Lepidoptera	*Spodoptera spp.*

Crop Type	Pests Controlled	
Potatoes	Thrips	*Thrips tabaci*
	Seed midge	*Dasyneura brassicae*
	Mites	*Polyphagotarsonemus latus*
		Aculus lycopersici
	White flies	*Bemisia tabaci*
		Trialeurodes vaporariorum
	Psyllids	*Trioza spp.*
Cotton	Aphids	*Aphis gossypii*
	Lepidoptera	*Heliothis armigera*
		Spodoptera littoralis
		Agrotis spp.
		Trichoplusia ni
		Pectinophora gossypiella
	Coleoptera	*Anthonomus grandis*
	Mites	*Polyphagotarsonemus latus*
	Thrips	*Thrips tabaci*
	White fly	*Bemisia tabaci*
	Bugs	*Lygus spp.*
		Nezara viridula
Oilseed rape	Coleoptera	*Ceuthorhynchus quadridens*
		Ceuthorhynchus assimilis
		Ceuthorhynchus napi
		Meligethes aeneus
		Psylliodes chrysocephala
	Gall midge	*Dasyneura brassicae*
	Aphids	*Aphis fabae*
		Myzus persicae
		Brevicoryne brassicae

Table 1.5.3a-4: Application rate

Crop	Dose Rate a.s. g/ha per Application Southern Europe
Citrus	1050
Tree nuts	800
Pome fruit	1050
Stone Fruit	800
Grapes (table and wine)	1050
Currants	-
Solanacea (Tomatoes)	530 (F) – 800 (G)
Cucurbits (inedible peel)	320-530
Cotton	840
Potatoes	530
Sugar beet	500

Table 1.5.3a-5: Concentration of active substance in formulation

Crop	kg a.s/hl per Application Southern Europe
Citrus	0.035
Tree nuts	0.08
Pome fruit	0.053-0.105
Stone Fruit	0.053
Grapes (table and wine)	0.053-0.105
Currants	-
Solanacea (Tomatoes)	(F) 0.053-0.105 (G) 0.053
Cucurbits (inedible peel)	0.053
Cotton	0.105
Potatoes	0.088
Sugar beet	0.125

Table 1.5.3a-6: Pre-harvest interval

Crop	PHI (days) Southern Europe
Citrus	21
Tree nuts	28
Pome fruit	14
Stone Fruit	21
Grapes (table and wine)	28
Currants	-
Solanacea (Tomatoes)	3 (F-G)
Cucurbits (inedible peel)	7 (F)
Cotton	15
Potatoes	14
Sugar beet	25

Table 1.5.3a-7: Number of application per season and spraying interval

Crop	Number/season	Spraying interval (days)
Citrus	1-2	14-21
Tree nuts	2	14-21
Pome fruit	2	14-21
Stone Fruit	3	14-21
Grapes (table and wine)	2	14-21
Currants	-	-
Solanacea (Tomatoes)	2	7-14
Cucurbits (inedible peel)	3	7-14
Cotton	3	14-21
Potatoes	2	14-21
Sugar beet	2	14-21

Method of application:

Conventional foliar spray using handheld equipment or motor driven boom sprayers and airborne sprayers.

Number and timing of applications and duration of protection Endosulfan is preferably recommended as an "early season " product. Caterpillars (external feeders) should preferably be controlled during their 1st or 2nd instars. For stem control and fruit borers as well as bollworms, crops should be treated prior to egg hatching. Otherwise locally recommended economic threshold practices may be followed.

The standard necessary number of applications is limited to 1 or 2 per year. Only under heavy insect pressure more applications are requested.

Proposed instructions for use

Please refer to Euro-label and individual country labels.

Countries where there is registration (EU)

AUT	Austria
BEL	Belgium
DAU	Germany (expired/applied for registration)
DNK	Denmark
ESP	Spain
FRA	France
GBR	United Kingdom
GRC	Greece
ITA	Italy
IRL	Ireland
LUX	Luxembourg
NLD	Netherlands (applied for registration)
PRT	Portugal

Countries where there is registration (non-EU)

AGO	Angola
ARE	United Arab Emirates
ARG	Argentina
ARM	Republic of Armenia
AUS	Australia
AZE	Azerbaijani Republic
BGR	Bulgaria
BOL	Bolivia
BRA	Brazil
CAN	Canada
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Ivory Coast
COL	Cololmbia
CRI	Costa Rica
CSK	Czech and Slovak Federal Republic
CUB	Cuba
CYP	Cyprus
DOM	Dominican Republic

DZA	Algeria
ECU	Ecuador
EGY	Egypt
FIN	Finland
GEO	Republic of Georgia
GTM	Guatemala
HUN	Hungary
IDN	Indonesia
IND	India
IRN	Iran
ISR	Israel
JPN	Japan
KAZ	Republic of Kazakhstan
KEN	Kenya
KGZ	Republic of Kyrgyzstan
KOR	Korea, Republic of
LKA	Sri Lanka
MAR	Morocco
MEX	Mexico
MOZ	Mozambique
MYS	Malaysia

Registered uses in EU including all relevant conditions

Table 1.5.3a-7: Summary of EU registered uses

Member State	Product-code	A.I.	Crop	MRL's (mg/kg)	PHI (days)	Remarks
Austria	00267100	Endosulfan	Berry fruits	1.0		
			Cabbages	0.5	35	
			Carrots	0.2	35	
			Fruits	0.5	35	
			Grapes	0.1	35	
			Maize	0.15	35	
			Oilseeds	0.2	35	
			Other crops	0.1		
			Potatoes	0.1	35	
			Small berries	1.0		
			Tea	30.0		
			Vegetables	0.5	35	Ex carrots
Belgium	00267100	Endosulfan	Beans	0.5	28	
			Berry fruits	0.5	28	
			Cabbages	0.5	14	
			Carrots	0.2	28	
			Champignons	1.0	21 Greenhouse	
			Currants	1.0	42	
			Fruit trees	0.5	28	
			Fruits	0.5	28	
			Maize	0.2	28	
			Other cereals	0.1		
			Potatoes	0.5	28	
			Rape	0.5	28	
			Raspberries	0.5	28	
			Strawberries	0.5	28	
			Strawberries	0.5		Bef. Flow., Greenhouse
			Sugarbeets	0.5	28	
			Vegetables	0.5		
Germany	00267100	Endosulfan	Baby & diet food	< 0.02		
			Berry fruits	0.5	28	

Member State	Product-code	A.I.	Crop	MRL's (mg/kg)	PHI (days)	Remarks
			Bird rape	0.5		
			Edible crops*	0.1		*other edible crops
			Fat	0.1		
			Fruits	1.0		
			Hops	10.0		
			Maize	0.2		
			Meat	0.1		
			Milk	0.005		
			Milk products	0.1		
			Pome fruits	0.1	35	
			Potatoes	< 0.02	28	
			Rape	0.5		
			Root vegetables	0.2		
			Tea	30.0		
			Tee similar products	30.0		
			Vegetables	1.0		Exc. Root vegetables
		Endosulfan sulphate	Meat	0.01		
Denmark	00267100	Endosulfan	Beery fruits	2.0	42	
			Carrots	0.2		
			Citrus	2.0		
			Corn	0.1	42	
			Fat of meal	0.2		
			Maize	0.2	42	
			Milk	0.5		
			Milk products	0.5		
			Other fruits	2.0	42	
			Pome fruits	2.0	42	
			Potatoes	0.2		
			Root vegetables	0.2		
			Stone fruits	2.0	42	
			Strawberries	2.0		After harvest
			Vegatables	2.0	42	
Spain	00267100	Endosulfan	Asparagus	0.1	15	
			Cabbages	1.0	15	
			Citrus	1.0	15	
			Cotton (seed)	0.1	15	
			Cucurbits	1.0	15	
			Eggplant	1.0	15	
			Grapes	1.0	15	
			Hazel			Up to flowering
			Olives	0.1-0.2		Up to end of flower
			Peppers	1.0	15	
			Potatoes	0.1	15	
			Tomatoes	1.0	15	
France	00267100	Endosulfan	Alfalfa	-		For seed production
			Apples	1.0	15	
			Cabbages	1.0	15	
			Cereals	0.1	15	

Member State	Product-code	A.I.	Crop	MRL's (mg/kg)	PHI (days)	Remarks
			Clover	-		For seed production
			Fodder legumes	1.0	15	
			Fruits	1.0	15	
			Lettuce	1.0	15	
			Maize	0.2	15	
			Ornamentals	-		Non food
			Peaches	1.0	15	
			Peas	1.0	15	
			Rape	-		Up to end of flower
			Root Vegetables	0.2		
			Vegetables	1.0	15	Exception root vegetables
Greece	00267100	Endosulfan	Alfalfa	-		Until end of flower
			Cotton	-		Until 15th. August
			Eggplant	-		Until beg. Of ripenin
			Olives	-		Until beg. Of ripenin
			Peppers	-		Until beg. Of ripenin
			Strawberries	-		Bef. Flow., aft. Harv.
Italy	00267100	Endosulfan	Actinidia chinensis	1.0	25	
			Cereals	0.1	25	Exc. Maize
			Citrus fruits	1.0	25	
			Clover	0.1	25	
			Esparcet	0.1	25	
			Field beans	0.1	25	
			Grapes	1.0	25	
			Hedysarum coronarium	0.1	25	
			Maize	0.2	25	
			Ornamentals	-	-	Non food
			Pome fruits	1.0	25	
			Poplar	-	-	Non food
			Potatoes	0.2	25	
			Rape	0.5	25	
			Rice	0.1	25	
			Root vegetables	0.2	25	
			Soybeans	0.5	25	
			Spice plants	3.0	-	
			Stone fruits	1.0	25	
			Sugarbeets	0.2	25	
			Sunflowers	0.5	25	
			Tea	3.0	25	
			Tobacco	1.0	25	
			Vegetables	1.0	25	Exc. Root vegetables
Netherlands	00267100	Endosulfan	Apples	0.5	28	

Table 1.5.3a-8: Formulations: Name, Type (GIFAP/FAO code) and content of active substance (in g/kg or g/l)

Tradename	Formulation type	Active substance	Country
Thiodan 3 DF	DP	30 g/kg	France
Thiodan 25 WP Thiodan PM	WP	329 g/kg	Italy Portugal
Thiodan 47 WP	WP	470 g/kg	Greece
Thiodan 50 WP	WP	500 g/kg	Ireland
Thiodan 20 EC	EC	200 g/l	United Kingdom
Thiodan 35 flüssig Thiodan Emulsion (*)	EC	352 g/l	Germany Denmark
Thiodan 35 EC Thiodan Emulsion 35 (*)			Spain/Netherlands/Belgium/ United Kingdom/Greece France
Technufan			France

(*) GAP-list Denmark: Thiodan Emulsion = Thiodan 35 EC
GAP-list France: Thiodan Emulsion 35 = Thiodan 35 EC

Endosulfan is presently in use in combination with:

- Dimethoate
- Parathion-methyl
- Thiometan

1.5.4a Information on authorisations in EU Member States (IIIA, 12.1)

Table 1.5.4a

Member State	Tradename	Active Substance	Crop
Austria	Thiodan Staub	Endosulfan 2.62%	Vegetables
	Thiodan Emulgierbar	Endosulfan 352 g/l	Apples Currants Field crops Forest Fruits Pears
	Thiodan 35 WP	Endosulfan 32.8%	Blackberries Currants Grapes Maize Potatoes Rape Raspberries
Spain	Thiodan 3 PLV	Endosulfan 3% Dust	Grapes

Member State	Tradename	Active Substance	Crop
	Thiodan	Endosulfan 350 g/l	Olives Asparagus Aubergines Cabbages Citrus Cotton Cucurbits Grapes Hazel Olives Pepper Potatoes Tomatoes
	Thiodan 35 PM	Endosulfan 33%	
	Thiodan Tecnico	Endosulfan 94%	
France	Proda Thiodan	Endosulfan 350 g/l	Apples Artichokes Cabbages Cereals Lettuce Oilseeds Peaches Peas Potatoes Roses Soil treatment
	Thiodan Emulsion conc.	Endosulfan 355 g/l	
	Thiodan CE	Endosulfan 350 g/l	Apples Artichokes Asparagus Cabbages Carrots Cereals Courgettes Cucumbers Gherkins Lettuce Melons Oilseeds Peaches Peas Potatoes Radish Red beets Roses Soil treatment Strawberries Turnip
	Thiodan Emulsion 35	Endosulfan 352 g/l	Cereals Soil treatment
	Thiodan 3 Jardin	Endosulfan 3%	Gardens
	Thiodan Poudre 3%	Endosulfan 3%	Soil treatment
	Thiodan PM conc.	Endosulfan 33%	Apples Cabbages Lettuce Oil plants Peaches Peas Potatoes Roses Oil plants
United Kingdom	Thiodan 20 EC	Endosulfan 20%	Black currants Blackberries Narcissus

Member State	Tradename	Active Substance	Crop
	Thiodan 20 EC	Endosulfan 20%	Strawberries
	Thiodan 35 EC	Endosulfan 350 g/l	Hops
			Mustard
			Rape
			Ornamentals
Greece	Thiodan 3D	Endosulfan 3%	
	Thiodan 35 EC	Endosulfan 352 g/l	Alfalfa
			Apples
			Aubergines
			Cherries
			Clover
			Cotton
			Cucumbers
			Grapes
			Melons
			Olives
			Pears
			Peppers
			Potatoes
			Sour cherries
			Strawberries
			Tomatoes
			Watermelons
			Zucchini
	Thiodan 35 WP	Endosulfan 32.9%	Alfalfa
			Apples
			Cherries
			Cotton
			Cucumbers
			Eggplant
			Grapes (wine)
			Melons
			Olives
			Pears
			Peppers
			Potatoes
			Sour cherries
			Strawberries
			Tomatoes
			Tomatoes
			Watermelons
	Thiodan 47% WP	Endosulfan 47%	Strawberries
			Alfalfa
			Cotton
			Grapes (wine)
			Melons
			Olivers
			Peppers
			Pomaceous fruits
			Potatoes
			Stone fruit
			Strawberries
			Tobacco
			Tomatoes
			Vegetables
Ireland	Thiodan	Endosulfan 50% w/w	Apples
			Brassicas
			Carrots
			Celery
			Cucumbers

Member State	Tradename	Active Substance	Crop
			Currants French beans Pears Peppers Potatoes Rape Sugar beets Tomatoes
Italy	Thiodan Staub	Endosulfan 2.82%	Flowers Forest Fruits Industrial crops Ornamentals Rape Sugar beets Vegetables
	Thiodan 35 EM	Endosulfan 352 g/l (32.9%)	Alfalfa Cereals Citrus Flowers Forest Grapes Hazel Kiwi Ornamentals Pomaceous fruits Poplar Potatoes Rape Raspberries Stone fruits Strawberries Sugar beets Tobacco Vegetables
	Malix Combi	Endosulfan 22.5% + Dimethoate 13.6% w/w (245 + 148 g/l)	Flowers Potatoes Stone fruit Sugar beets Tobacco
	Thiodan DS	Endosulfan 500 g/l (38.5%)	
	Thiodan 35	Endosulfan 32.9% w/w	Alfalfa Cereals Citrus Flowers Forest Grapes Hazel Kiwi Ornamentals Pomaceous fruit Poplar Potatoes Rape Raspberries Stone fruits Subar beets Tobacco Vegetables Strawberries
Luxembourg	Thiodan	Endosulfan 350 g/l	Berries Mushrooms Oil seed rapes Orchards Ornamentals Potatoes Vegetables

Member State	Tradename	Active Substance	Crop
Portugal	Thiodan Polv	Endosulfan 3%	Tomatoes
	Thiodan EC	Endosulfan 380 g/l	Grapes
			Sugarcane
	Thiodan EC	Endosulfan 380 g/l	Apples
			Cabbages
			Grapes
			Hops
			Maize
			Melons
			Peaches
			Pears
			Tobacco
			Tomatoes
	Thiodan Molhaven	Endosulfan 35%	Apples
			Cabbages
			Maize
			Pears
			Sugarcane
			Tobacco
			Tomatoes

1.4b Identity of the plant protection product (IIA, 3.1; IIIA, 1)

1.4.1b Current, former and proposed trade names and development code numbers (IIIA, 1.3)

Tradenames: Callistar

Development code number: FR 11 316 203 736

Code for preparation:

1.4.2b Manufacturer or manufacturers of the plant protection product (IIIA, 1.2)

Calliope, S.A.

[redacted]

Person to contact:
Telephone Nº:
Telefax Nº:

1.4.3b Type of the preparation and code (IIIA, 1.5)

Emulsifiable concentrate liquid at normal temperatures (EC)

1.4.4b Function (IIA, 3.1; IIIA, 1.6)

Insecticide

1.4.5b Composition of the preparation (IIIA, 1.4)

Confidential information. See Annex C.

1.5b Uses of the plant protection product (IIA, 3.2 to 3.4; IIIA, 3.1 to 3.7, 3.9 and 12.1)

1.5.1b Field of use (IIA, 3.3; IIIA, 3.1)

Agriculture, horticulture, forestry and viticulture.

Field and greenhouse use.

1.5.2b Effects on harmful organisms (IIA, 3.2; IIIA, 3.2)

Effect: Contact and stomach action

Translocation in plants: Non systemic

1.5.3b Summary of intended uses (IIA, 3.4; IIIA, 3.3 to 3.7, 3.9)

Harmful organism controlled and crops or products protected or treated

Application : Generally, Endosulfan controls chewing, sucking and boring insects and mites on a very wide range of crops, including fruit (including citrus), vine, olives, vegetables, ornamentals, potatoes, cucurbits, cotton, tea, coffee, rice, cereals, maize, sorghum, oilseed crops, hops, hazels, sugar cane, tobacco, alfalfa, mushrooms, forestry, glasshouse crops, etc. It also controls tsetse flies.

Depending on the type of crop and the area in which it is grown, application rates usually range between 0.45 kg a.i. and 1.4 kg/ha, but both smaller and doses have occasionally been used.

Classic spraying with pneumatic systems or projected spray systems. Incorporate first the formulated product while the stirring system is on, then proceed to addition of water:

<> 400-1000 l/ha when spraying with projected spray.
<> 80-150 l/ha when spraying with pneumatic system.

Application must be carried out just after preparing the mixture. It is absolutely necessary to keep on mixing until the application is performed. In case of stopping, there may be formation of a deposit which will be the difficult to mix again and homogenise.

Details of the application of the Endosulfan preparation are provided in Table 1.5.3b-1.

Number and timing of application: One application for curative treatment.

Persistence of action on foliage: 3-7 days.

If a repeat application is needed, this would depend on advises from local agricultural advising services.

Table 1.5.3b-1: Summary of the Good Agricultural Practices

CROP	F/G	PEST	FORM TYPE	COUNTRY	N	APPLICATION RATE			REMARKS
						Kg ai/hl	Water l/ha	Kg ai/ha	
Legume Vegetables									
Peas		Acyrthosiphon Pisum	EC (350 g/l)	France	1	0.06-0.76	80-1000	0.61	PHI = 15 days
Brassica Vegetables									
Cabbage		Pieris Brassicae	EC (350 g/l)	France	1	0.06-0.76	80-1000	0.61	PHI = 15 days
Stem Vegatables									
Artichoke		Capitophorus Horni	EC (350 g/l)	France	1	0.06-0.76	80-1000	0.61	PHI = 15 days
Oil seed									
Oleaginus crucif.		Centhorhyrichus napi	EC (350 g/l)	France	1	0.04-0.55	80-1000	0.44	PHI = 15 days
		Psylliodes chrysocephala	EC (350 g/l)	France	1	0.03-0.33	80-1000	0.26	PHI = 15 days
Ornamentals									
Rose		Macrosiphum rosae	EC (350 g/l)	France	1	0.06-0.76	80-1000	0.61	PHI = 15 days
Potatoes		Leptinotarsa decemlineata	EC (350 g/l)	France	1	0.04-0.44	80-1000	0.35	PHI = 15 days

1.5.4b Information on authorisations in EU Member States (IIIA, 12.1)

There are no authorised uses of Callistar yet in any of the EU member states.

Registration procedure for Callistar has been initiated in France.

1.4c Identity of the plant protection product (IIA, 3.1; IIIA, 1)

1.4.1c Current, former and proposed trade names and development code numbers (IIIA, 1.3)

Trade names:	Endosulfan 35 EC, Endocel 35 EC and Endo 35 EC
Development code number:	None

1.4.2c Manufacturer or manufacturers of the plant protection product (IIIA, 1.2)

Excel Industries Ltd.

Head Office:

[redacted]

Location of plant:

[redacted]

1.4.3c Type of the preparation and code (IIIA, 1.5)

Emulsifiable concentrate (code EC)

1.4.4c Function (IIA, 3.1; IIIA, 1.6)

Insecticide/acaricide

1.4.5c Composition of the preparation (IIIA, 1.4)

Identity of active ingredient:	Endosulfan
CAS number:	115-29-7
EEC number:	21
CIPAC number:	89

1.5c Uses of the plant protection product (IIA, 3.2 to 3.4; IIIA, 3.1 to 3.7, 3.9 and 12.1)

1.5.1c Field of use (IIA, 3.3; IIIA, 3.1)

Insecticide used on a very wide range of crops, including fruit, vines, olives, vegetables, ornamentals, potatoes, cucurbits, cotton, tea, coffee, rice, cereals, maize, sorghum, oilseed crops, hops hazels, sugar cane, tobacco, alfalfa, mushrooms, forestry, glasshouse crops, etc. Also controls tsetse flies.

Agriculture and horticulture.

1.5.2c Effects on harmful organisms (IIA, 3.2; IIIA, 3.2)

Non systemic insecticide and araricide with contact and stomach action.

1.5.3c Summary of intended uses (IIA, 3.4; IIIA, 3.3 to 3.7, 3.9)

The applicant should submit the proposed GAPs in the European Union separated in Northern and Southern Zone.

Table 1.5.3c-1: Summary of the Good Agricultural Practices

CROP	PEST	FORM TYPE	Nº	APPLICATION RATE				REMARKS
				ml/ha	% a.i. spray concentration	Timing DAS/WPA/DAT	Interval between sprays (days)	
Fibre crops								
Cotton	Jassids, Aphids	35 EC	2-3	1000-1250	0.05	25-30 DAS	Fortnightly	
	White flies, thrips, leaf roller, leaf	35 EC	3-4	1250-1500	0.07-0.09	25-30 DAS	10-14	
	Perforator, semilooper, grey weevil dusky cotton bug	35 EC	3-4	1875	0.07-0.09	35-40 DAS	10-14	
	Red cotton bug, boll worm complex (spotted bollworm, american bollworm, pink bollworm)	35 EC	10	1875-2000	0.07-0.09	60 DAS/WPA	10-14	
	Mites	35 EC	3-4	1000-1250	0.05	35-48 DAS/WPA	10	Insecticide plus a sulphur fungicide
Sunnhemp	Gijarat haity caterpillar	35 EC	2	1250	0.03	15 DAS	10-14	
Yute	Semilooper, bihar hairy caterpillar, lucerne caterpillar, yellow mites	35 EC	4-5	1250	0.05	20-25 DAS	10-14	
Cereals								
Paddy	Stem borer, leaf hopper(s), rice hispa, cebdhibug, swarming caterpillar, caseworm	35 EC	3-4	1250	0.04-0.09	30 DAT	15	**This data is illegible in the document provided by the applicant**
	Gall midge, barhead bug	35 EC	1-5	1875	0.07	15 DAT	10	
Sorghum	Earhead midge, barhead bug	35 EC	3-4	1875	0.05-0.07	1st spray 50 to 60% earhead emergence 2nd spray 4-5 days after the 1st appn.	5	
	Stemborer, army worm	35 EC	2-3	1250	0.05-0.09	1st spray 4 weeks after germination	15	
	Cotton grey weevil	35 EC	2-3	1250	0.03	35 DAS	10	
	Shorgum tissue borer (shoot fly)	35 EC	3-4	1250	0.05	35 DAS	10	
Maize	Maize stalk borer Maize stem borer	35 EC	2-3	1250	0.05-0.1	30-35 DAS	15	
Barley	Aphids	35 EC	1-2	1250	0.03	WPA	15	
Wheat	Cut worms	35 EC		1250	0.05	WPA		Mix with wheat bran or maize meal, moiston with water and add gur or molasses, scatter in the evening
Pulse crops								

CROP	PEST	FORM TYPE	Nº	APPLICATION RATE				REMARKS
				ml/ha	% a.i. spray concentration	Timing DAS/WPA/DAT	Interval between sprays (days)	
Res gram (Arhar)		35 EC						
	Gram pod borer (Helithis) sp.	35 EC	2-3	1875	0.07	Spray at the beginning of pod formation stage	Fortnightly	
	Jassids, aphids, pod fly (Melanagromyza)	35 EC	2-3	1250	0.07	Spray at the beginning of pod formation stage	Fortnightly	
	Grey weevil (Myllocerus sp.)	35 EC	2	1250	0.07	1st spray at about 50% pod formation stage	Fortnightly	
	Hairy caterpillar	35 EC	2-3	1250	0.07	WPA	10	
	Galerucid beetle	35 EC	2-3	1875	0.07	WPA	Fortnightly	
Benegal gram (channa)	Gram pod borer (Heliothis)	35 EC	2	1875	0.07	120-125 DAS	Fortnightly	
Black gram (URID)	Bihar hairy caterpillar	35 EC	2	1250	0.07	WPA	Fortnightly	
Soyabean	Whitefly	35 EC	2	1250	0.07	WPA	Fortnightly	
	Pea stem borer	35 EC	4	1875	0.07	18 DAS	Fortnightly	
	Stem fly (Melanagromyzae)	35 EC	2	1250	0.05	15 DAS/WPA	15	
French bean	Sten fly	35 EC	2	1250	0.05	15 DAS	15	
Vegetables		35 EC						
Okra (Bhindi)	Aphids, Leaf hoppers, mites	35 EC	2-3	1250	0.09	10 DAS/21 DAS/ 60 DAS/WPA	10	
	Shoot and fruit borer	35 EC	3	1250	0005-0.07	Berfore fruit setting	10	
Potatoe	Potatoe tuber moth	35 EC	2	1250	0.04	60 DAT	15	
	Leaf eating caterpillars	35 EC	2	1250	0.05	WPA	15	
	Potatoe cutworms	35 EC	2	1250	0.05-0.07	WPA	15	
Brinjal	Shoot and fruit borer	35 EC	3	1250	0.05-0.07	Before fruit and setting/WPA	10	
	Aphids, leaf hoppers	35 EC	2-3	1250	0.07	30-35 DAS	15	
	Shoot & fruit borers	35 EC	3	1250	0.07	At the time of flower & fruit formation	10	
Onion	Thrips (Thrips tabaci)	35 EC	3	1250	0.05	45 DAT	15	
Tomato	Aphids, jassids	35 EC	3	1250	0.07	30 DAT	15	
Chillies	Thrips, mites	35 EC	3	1250	0.07	45 DAT	15	
Cabbage	Diamond backmoth	35 EC	2	1875	0.05	30 DAT	15	
	Cabbage leafwebber	35 EC	2	1250	0.03	45 DAT	15	
	Aphids, caterpillar (3rd instar stage)	35 EC	2		0.05	60 DAT	15	
Cauliflower	Leaf eating caterpillar (3rd instar stage) the paintes bug cabbage aphid	35 EC	2	1250	0.05-0.07	45 DAT	15	
Radish	Mustard aphid	35 EC	2-3	1250	0.07	45DAT	10	
	Mustard sawfly	35 EC	2-3	1250	0.05	WPA	10	
Bitter gourd	Epilachna grubs	35 EC	2	1250	0.03	WPA	10	
Sweet potatoe	Sqeet potatoe tortoise beetle	35 EC	2	1250	0.05	WPA	10	
Oil crops								
Sunflower	Pollinators (beneficial insects)	35 EC	3	1250	0.07	1st spray 55th DAS	10	Endosulfan may be used during evening

CROP	PEST	FORM TYPE	Nº	APPLICATION RATE				REMARKS
				ml/ha	% a.i. spray concentration	Timing DAS/WPA/DAT	Interval between sprays (days)	
								hours
	Jassids, whiteflies, gray weevil and helithis	35 EC	2	1500	0.05 sulfur spray	1st spray 45 DAS	Fortnightly	
	Head borer (heliothis)	35 EC	2-3	1250	0.05 to 0.1	1st spray on 55th day 2nd spray on 65th day	10	
Mustard	Mustard, aphids, gall, midge, sawfly	35 EC	3-4	1250	0.1	WPA	10	
	Bihar hairy caterpillar	35 EC	2-3	1250	0.05	15 DAS	7	
	Cocinella septempunctuta (a predator of mustard aphid)	35 EC	-	Laboratory test	0.2, 0.1, 0.05 and 0.02	-	-	Endosulfan was found least toxic to this predator
Ground nut	Aphids, thrips, hairy caterpillar and groundnut leaf webber	35 EC	2-3	1250	0.05	WPA	Fortnightly	
Castor	Castor semilooper, hairy caterpillar	35 EC	2-3	1250	0.05	WPA	10	
	Capsule and shoot borer	35 EC	2-3	1875	0.07	At the time of capsule formation	10	
Cash crops		35 EC						
Sugarcane	Leaf hopper pyrilla	35 EC	2-3	1000	0.07	9 to 10 months old crop	Fortnightly	

Concentration of the active substance: Maximum 70 g ai/350 l water when used in arable crops, 35 g ai/350 l water/ha, for other crops.
Method of application: Hydraulic Tractor mounted field crop sprayer and portable sprayer.
DAS – Days after flowering
WPA – When pests appears
DAT – Days after transplanting

Harmful organism controlled and crops or products protected or treated

CROP	PEST CONTROLLED
Cotton	Jassids, Aphids, White flies, Thrips, Leaf roller, Semilooper, Grey weevil, Dusky cotton bug, Spotted bollworm, American bollworm, Pink bollworm, Mites
Sunnhemp	Gujarat Hairy, Canterpillar
Jute	Semilooper, Bihar Hairy Caterpillar, Yellow mites
Cereals	Stem borer
Paddy	Leaf hopper, rice hispa, Gundhi bug, Swarming Caterpillar, Case worm, Gall Midge, Army worm, Leaf roller
Shorgum	Earhead Midge, Earhead bug, Army worm, Shorgum tissue borer
Wheat	Cutworms
Barley	Aphids
Maize	Maize stalk borer, Maize stem borer
Red Gram	Graam podborer, Gram Pod fly, Jassids, Aphids Greey weevil, Hairy Caterpillar, Beetle
Benegal Gram	Pod boreer, Bihar Hairy, Caterpillar
Soya bean	White stem borer, Stem fly
Okra	Aphids, Leaf hoppers Mites, Shoot and Fruit borer
Potato	Potato Tuber Moth, Leaf eating caterpillards, Potato Cutworms
Cutworm	Diamon Backmoth, Cabbage leaf webber
Cauliflowers	The paint bug
Radish	Mustard aphid, Mustard sawfly
Bitter gourd	Grubs
Sweet potatoe	Tortoise beetle
Sunflower	Heliothis, Head borer
Mustard	Mustard aphids, gall midge, Saw fly
Groundnut	Aphids, Thrips, Groundnut leaf webber
Castor	Castor semilooper
Apple	Aphids, Caterpillards, Psyllids, Weevils
Lichti, plum, pear and other fruits	Litchi Cacaomoth, Indian Gypsy moth, Wooly aphids, Defolating beetles, Peach leaf curly aphids, Tent caterpillars, Plum case worm

Application rate

CROP	RATE
Cotton	35 – 70 g/ai ha
Sunnhemp	35.7 g/ai ha
Jute	35.7 g/ai ha
Paady	35.7 g/ai ha
Shorgum	53.6 g/ai ha
Maize	35.7 g/ai ha
Barley	35.7 g/ai ha
Wheat	35.7 g/ai ha
Benegal Gram	53.6 g/ai ha
Vegetables	35.7 g/ai ha
Potato	35.7 g/ai ha
Onion	35.7 mg/ai ha

Concentration of the active substance

Maximum 70 g ai/350 l water when used in arable crops, 35 g ai/350 l water/ha, for other crops, see point 3.4.

Number and timing of application

CROP	NUMBER
Cotton	2-4
Sunnhemp	2
Jute	4-5
Paady	3-4
Shorgum	3-4
Maize	2-3
Barley	1-2
Wheat	1-2
Benegal Gram	2
Vegetables	2-3
Potato	2
Onion	3

1.5.4c Information on authorisations in EU Member States (IIIA, 12.1)

No data was submitted.