European Commission

Combined Draft (Renewal) Assessment Report prepared according to Regulation (EC) N° 1107/2009
and
Proposal for Harmonised Classification and Labelling (CLH Report) according to Regulation (EC) N° 1272/2008

GIBBERELLINS (GA4, GA7)

Volume 3 – B.6 (PPP) – Novagib

Rapporteur Member State : Slovenia
Co-Rapporteur Member State : Slovakia

Version History

When	What
2019/April	Initial DRAR

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B.6. TOXICOLOGY AND METABOLISM DATA AND ASSESSMENT OF RISKS FOR HUMANS

Introduction

This document has been prepared to evaluate the European Gibberellins Task Force (Valent Biosciences Corporation (Sumitomo Chemical Agro Europe), Fine Agrochemicals Ltd, Globachem NV) application for EU renewal of the Annex I inclusion of active substance gibberellins (GA4, GA7). The document supplements and updates the corresponding Annex B section of the Draft Assessment Report produced during the first review of gibberellins (2005 - 2011).
In this report studies submitted for the first inclusion of gibberellins in Annex I to Directive 91/414/EEC and for the renewal of the approval of gibberellins have been evaluated.

The representative formulation "Novagib" contains 10 g/L pure gibberellins (GA4/7) and is formulated as soluble concentrate (SC). The formulation is plant growth regulator used on apples and pears. Novagib was one of the representative formulations considered during the EU review of the active substance therefore all studies summarised below have been previously evaluated in the DAR and its Addenda. Studies were performed with 'GA4/7 10 g/L formulation', which is identical to 'Novagib'.

Previous EU assessment

The dossier to support the first inclusion of gibberellins in Annex I to Directive 91/414/EEC was submitted to Hungary as the Rapporteur Member State in June 2005. The Draft Assessment Report is dated August 2006. Final Addendum to Draft Assessment Report, containing all individually submitted addenda on gibberellins, was compiled by EFSA in October 2011.

Structure of this document
In each section of this document, the following headings (a)-b)) occur:

a) Previous evaluation (2005-2011)

Under this heading study reports submitted for the first inclusion of gibberellins in Annex I to Directive 91/414/EEC are summarised. These studies have been re-evaluated for the purpose of the renewal in the light of current scientific and technical knowledge. The endpoints from the studies were also re-assessed and if considered relevant, re-calculated. However, full details from each study have not been repeated in this DRAR - therefore this DRAR is not a "stand-alone document" and for full reference sometimes the reader needs to consult the DAR (2005-2011).

b) Evaluation of additional data for the purpose of renewal of Annex I inclusion

Under this heading studies submitted prior to Annex I inclusion, but no evaluation of such material was presented in the form of Addenda to the DAR and studies that were submitted to support the application for renewal of Annex I inclusion are evaluated, i.e. new studies.

B.6.1. ACUTE TOXICITY OF PLANT PROTECTION PRODUCT

Summary of acute toxicity

Novagib, a soluble concentrate formulation containing 10 g/L gibberellins GA4/7, has low acute oral, dermal and inhalation toxicity, it is not irritating to skin and is not a skin sensitiser. It is slightly irritating to the eyes. Based on these data, classification according to Regulation (EC) No 1272/2008 is not required. The results are summarised in the table below.

Table B6.2. -1 Summary of acute toxicity data for Novagib

Study (Guideline)	Result	Classification (CLP)
LD_{50} oral, rat (OECD 401)	> 5000 mg/kg bw	None
LD_{50} dermal, rat (OECD 402)	> 4000 mg/kg bw	None
LC_{50} inhalation, rat (OECD 403)	> 5.41 mg/L	None
Skin irritation, *in vivo* (OECD 404)	Non-irritant	None
Eye irritation, *in vivo* (OECD 405)	Non-irritant	None
Skin sensitisation, M&K (OECD 406)	Non-sensitising	None

Novagib was one of the representative formulations considered during the EU review of the active substance therefore all studies summarised below have been previously evaluated in the DAR and its Addenda. Studies were performed with 'GA4/7 10 g/L formulation', which is identical to 'Novagib'.

RMS comments and conclusion:

Novagib is of low acute toxicity after oral, dermal and inhalation exposure. It is not irritating to the skin; however, it is a slight eye irritant, but no classification is required for it in this regard. According to the Magnusson-Kligman Method Novagib is not a skin sensitizer.

Based on study results and taking into account all submitted data and the classification of the active substance and co-formulants, no classification is proposed for Novagib according to the criteria of Regulation 1272/2008 as amended.

B.6.1.1. Oral

a) Previous evaluation (2005-2011)

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR (2011)
Data point addressed:	CP 7.1.1/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	GA4/7 10 g/L Formulation Acute oral toxicity study to the rat
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 401, EEC Method B.1
Deviations:	The study was conducted to a now deleted guideline, at a limit dose higher than is currently recommended. However, it is acceptable for hazard classification
GLP:	Yes
Agreed Endpoint:	Acute oral LD50 >5000 mg/kg bw in rats

Executive summary

A group of fasted Sprague-Dawley rats (5 male and 5 female) were given a single oral dose (gavage) of 5000 mg/kg bw GA4/7 10 g/L formulation (batch no FAL 104/1); the formulation is identical to 'Novagib'. Prior to the main study, a preliminary study was carried out in 2 male and 2 female rats at a dose level of 3.2 mg/kg bw.

There were no deaths during the preliminary study; clinical signs included piloerection, hunched posture, waddling gait, lethargy, increased respiration and ungroomed appearance in all rats. All clinical signs resolved by Day 3, expect piloerection which resolved by Day 4. There were no deaths during the main study. Clinical signs of toxicity were limited piloerection in all rats within two minutes of dosing; all rats recovered by Day 2. All rats gained weight during the 14-day observation period, and no abnormalities were recorded at the macroscopic examination on Day 15.

Conclusion

The acute oral LD_{50} was found to be greater than 5000 mg/kg bw in male and female rats. Classification according to Regulation (EC) No 1272/2008 is not required. The endpoint was agreed in the DAR (2011) and is still considered valid.

RMS comments and conclusion:

The study was already evaluated in the first DAR (2011). The oral LD_{50} (males, females, combined) of Novagib was > 5000 mg/kg bw. The study followed OECD 401 (1987) and principles of GLP. OECD TG 401 was deleted in December 2002. Since then, OECD TG 420/423/425 for the evaluation of the acute toxicity potential of test items are used in order to minimize the number of animals. However, the LD_{50} endpoint derived by the older guideline is still adequate and can be used for classification purposes according to CLP Regulation (EC) No 1272/2008.

Considering the result of the acute oral toxicity study no classification is required for Novagib according to the criteria of Regulation 1272/2008.

b) Evaluation of additional data for the purpose of renewal of Annex I inclusion

No new additional data have been submitted.

B.6.1.2. Dermal

a) Previous evaluation (2005-2011)

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR.
Data point addressed:	CP 7.1.2/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	GA4/7 10 g/L Formulation Acute dermal toxicity to the rat
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 402, EEC Method B.3
Deviations:	The limit dose used in the study is higher than currently recommended however the study is acceptable for hazard classification
GLP:	Yes
Agreed Endpoint:	Acute dermal LD50 >4000 mg/kg bw in rats

Executive summary

A group of Sprague-Dawley rats (5 male and 5 female) were given a single dermal application of 4000 mg/kg bw GA4/7 10 g/L formulation (batch no FAL 104/1); the formulation is identical to 'Novagib'. The test substance was applied to an area of clipped skin equivalent to 10% of the body surface, and covered with a dressing and occlusive wrap for 24 hours. At the end of the 24 hour exposure period the dressings were removed and the test site washed with warm water and dried with absorbent paper.

There were no deaths during the study, and no clinical signs of toxicity. All rats gained weight during the 14-day observation period, with the exception of one female rat that exhibited slightly reduced body weight gain on Day 15. No abnormalities were recorded at the macroscopic examination on Day 15.

Conclusion

The acute dermal LD_{50} was found to be greater than 4000 mg/kg bw in male and female rats. Classification according to Regulation (EC) No 1272/2008 is not required. The endpoint was agreed in the DAR (2011) and is still considered valid.

RMS comments and conclusion:

The study was already evaluated in the first DAR (2011). The dermal LD_{50} (males, females, combined) for Novagib was > 5000 mg/kg bw. The study followed the OECD 402 (1987) guideline and principles of GLP. A new version of OECD 402 was adopted in November 2017 in order to minimize the number of animals needed for the conduction of acute derma toxicity study. However, the LD_{50} endpoint derived by the older guideline is still adequate and can be used for classification purposes. The study is acceptable.
Slight erythema of grade 1 was noted in 3 females on day2 and in 1 female on day 3. The effects resolved on the next day of the observation made.

Considering the result of the dermal oral toxicity study no classification is required for Novagib according to the criteria of Regulation 1272/2008.

b) <u>Evaluation of additional data for the purpose of renewal of Annex I inclusion</u>

No new additional data have been submitted.

B.6.1.3. Inhalation

<u>a) Previous evaluation (2005-2011)</u>

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR.
Data point addressed:	CP 7.1.3/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	Acute inhalation toxicity to rats of GA4/7 10 g/L Formulation
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 403; EPA FIFRA 152-12, EEC Method B.2
Deviations:	None
GLP:	Yes
Agreed Endpoint:	Acute inhalation LC50 >5.41 mg/L in rats

Executive summary

A group of Sprague-Dawley rats (5 male and 5 female) were exposed nose-only for 4 hours to a liquid droplet aerosol of GA4/7 10 g/L formulation (batch no 104/1); the formulation is identical to 'Novagib'. The nominal

test concentration was 5 mg/L; the mean gravimetric concentration of the test substance in air was 5.41 mg/L. The mass mean aerodynamic diameter (MMAD) was 3.1 µm with a standard geometric deviation of 2.23, 85% of particles were within the respirable range (i.e. <7 µm)

There were no deaths during the study and no clinical signs of toxicity during exposure (soiling of the fur, considered to be a result of the method of restraint was observed). Clinical signs observed following exposure included wet fur around the snout and jaws, and fur soiled with excreta; all rats recovered by Day 1 of the observation period. All rats gained weight during the 14-day observation period. No abnormalities were recorded at the macroscopic examination on Day 15.

Conclusion

The 4-hour inhalation LC_{50} was found to be greater than 5.41 mg/L in male and female rats. Classification according to Regulation (EC) No 1272/2008 is not required. The endpoint was agreed in the DAR (2011) and is still considered valid.

RMS comments and conclusion:

The study was already evaluated in the first DAR (2011). The inhalation LC_{50} for Novagib was >5.41mg air/L (nose only). The study followed OECD 403 and principles of GLP. The MMAD and SD are in line with the requirements of the currently valid OECD TG 403 (2009). The study is acceptable. The LD_{50} endpoint derived by the older guideline is still adequate and can be used for classification purposes according to CLP Regulation (EC) No 1272/2008.

Considering the result of acute inhalation toxicity study no classification in this regard is required for Novagib according to the criteria of Regulation 1272/2008.

b) <u>Evaluation of additional data for the purpose of renewal of Annex I inclusion</u>

No new additional data have been submitted.

B.6.1.4. Skin irritation

a) <u>Previous evaluation (2005-2011)</u>

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR.
Data point addressed:	CP 7.1.4/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	GA4/7 10 g/L Formulation Skin irritation to the rabbit
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 404, EEC Method B.4, US EPA 152-14
Deviations:	The study was conducted to an earlier version of OECD 404 (a higher number of animals were used compared to current guidelines and a sequential testing strategy was not followed), however the study is acceptable for hazard classification
GLP:	Yes
Agreed Endpoint:	Not irritating

Executive summary

The skin irritant potential of GA4/7 10 g/L formulation (batch no 104/1; the formulation is identical to 'Novagib') was evaluated in 6 female New Zealand White rabbits. The test substance (0.5 mL) was applied to a clipped region of dorso-lumbar skin on each animal and covered with a semi-occlusive dressing for 4 hours. At the end of the 4 hour observation period the dressings were removed and the test site was washed with warm water and dried with absorbent paper. Test sites were evaluated for reactions at 1, 24, 48 and 72 hours after exposure according to the Draize scoring system. There were no signs of toxicity during the study. No dermal response to treatment was observed in any animal throughout the observation period.

Conclusion

There were no signs of reaction following a 4-hour dermal exposure to the test material. Classification as a skin irritant is not required according to Regulation (EC) No 1272/2008. The endpoint was agreed in the DAR (2011) and is still considered valid.

RMS comments and conclusion:

The study was already evaluated in the first DAR (2011). No erythema or oedema were observed during the study. The study followed a guideline comparable to an older version of OECD 404 (2002) and principles of GLP. Compared to the latest version of the OECD 404 (2015), a sequential testing strategy was not followed and used higher number of animals. However, the study is acceptable.

Novagib was found to be non-irritating. No classification regarding skin irritation is required for Novagib according to criteria of Regulation 1272/2008.

b) <u>Evaluation of additional data for the purpose of renewal of Annex I inclusion</u>

No new additional data have been submitted.

B.6.1.5. Eye irritation

a) Previous evaluation (2005-2011)

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR.
Data point addressed:	CP 7.1.5/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	GA4/7 10 g/L Formulation Eye irritation to the rabbit
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 405, EEC Method B.5, US EPA 152-13
Deviations:	The study was conducted to an earlier version of OECD 405 (a higher number of animals was used compared to current guidelines and no analgesia was applied before test substance administration) however the study is acceptable for hazard classification
GLP:	Yes
Agreed Endpoint:	Slightly irritating, but not classified

Executive summary

The eye irritant potential of GA4/7 10 g/L formulation (batch no 104/1; the formulation is identical to 'Novagib') was evaluated in 7 male New Zealand White rabbits. A screening study was conducted with one rabbit: 0.1 mL of the test substance was instilled into the lower everted eyelid; the treated eye of this rabbit was rinsed with distilled water 30 seconds after instillation for 30 seconds. For the main study, one rabbit was treated initially: 0.1 mL test substance was instilled into the lower everted eyelid of one eye, the lids were held together for one second before releasing (the contralateral eye remained untreated). Following the evaluation of reactions in the first animal, the remaining 5 animals were treated in an identical manner. Eyes were evaluated for reactions at 1, 24, 48 and 72 hours after exposure according to the Draize scoring system. There were no signs of toxicity during the study. The screening study rabbit (rinsed eye) exhibited hyperaemia of blood vessels 1 hour after instillation; the eye was normal 24 hours after instillation. In the main study, hyperaemia of blood vessels to a diffuse crimson colouration of the conjunctivae was seen in 5 rabbits 1 hour after instillation, accompanied in 3 rabbits by swelling with partial eversion of the eyelids. Four rabbits also exhibited discharge with moistening of the lids and hairs adjacent to the lids. Reactions gradually ameliorated and all eyes were free of irritation by 3 days after instillation. The results are summarised below.

Table 6.1.5.-1 Mean scores for eye irritation in accordance with EU criteria

	Individual means for 24-72 h Animal # (unrinsed eyes ours					
	1	2	3	4	5	6
Corneal opacity	0	0	0	0	0	0
Iris	0	0	0	0	0	0
Conjunctival redness	0.67	0.67	0.67	1	0	0.33
Conjunctival chemosis	0.33	0.33	0.33	0.33	0	0

Conclusion

The test substance was slightly irritating to the rabbit eye, however the mean scores at 24, 48 and 72 hours were not sufficient to trigger classification as an eye irritant according to Regulation (EC) No 1272/2008. The endpoint was agreed in the DAR (2011) and is still considered valid.

RMS comments and conclusion:

The study followed a guideline equivalent to an older version of OECD 405 and principles of GLP. Compared to the latest version of the OECD 405 (2017), a sequential testing strategy was not followed, higher number of animals was used and no analgesia was applied before test substance administration. However, the study is acceptable. Under the conditions of this test, Novagib showed slight eye irritating potential.

According to the criteria of Regulation 1272/2008., no classification regarding eye irritation is required for Novagib.

b) <u>Evaluation of additional data for the purpose of renewal of Annex I inclusion</u>

No new additional data have been submitted.

B.6.1.6. Skin sensitization

<u>a) Previous evaluation (2005-2011)</u>

PREVIOUS EVALUATION	This study was evaluated and accepted in the DAR.
Data point addressed:	CP 7.1.6/01 (B.6.11 DAR)
Author(s) (year):	[redacted] (1997)
Title:	GA4/7 10 g/L Formulation Skin sensitisation in the guinea-pig
Laboratory report / project number:	[redacted]
Testing facility:	[redacted]
Published:	No
Test guideline used:	OECD 406, EEC Method B.6, US EPA FIFRA 81-6
Deviations:	None (see comments below regarding method)
GLP:	Yes
Agreed Endpoint:	Not sensitising

Executive summary

The skin sensitisation potential of GA4/7 10 g/L formulation (batch no 104/1; the formulation is identical to 'Novagib') was evaluated in guinea pigs. A preliminary study was conducted to determine the test substance concentrations that would produce irritation suitable for induction and the maximum non-irritant concentration by the topical route for the challenge phase. Based on the results of the preliminary study, the following dose

levels were selected for the main test with 20 guinea pigs: intradermal injection, 10% v/v in water for irrigation, 10% v/v in 50:50 mixture of Freund's complete adjuvant in water for irrigation and Freund's complete adjuvant 50:50 in water for irrigation; topical application, 100% as supplied; challenge application, 100% as supplied and 50% v/v in distilled water. Ten control animals were treated in the same manner as the test animals for the induction phase with the exception that the test substance was omitted from the intradermal injections and topical application. All test and control animals were challenged topically two after the topical induction application. The sensitivity of the test was confirmed in periodic tests with positive control substances hexyl cinnamic aldehyde, mercaptobenzothiazole and benzocaine. There were no clinical signs of toxicity and all animals gained body weight during the study. Slight irritation was seen in the induction phase following intradermal injection and topical application with the test substance. At challenge only two test animals showed a slight reaction, therefore the test animals were considered to give negative responses.

Conclusion

The test substance did not produce evidence of skin sensitisation in the guinea pig. Classification according to Regulation (EC) No 1272/2008 is not required. The endpoint was agreed in the DAR (2011) and is still considered valid.

Regulation (EU) No 284/2013 states that the preferred method for testing is the Local Lymph Node Assay, but where a maximisation test that meets OECD guidelines and provides a clear result is available, further testing is not required on animal welfare grounds. The available study is considered to provide a clear negative response; no reactions were observed at challenge in any of the twenty test animals exposed to 50%, and only two test animals and one control showed a slight reaction following challenge with 100%. No further testing is required.

RMS comments and conclusion:

In the study report, there is an information, that the study was done according OECD 406 (1992) and follows principles of GLP. The study is acceptable. The sensitivity of the tested animals was checked periodically, the last being with HCA in March-April 1996 (the experimental phase of the study was in July 1997). The positive controls gave the expected results.

According to criteria of Regulation 1272/2008, no classification is required regarding skin sensitization properties for Novagib.

b) <u>Evaluation of additional data for the purpose of renewal of Annex I inclusion</u>

No new additional data have been submitted.

B.6.1.7. Supplementary studies on the plant protection product

Supplementary studies are not required and have not been performed. No any additional data were provided.

B.6.1.8. Supplementary studies for combinations of plant protection products

Novagib is not intended to be used in combination with other plant protection products; use as a tank mix is not proposed therefore supplementary studies are not required.

B.6.2. DERMAL ABSORPTION

a) Previous evaluation (2005-2011)

No dermal absorption values, as detailed in the EFSA Guidance on Dermal Absorption (2012), are used in the risk assessment for operators, workers and bystanders/residents. According to the guidance, a default value of 25% is assigned to products containing >5% Active Substance and 75% is assigned for products or in use dilutions containing ≤5% Active Substance therefore 75% is used for both the product concentrate (Novagib) and spray dilution.
It should be noted that the EFSA published an updated version of the guidance on dermal absorption in 2017 (EFSA Journal 2017;15(6):4873). The updated guidance indicates that default dermal absorption values of 10% and 50% can be applied to the product concentrate and spray dilution, respectively. At the time of submission of this dossier, the European Commission had not decided the implementation time for the mandatory use of this guidance in the regulatory context. Therefore, the existing 2012 EFSA Guidance on Dermal Absorption was followed and a dermal absorption value of 75% was used for both the product concentrate and spray dilution (as discussed in the pre-submission meeting). The non-dietary risk assessment presented in section CA 7.2 above therefore represents the worst-case scenario with respect to dermal absorption, and is considered protective as it is likely to be an over-prediction of the potential for dermal absorption of gibberellin from the formulation. A revised risk assessment will be provided in future submissions when the Commission has formally adopted the 2017 EFSA guidance document.

RMS comments and conclusion:

The EFSA guidance on dermal absorption form 2017 (EFSA Journal 2017;15(6):4873) was endorsed during the preparation of the DRAR for GA4/7. Thus, the RMS recalculate the non-dietary exposures according to the latest version of the guideline and SANTE/2018/10591 rev.1, 24 October 2018. Only the RMS calculations are presented in the DRAR.

Novagib is a suspension concentrate (SC) formulation, falling in the group of water-based formulations according to the formulation category used to set default values in the latest version of the EFSA dermal absorption guidance (EFSA Journal 2017);15(6):4873. The active substance in Novagib is present at a concentration of ≤ 5% thus, according to the adoption to the guidance included in SANTE/2018/10591 rev.1, 24 October 2018, the concentrated Novagib is treated as a dilution. Therefore, 50% dermal absorption is used for both the product concentrate (Novagib) and spray dilution.

b) Evaluation of additional data for the purpose of renewal of Annex I inclusion

No new additional data have been submitted.

B.6.3. AVAILABLE TOXICOLOGICAL DATA RELATING TO CO-FORMULANTS

Information on toxicological data of co-formulants is in the confidential Vol4.

B.6.4. EXPOSURE DATA

RMS Comments

The dermal absorption values estimated by the RMS differ from those used in calculations by the applicant. Thus, the RMS performed new calculation. Estimates of potential operator, bystander/resident and worker exposure have been undertaken for gibberellins using the list of intended uses (Document D-1) and summarised below

Table B6.4.-1: Summary of criticalusepatterns(i.e.worst case)

Crop	Application Equipment	Application Rate (kg a.s./ha)	Minimum Water Volume (L/ha)	Maximum Number of Applications	Interval Between Applications
Apple	Tractor-mounted sprayer (spray directed upwards and outwards), Manual - knapsack	0.005	300	4	7 days
Pear	Tractor-mounted sprayer (spray directed upwards and outwards) Manual - knapsack	0.012	300	1	N/A

The used predictive model was from the "Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products; EFSA Journal 2014;12(10):3874, calculator version dated 30 March 2015 ».

Table 6.4.-2: Input parameters considered for the estimation of exposures

Formulation type	SL. EC. Etc.
Application rate	0.012 kg a.s./ha (pears), 0.005 (apples)
Maximum Number of Applications	1 (pears), 4 (apples)
Interval between applications	7
Area treated per day	10 ha (vehicle mounted, 1 ha (hand-held knapsack)
Crop type	Pome fruit (pear)
Application method	Upward spraying
Application equipment	Vehicle-mounted, hand-held knapsack)
Indoor/outdoor	Outdoor
Closed cabin	No
Drift reduction	No
Buffer strip	5 m
Half-life of active substance (DT_{50})	30 days (default)
Initial dislodgeable foliar residue (DFR)	3 µg/cm2/kg a.s./ha (default)
Transfer coefficient (TC)	22500 cm²/h 4500 cm²//h work wear (arms, body and legs covered)
Season	Late (dense foliage)
Dermal absorption	50% (concentrate and dilution)
Inhalation absorption	100%
Body weight	60 kg (adult); 10 kg (child)

Vapour pressure	moderately volatile substances
AOEL	0.18 mg/kg bw/d
AAOEL	Not set (the active substance is not acutely toxic)

B.6.4.1. Operator exposure

Operator exposure was assessed using the EFSA Calculator (AOEM) according to the EFSA Guidance on the assessment of operators, workers, residents and bystanders in risk assessment for plant protection products (EFSA Journal 2014; 12(10):3874). Estimations of potential operator exposure during tractor mounted application to pear crops were made without PPE, and for operators wearing work wear during mixing/loading and application. Application to pear crops was selected as the worst-case scenario for operators as Novagib is applied to pear at a higher application rate compared to apple and therefore operator exposure will be higher for application on pear. Estimations of operator exposure based on pears covers also the application to apples.

The results are summarised in the table below, and full calculations are presented in B6.5

Table B6.4.1.-1: Estimated operator exposure

Model data	Level of PPE	Total absorbed dose (mg/kg bw/d)	% of systemic AOEL
Tractor mounted spray application outdoors to pome fruit (upwards spraying) *Application rate 0.012 kg a.s./ha*			
Spray application (AOEM**;** 75th percentile) 10 ha/day 60 kg operator	Work wear (arms, body and legs covered) M/L and A	0.01283	7.13
Manual knapsack application outdoors to pome fruit (upwards spraying) *Application rate 0.012 kg a.s./ha*			
Spray application (AOEM**;** 75th percentile) 1 ha/day 60 kg operator	Work wear (arms, body and legs covered) M/L and A	0.38331	212.95
	Work wear (arms, body and legs covered), FP2, P2 and similar, gloves M/L and A	0.37741	209.67

Estimates of potential exposure to gibberellins GA4/7 did not exceed the AOEL for operators applying Novagib using a tractor mounted sprayer without PPE; therefore, a safe use was confirmed and a study to measure operator exposure is not necessary and has not been performed.

Conclusion

According to the model calculations, operator exposure is acceptable without the use of PPE for application to pome fruit using a tractor mounted sprayer (spray directed upwards). Operator exposure is not acceptable for application to pome fruit using a knapsack sprayer, even with the use of PPE (gloves and respiratory protection FP2, P2 during mixing/loading and application).

B.6.4.2. Bystander and resident exposure

According to the EFSA Guidance (EFSA Journal 2014; 12(10):3874); no bystander risk assessment is required for plant protection products that do not have significant acute toxicity or the potential to exert toxic effects after a single exposure. Exposure in this case will be determined by average exposure over a longer duration, and higher exposures on one day will tend to be offset by lower exposures on other days. Therefore, exposure assessments for residents also cover bystander exposure. As Novagib is not acutely toxic an estimation of bystander exposure is not required.

Resident exposure to gibberellins GA4/7 was assessed using the EFSA Calculator. The Calculator estimates exposure for four exposure pathways; drift, vapour, deposits and re-entry (75th percentile). The sum (mean) of all pathways is also provided. Due to differences in the individual exposure pathways, estimates for two use patterns (single application to pear and repeat applications to apple) are provided.
The vapour pressure of gibberellins GA4/7 is reported to range from 1 x 10^{-5} Pa to 1.6 x 10^{-1} Pa (gibberellin_DAR_23-LoEP). Due to the wide range of values reported, 'moderately volatile' was selected in the EFSA Calculator as a conservative approach. Input parameters considered for the estimation of resident exposure can be found in Table 6.4.-2. The results are summarised in the table below, and full calculations are presented in B6.5

Table 6.4.2.-1: Estimated resident exposure

Model data		**Total absorbed dose (mg/kg bw/d)**	**% of systemic AOEL**
Tractor mounted spray application outdoors to pome fruit (pear) *Interval between treatments: Not applicable*			
Number of applications and application rate		1 x 0.012 kg a.s./ha	
Resident child Body weight: 10 kg	Drift (75th perc.)	0.0028	1,54%
	Vapour (75th perc.)	0.0161	8.92%
	Deposits (75th perc.)	0.0001	0,05%
	Re-entry (75th perc.)	0.0010	0.56%
	Sum (mean)	0.0187	10.41%
Resident adult Body weight: 60 kg	Drift (75th perc.)	0.0015	0.86%
	Vapour (75th perc.)	0.0035	1.92%
	Deposits (75th perc.)	0.0000	0.02%
	Re-entry (75th perc.)	0.0006	0.31%
	Sum (mean)	0.0049	2.74%
Tractor mounted spray application outdoors to pome fruit (pear *Interval between treatments: 7 days*			
Number of applications and application rate		4 x 0.005 kg a.s./ha	

Resident child Body weight: 10 kg	Drift (75th perc.)	0.0012	0.64%
	Vapour (75th perc.)	0.0161	8.92%
	Deposits (75th perc.)	0.0001	0.07%
	Re-entry (75th perc.)	0.0013	0.75%
	Sum (mean)	0.0180	9.98%
Resident adult Body weight: 60 kg	Drift (75th perc.)	0.0006	0.36%
	Vapour (75th perc.)	0.0035	1.92%
	Deposits (75th perc.)	0.0001	0.03%
	Re-entry (75th perc.)	0.0007	0.42%
	Sum (mean)	0.0045	2.50%

Estimates of potential exposure to gibberellins GA4/7 did not exceed the AOEL for residents following application of Novagib to pome fruit; therefore, a study to measure resident exposure is not necessary and has not been performed.

Conclusion

According to the model calculations, there is no unacceptable risk for the child or adult resident (and bystander) following application of Novagib to pome fruit using a tractor mounted sprayer.

B.6.4.3. Worker exposure

Worker exposure gibberellins GA4/7 following re-entry to crops treated with Novagib was estimated using the EFSA Calculator and guidance (EFSA Journal 2014; 12(10):3874).

Re-entry workers may enter crops previously treated with Novagib to carry out tasks such as pruning and hand harvesting of pome fruit; the GAP for apple was considered to be the worst-case scenario based on re-entry following multiple applications. Worker re-entry exposure was estimated using the EFSA Calculator; the following parameters were used in the calculation. Usage information is summarised in Table 6.4.-1. and the input parameters in Table 6.4.-2.

The results are summarised in the table below, individual spreadsheet calculations are provided B.6.5

Table 6.4.3-1: Estimated worker exposure

Model data	**Level of PPE**	**Total absorbed dose (mg/kg bw/d)**	**% of systemic AOEL**
Tractor mounted spray application outdoors to apples			
Number of applications and application rate		4 x 0.005 kg a.s./ha	
Body weight: 60 kg	Potential	0.0718	39.87%

Work rate: 8 h/day	TC: 22500 cm^2/person/h		
	Work wear (arms, body and legs covered) TC: 4500 cm^2/person/h	0.0144	7.97%

Estimates of potential exposure to gibberellins GA4/7 did not exceed the AOEL for workers; therefore, a study to measure worker exposure is not necessary and has not been performed.

Conclusion

According to the model calculations, there is no unacceptable risk for the worker performing work on pome fruits previously treated with Novagib. As a standard rule, it is recommended that treated crops should not be re-entered before spray deposits have completely dried.

B.6.5. EXPOSURE AND RISK ASSESSMENT

Operator exposure for Novagib outdoor spray applications

Application rate of active substance	0,012	kg a.s./ha	*i_AppRate*
Assumed area treated	10	ha/day	*d_AreaTreated*
Amount of active substance applied	0,12	kg a.s./day	*i_AmoutAS*
Dermal absorption of the product	50,00%		*i_AbsorpProduct*
Dermal absorption of in-use dilution	50,00%		*i_AbsorInuse*
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		
Indoor or Outdoor application	Outdoor		
Application method	Upward spraying		
Application equipment	Vehicle-mounted		
Season	late (dense foliage)		

Outdoor;Soluble concentrates, emulsifiable concentrate, etc.;Upward spraying;Vehicle-mounted

	Exposure values	µg exposure/day mixed and loaded 75th centile	95th centile	Reference	Comment
Mixing and loading	Hands	949	3414	AOEM	
	Body	804	38901	AOEM	
	Head	6	34	AOEM	
	Protected hands (gloves)	9	24	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	4	18	AOEM	
	Protected head (hood and face shield)	0	2	AOEM	
	Inhalation	2	27	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Water soluble bag	No		1	

	Exposure values	µg exposure/day applied 75th centile	95th centile	Reference	Comment
Application	Hands	385	748	AOEM	No data available for a drift reduction scenario
	Body	1057	6170	AOEM	
	Head	139	853	AOEM	
	Protected hands (gloves)	4	110	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	14	27	AOEM	
	Inhalation	19	10	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Closed cab	No		vehicle mounted upward spraying only	

1. Total

	Without RPE/PPE	With RPE/PPE	
Longer term			
Total systemic exposure from mixing, loading and application (mg a.s./day)	1,6915587	0,7697513	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	0,0281926	0,0128292	
% of RVNAS	15,66%	7,13%	
Acute			
Total systemic exposure from mixing, loading and application (mg a.s./day)	25,0975865	2,5844168	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	0,4182931	0,0430736	
% of RVAAS	#DEL/0!	#DEL/0!	

Operator exposure for Novagib outdoor spray applications

Application rate of active substance	0,012	kg a.s./ha	*i_AppRate*
Assumed area treated	1	ha/day	*d_AreaTreated*
Amount of active substance applied	0,012	kg a.s./day	*i_AmoutAS*
Dermal absorption of the product	50,00%		*i_AbsorpProduct*
Dermal absorption of in-use dilution	50,00%		*i_AbsorInuse*
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		
Indoor or Outdoor application	Outdoor		
Application method	Upward spraying		
Application equipment	Manual-Hand held		
Season	late (dense foliage)		

Mixing and loading

Exposure values	µg exposure/day mixed and loaded		Reference	Comment
	75th centile	95th centile		
Hands	161	568	AOEM	
Body	159	19927	AOEM	
Head	1	3	AOEM	
Protected hands (gloves)	2	2	AOEM	
Protected body (workwear or protective garment and sturdy footwear)	0	2	AOEM	
Protected head (hood and face shield)	0	0	AOEM	
Inhalation	1	26	AOEM	
Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
Gloves	No			
Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
Head and respiratory PPE	None		1	1
Water soluble bag	No		1	

Application

Exposure values	µg exposure/day applied		Reference	Comment
	75th centile	95th centile		
Hands	451	881	AOEM	No data available for a drift reduction scenario
Body	604385	2099961	AOEM	
Head	454	748	AOEM	
Protected hands (gloves)	2	5	AOEM	
Protected body (workwear or protective garment and sturdy footwear)	44920	188036	AOEM	
Inhalation	4	24	AOEM	
Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
Gloves	No			
Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
Head and respiratory PPE	None		1	1
Closed cab	No		vehicle mounted upward spraying only	

1. Total

	Without RPE/PPE	With RPE/PPE	
Longer term			
Total systemic exposure from mixing, loading and application (mg a.s./day)	302,8104503	22,9987241	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	5,0468408	0,3833121	
% of RVNAS	2803,80%	212,95%	
Acute			
Total systemic exposure from mixing, loading and application (mg a.s./day)	1061,0938889	95,1687316	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	17,6848981	1,5861455	
% of RVAAS	#DEL/0!	#DEL/0!	

Operator exposure for Novagib outdoor spray applications

Application rate of active substance	0,012	kg a.s./ha	*i_AppRate*
Assumed area treated	1	ha/day	*d_AreaTreated*
Amount of active substance applied	0,012	kg a.s./day	*i_AmoutAS*
Dermal absorption of the product	50,00%		*i_AbsorpProduct*
Dermal absorption of in-use dilution	50,00%		*i_AbsorInuse*
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		
Indoor or Outdoor application	Outdoor		
Application method	Upward spraying		
Application equipment	Manual-Hand held		
Season	late (dense foliage)		

	Exposure values	µg exposure/day mixed and loaded		Reference	Comment
		75th centile	95th centile		
Mixing and loading	Hands	161	568	AOEM	
	Body	159	19927	AOEM	
	Head	1	3	AOEM	
	Protected hands (gloves)	2	2	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	0	2	AOEM	
	Protected head (hood and face shield)	0	0	AOEM	
	Inhalation	1	26	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	Yes		Incl. in AOEM model	
	Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
	Head and respiratory PPE	FP2, P2 and similar		0,8	0,1
	Water soluble bag	No		1	

	Exposure values	µg exposure/day applied		Reference	Comment
		75th centile	95th centile		
Application	Hands	451	881	AOEM	No data available for a drift reduction scenario
	Body	604385	2099961	AOEM	
	Head	454	748	AOEM	
	Protected hands (gloves)	2	5	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	44920	188036	AOEM	
	Inhalation	4	24	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	Yes		Incl. in AOEM model	
	Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
	Head and respiratory PPE	FP2, P2 and similar		0,8	0,1
	Closed cab	No		vehicle mounted upward spraying only	

1. Total

	Without RPE/PPE	With RPE/PPE	
Longer term			
Total systemic exposure from mixing, loading and application (mg a.s./day)	302,8104503	22,6447614	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	5,0468408	0,3774127	
% of RVNAS	2803,80%	209,67%	
Acute			
Total systemic exposure from mixing, loading and application (mg a.s./day)	1061,0938889	94,3279401	
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	17,6848981	1,5721323	
% of RVAAS	#DEL/0!	#DEL/0!	

Resident exposure for Novagib			
Croptype	Pome fruit		
Application method	Upward spraying		
Application equipment	Vehicle-mounted		*i_AppEquip*
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		*i_FormVal*
Buffer strip	5	m	*i_Buffer*
Application rate of the product	0,012	kg a.s./ha	*i_AppRate*
Concentration of active substance (in-use dilution for liquid applications)	0,04	g a.s./l	*d_ConcAS*
Dermal absorption of product	50,00%		*i_AbsorpProduct*
Dermal absorption of in-use dilution	50,00%		*i_AbsorpInuse*
Oral absorption	18,00%		*i_AbsorpOralInuse*
Dislodgeable foliar residue (i_AppRate*i_DFR)	0,036	µg a.s./cm^2	*d_DFR*
Vapour pressure of in-use dilution	moderately volatile substances with a vapour pressure between 5*10-3Pa and 10-2Pa	Pa	*i_Volat*
Concentration in air	0,015	mg/m^3	*d_AirCon*
Resident dermal spray drift exposure 75th percentile - adult	5,63	ml spray dilution/person	
Resident dermal spray drift exposure 75th percentile - child	1,689	ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - adult	0,00210	ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - child	0,00164	ml spray dilution/person	
Resident dermal spray drift exposure mean - adult	3,68	ml spray dilution/person	
Resident dermal spray drift exposure mean - child	1,11	ml spray dilution/person	
Resident inhal. spray drift exposure mean - adult	0,00170	ml spray dilution/person	
Resident inhal. spray drift exposure mean - child	0,00133	ml spray dilution/person	
Exposure duration dermal	2	hours	*d_ReExpDur*
Exposure duration inhalation	24	hours	*d_ReExpDurInhal*
Exposure duration entry into treated crops	0,25	hours	*d_ExpDurTreatCrop*
Light clothing adjustment factor	18,0%		*d_ClothAF*
Breathing rate adult	0,23	m^3/day/kg	*d_BreathRAd*
Breathing rate child (1-3 year old)	1,07	m^3/day/kg	*d_BreathRCh*
Drift percentage on surface (75th percentile)	6,04%		
Drift percentage on surface (mean)	3,73%		
Turf transferable residues percentage	5,00%		*d_Turf*
Transfer coeff. of surface deposits-adult	7300	cm^2/hour	*d_ReTCAd*
Transfer coeff. of surface deposits-child (1-3 year old)	2600	cm^2/hour	*d_ReTCCh*
Saliva extraction percentage	50,00%		*d_SalExt*
Surface area of hands mouthed	20	cm^2	*d_AreaHM*
Frequency of hand to mouth activity	9,5	events/hour	*d_ReFreqHM*
Ingestion rate for mouthing of grass per day	25	cm^2	*d_MouthGrass*
Dislodgeable residues percentage transferability for object to mouth	20,00%		*d_DRP*
Transfer coefficient for entry into treated crops (75th percentile) - adult	7500	cm^2/h	*d_TcEntryAd*
Transfer coefficient for entry into treated crops (75th percentile) - child	2250	cm^2/h	*d_TcEntryCh*
Transfer coefficient for entry into treated crops (mean) - adult	5980	cm^2/h	*d_TcEntryAd*
Transfer coefficient for entry into treated crops (mean) - child	1794	cm^2/h	*d_TcEntryCh*

1. Total

1.1 1-3 year old child

	Spray drift (75th percentile)	Vapour (75th percentile)	Surface deposits (75th percentile)	Entry into treated crops (75th percentile)	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0277653	0,1605000	0,0009612	0,0101250	0,1874238
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0027765	0,0160500	0,0000961	0,0010125	0,0187424
% of RVNAS	1,54%	8,92%	0,05%	0,56%	10,41%

1.2 Adult

	Spray drift	Vapour	Surface deposits	Entry into treated crops	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0924160	0,2070000	0,0026455	0,0337500	0,2959637
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0015403	0,0034500	0,0000441	0,0005625	0,0049327
% of RVNAS	0,86%	1,92%	0,02%	0,31%	2,74%

Resident exposure for Novagib			
Croptype	Pome fruit		
Application method	Upward spraying		
Application equipment	Vehicle-mounted		*i_AppEquip*
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		*i_FormVal*
Buffer strip	5	m	*i_Buffer*
Application rate of the product	0,005	kg a.s./ha	*i_AppRate*
Concentration of active substance (in-use dilution for liquid applications)	0,016666667	g a.s./l	*d_ConcAS*
Dermal absorption of product	50,00%		*i_AbsorpProduct*
Dermal absorption of in-use dilution	50,00%		*i_AbsorpInuse*
Oral absorption	18,00%		*i_AbsorpOralInuse*
Dislodgeable foliar residue (i_AppRate*i_DFR)	0,015	µg a.s./cm^2	*d_DFR*
Vapour pressure of in-use dilution	moderately volatile substances with a vapour pressure between 5*10-3Pa and 10-2Pa	Pa	*i_Volat*
Concentration in air	0,015	mg/m^3	*d_AirCon*
Resident dermal spray drift exposure 75th percentile - adult	5,63	ml spray dilution/person	
Resident dermal spray drift exposure 75th percentile - child	1,689	ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - adult	0,00210	ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - child	0,00164	ml spray dilution/person	
Resident dermal spray drift exposure mean - adult	3,68	ml spray dilution/person	
Resident dermal spray drift exposure mean - child	1,11	ml spray dilution/person	
Resident inhal. spray drift exposure mean - adult	0,00170	ml spray dilution/person	
Resident inhal. spray drift exposure mean - child	0,00133	ml spray dilution/person	
Exposure duration dermal	2	hours	*d_ReExpDur*
Exposure duration inhalation	24	hours	*d_ReExpDurInhal*
Exposure duration entry into treated crops	0,25	hours	*d_ExpDurTreatCrop*
Light clothing adjustment factor	18,0%		*d_ClothAF*
Breathing rate adult	0,23	m^3/day/kg	*d_BreathRAd*
Breathing rate child (1-3 year old)	1,07	m^3/day/kg	*d_BreathRCh*
Drift percentage on surface (75th percentile)	6,04%		
Drift percentage on surface (mean)	3,73%		
Turf transferable residues percentage	5,00%		*d_Turf*
Transfer coeff. of surface deposits-adult	7300	cm^2/hour	*d_ReTCAd*
Transfer coeff. of surface deposits-child (1-3 year old)	2600	cm^2/hour	*d_ReTCCh*
Saliva extraction percentage	50,00%		*d_SalExt*
Surface area of hands mouthed	20	cm^2	*d_AreaHM*
Frequency of hand to mouth activity	9,5	events/hour	*d_ReFreqHM*
Ingestion rate for mouthing of grass per day	25	cm^2	*d_MouthGrass*
Dislodgeable residues percentage transferability for object to mouth	20,00%		*d_DRP*
Transfer coefficient for entry into treated crops (75th percentile) - adult	7500	cm^2/h	*d_TcEntryAd*
Transfer coefficient for entry into treated crops (75th percentile) - child	2250	cm^2/h	*d_TcEntryCh*
Transfer coefficient for entry into treated crops (mean) - adult	5980	cm^2/h	*d_TcEntryAd*
Transfer coefficient for entry into treated crops (mean) - child	1794	cm^2/h	*d_TcEntryCh*

1. Total

1.1 1-3 year old child

	Spray drift (75th percentile)	Vapour (75th percentile)	Surface deposits (75th percentile)	Entry into treated crops (75th percentile)	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0115689	0,1605000	0,0012775	0,0134573	0,1796260
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0011569	0,0160500	0,0001277	0,0013457	0,0179626
% of RVNAS	0,64%	8,92%	0,07%	0,75%	9,98%

1.2 Adult

	Spray drift	Vapour	Surface deposits	Entry into treated crops	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0385067	0,2070000	0,0035162	0,0448576	0,2701129
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0006418	0,0034500	0,0000586	0,0007476	0,0045019
% of RVNAS	0,36%	1,92%	0,03%	0,42%	2,50%

Worker exposure from residues on foliage for Novagib			
Crop type	Pome fruit		
Indoor or outdoor	Outdoor		
Application method	Upward spraying		
Application equipment	Vehicle-mounted		
Worker's task	Searching, reaching, picking		
Main body parts in contact with foliage	Hand and body		
Application rate of active substance	0,005	kg a.s./ha	*i_AppRate*
Number of applications	4		*i_AppNo*
Interval between multiple applications	7	days	*i_AppInt*
Half-life of active substance	30	days	*d_HalflifeAS*
Multiple application factor	3,2		*d_MAF*
Dermal absorption of the product	50,00%		*i_AbsorpProduct*
Dermal absorption of the in-use dilution	50,00%		*i_AbsorpInuse*
Dislodgeable foliar residue (i_AppRate*i_DFR)	0,015	µg a.s./cm^2	*d_DFR*
Working hours	8	hr	*d_WorkHr*
Dermal transfer coefficient - Total potential exposure	22500	cm^2/hr	*d_DermTcUCV*
Dermal transfer coefficient - arms, body and legs covered	4500	cm^2/hr	*d_DermTcCV1*
Dermal transfer coefficient - hands, arms, body and legs covered	2250	cm^2/hr	*d_DermTcCV2*
Inhalation transfer coefficient for automated applications	NA	ha/hr*10^(-3)	*d_InhalTcAut*
Inhalation transfer coefficient for cutting ornamentals	NA	ha/hr*10^(-3)	*d_InhalTcCut*
Inhalation transfer coefficient for sorting / bundling ornamentals	NA	ha/hr*10^(-3)	*d_InhalTcSort*

1. Total

	Potential exposure	Work wear - arms, body and legs covered	Working wear and gloves	Comments
Total systemic exposure (mg a.s./day)	4,3063299	0,8612660	0,4306330	
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0717722	0,0143544	0,0071772	
% of RVNAS	39,87%	7,97%	3,99%	

B.6.6. REFERENCES RELIED ON

Data Point	Author(s)	Year	Title Compagny Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previous evaluation
KCP 7.1.1/01	[redacted]	1997	GA4/7 10 g/L Formulation Acute oral toxicity study to the rat Report No. [redacted] GLP Unpublished	Y	N		Fine Agrochemicals Ltd	In DAR (2011) B.6.11 IIIA 7.1
KCP 7.1.2/01	[redacted]	1997a	GA4/7 10 g/L Formulation Acute dermal toxicity to the rat Report No. [redacted] GLP Unpublished	Y	N		Fine Agrochemicals Ltd	In DAR (2011) B.6.11 IIIA 7.1
KCP 7.1.3/01	[redacted]	1997	Acute inhalation toxicity to rats of GA4/7 10	Y	N		Fine Agrochemicals	In DAR (2011) B.6.11 IIIA 7.1

			g/L Formulation Report No. [redacted] GLP Unpublished				Ltd	
KCP 7.1.4/01	[redacted]	1997	GA4/7 10 g/L Formulation Skin irritation to the rabbit Report No. [redacted] GLP Unpublished	Y	N		Fine Agrochemicals Ltd	In DAR (2011) B.6.11 IIIA 7.1
KCP 7.1.5/01	[redacted]	1997	GA4/7 10 g/L Formulation Eye irritation to the rabbit Report No. [redacted] GLP Unpublished	Y	N		Fine Agrochemicals Ltd	In DAR (2011) B.6.11 IIIA 7.1
KCP 7.1.6/01	[redacted]	1997b	GA4/7 10 g/L Formulation Skin sensitisation in the guinea-pig Report No. [redacted]	Y	N		Fine Agrochemicals Ltd	In DAR (2011) B.6.11 IIIA 7.1

			[redacted] GLP Unpublished					