



REGULATORY REVIEW DECISION FOR

CHLOROTHALONIL AND ITS ASSOCIATED END-USE

PRODUCTS

Pest Control Products Board 2022©

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1.0 Introduction

Following initial authorization on use of pest control products, regulatory authorities all over the world may review the status of authorization routinely or when new information becomes available that a pest control product has safety concerns. The process of review must be based on the existing laws and regulations.

Pursuant to Regulation 11(2b) of the Pest Control Products (Registration) Regulations of 1984 of the Pest Control Products Act (PCPA), the Pest Control Products Board (PCPB) initiated a review of Chlorothalonil and its end use products based on new information that chlorothalonil had human health and environmental safety concerns. Chlorothalonil was said to be a carcinogen category 2 (substances suspected of having carcinogenic potential to humans), genotoxic and had high long term risks to aquatic organisms.

2.0. Main objectives of the review

- I. Review existing scientific data in view of establishing the weight of evidence if any that supports the safety concerns.
- II. Make recommendations for consideration by the Board.

3.0. Uses of chlorothalonil

3.1. Mode of action of chlorothalonil

Chlorothalonil is a broad spectrum, non-systemic, with multi-site activity fungicide with protective action (fungistasis and fungicidal action).

3.2. Registered uses of chlorothalonil in Kenya

As of 30th April 2022, there were 32 registered pest control products containing chlorothalonil as the active ingredient ([Appendix III](#)). Chlorothalonil end-use products are formulated as water dispersible granules (WDG), suspension concentrates (SC), wettable powders (WP), flowable (FW) and suspo-emulsion (SE).

The products are registered for various uses including control of coffee leaf rust, wheat stem and yellow rust, powdery and downy mildews, late and early blights, coffee berry disease, botrytis and angular leaf spots in various crops. The number of applications range from 2 to 8 and minimum intervals between multiple applications may range from 7 to 28 days.

3.3. Quantities of Chlorothalonil based products imported 2018-2021

A total of 411,371Kgs of chlorothalonil based products have been imported over the last 4 years (2018-2021).

Table 1: Quantities of Chlorothalonil based products imported 2018-2021

Year	2018	2019	2020	2021	Total
Quantities imported (Kgs)	179,600	102,260	84,181	45,330	411,371

4.0: Data considered in the review

To evaluate the identified aspects of concern, PCPB considered currently available relevant scientific information, data submitted by the applicants to support approval of the individual products in Kenya, initial information provided by stakeholders, various regulatory decisions made around the world including FAO/WHO Joint Meeting on Pesticide Residues, the European Union, the United States Environmental Environment Protection Agency, Health Canada and Australia Pesticide and Veterinary Medicine Authority.

A summary of the regulatory decisions is presented in Appendix I while appendix II represents information collected from stakeholders

5.0 Methodology of the Review

In compliance with the constitution of Kenya on the bill of rights, and public participation, the Board wrote a circular to the local agents and the public notifying them of the intended

review and called for any information that would assist the reviewers in arriving at the correct decision. The feedback was to be received within 90 days from the date of notification.

This was followed by a call for experts from Government institutions that included the Universities, Toxicological society of Kenya, KALRO, and KePHIS etc. After evaluation of the applications, four external experts were selected to team up with experts from PCPB.

Four active ingredients were reviewed and reports made and later submitted to the board of management. The board recommended that the outcome of the review be subjected to a second round of public participation.

6.0. Outcome of the review

6.1. Potential for carcinogenicity to humans

The main target organs of chlorothalonil upon short-term and long-term exposure in rats and mice are the kidneys (preneoplastic and neoplastic lesions) and fore-stomach (also preneoplastic and neoplastic lesions, the latter being rodent-specific and of low relevance to humans). For both tumour types, the mode of action (MoA) has been hypothesised, through biotransformation pathways for the kidneys and through chronic irritation of the forestomach.

While it was agreed that the MoA for fore-stomach tumours is of low relevance to humans, the postulated MoA for kidney tumours is relevant to humans since no specific data has been generated to support a claimed quantitative difference between human and rodent's metabolism. It was concluded that given the fact that those benign and malignant kidney tumours were observed in two species and were observed in two out of three independent studies in rats and considering that the human relevance could not be excluded, carcinogenicity category 1B would be appropriate according to current criteria for classification (ECHA, 2015). It was maintained that category 2 should be sufficient (Source EU).

6.2. Potential for genotoxicity due to the metabolites

Based on available data, it was concluded that the SDS-3701 metabolite of chlorothalonil was positive for clastogenic activity in cultured mammalian cells; however, damage to chromosomes was not expressed in either the somatic or germinal cells of whole animals. Hence, the concern for genotoxic potential is lessened (Source EPA).

6.3. Hazard assessment

According to Food and Agriculture Organization of the United Nations (FAO) specification of chlorothalonil active ingredient in the technical grade material is ≥ 985 g/kg with two relevant impurities hexachlorobenzene (HCB) ≤ 0.04 g/kg and decachlorobiphenyl (DCB) ≤ 0.03 g/kg. Six products which were approved for use in Kenya before the year 2010 (Folio Gold 537.5 SC, Daconil 720 SC, Dakota 720 SC, Clortocaffaro (Rova) 500 Flow, Rova 75 WP, and Clortosip 75 WP) did not have detailed five-batch reports to allow for assessment for purity and impurity profile during the review.

Chlorothalonil and its associated metabolites have low acute toxicity via the oral and dermal levels while it has high acute toxicity for the inhalation route. It exhibits mild skin irritation and is not a sensitizer. It, however, produces severe eye irritation in rabbits. In long-term studies, chlorothalonil caused hyperplasia of the forestomach of rats and mice, and cytotoxicity in the proximal renal tubular epithelia. The hazard assessment based on the GHS classification, placed chlorothalonil and its associated end use products as category 2 carcinogen.

6.4. Dietary risk assessment

Residue data from supervised trials for coffee, wheat and potatoes showed that maximum residue limits (MRLs) for these crops were not exceeded. Residue on vegetables (French beans, snow peas, cucumber, squash, and tomatoes) indicated that the EU MRLs for these crops (which is at the limit of detection) would be exceeded when the products are used as per the Kenyan Good Agricultural Practices (GAP).

Data gaps were identified on metabolites of toxicological concerns, especially on processed plant products which may pose consumer safety risk. Consumer risk assessment was therefore not conclusive.

6.5. Effects on non-target organisms

Chlorothalonil has low toxicity to terrestrial organisms tested, including birds, earthworms, and honeybees. Chlorothalonil exhibits high chronic toxicity to aquatic organisms. The US-EPA however found that in their natural environments chlorothalonil dissipated through degradation resulting in no long-term exposure. In natural environments it was readily dissipated through degradation resulting in no long-term exposure and reducing the potential for short-term effects. Field studies have confirmed that, following agricultural use, the risk to aquatic environments is low.

There are possible mitigation measures to protect aquatic life which may include enforcing untreated buffers between estuarine/marine water bodies and agricultural crops treated with chlorothalonil e.g., 25 feet for ground applications as applied in the USA or restricting height of application to reduce drift to water bodies. The practical application of such measures however needs to be put into consideration.

6.6. Fate and behaviour in soil and water

Chlorothalonil is stable in water and strongly sorbs to soil and sediment making groundwater contamination minimal. Some of its metabolites however exhibit high soil mobility and have the potential to leach to groundwater.

7.0. Incident reports

As of 30th October 2022, there were no incidents relating to human health or environmental aspects of concern reported.

8 .0. Proposed review decision for Chlorothalonil

The outcome of the assessment of the available scientific information related to the aspects of concern indicates that chlorothalonil has potential human health and environmental risks that are unacceptable under current conditions of use. There were safety concerns due to being a possible carcinogen category 2, risk to operators and aquatic environment (chronic toxicity) as well as possible risk to consumers. Residue data on vegetables exceeded the EU MRLs when applied as per the Kenyan good agricultural practices.

Registrants for the following products submitted both the hazard and risk assessment reports; DACONIL 720 SC, CLORTOSIP 75 WP, CLORTOCAFFARO 500 Flow, ROVA 75 WP, DAKOTA 50 WP, FOLIO GOLD 537.5 SC, CHEROKEE 487.5 SC, METACHLORO 720 WP, MIXANIL 425 SC, CLEANER 720 SC and ROVA 500 SC. However the following six products did not have detailed five batch reports; FOLIO GOLD 537.5 SC, DACONIL 720 SC, DAKOTA 720 SC, CLORTOCAFFARO (ROVA) 500 Flow, ROVA 75 WP and CLORTOSIP 75 WP. Assessment for purity profiles were based on the information obtained from summary dossiers which made it difficult to make well informed assessments.

The Residue level for the parent compound (chlorothalonil) using the current Kenyan GAP for Coffee is not expected to exceed set MRLs (EU MRL 0.05*mg/Kg) which is similar to that of potatoes and wheat is set at MRL (EU MRL 0.01*mg/Kg). However residues for French beans, Snow peas, Tomatoes, Cucumber and Courgettes are expected to exceed the set MRL set a limit of quantification (EU MRL 0.01mg/Kg). Data gaps were identified on metabolites of toxicological concerns, especially on processed plant products which may pose consumer safety risk. Consumer risk assessment was therefore, not conclusive.

Groundwater contamination is expected to be minimal and surface water run-off to water bodies is made possible due to the low mobility of chlorothalonil. Some of its metabolites however exhibit high soil mobility and have the potential to leach to groundwater.

Chlorothalonil was also found to exhibit high chronic toxicity to aquatic organisms. The US-EPA however found that in their natural environments, chlorothalonil dissipated through degradation resulting in no long term exposure.

Alternative pest control products (conventional and bio pesticides) are registered for similar uses on the same crops in Kenya. However, some of the alternative products such as carbendazim, tebuconazole and Mancozeb are based on old chemistry and are a subject to the petition or have safety concerns raised in other countries. There is a need to explore other safer molecules for use by farmers.

8.1. Proposed risk reduction measures

1. Immediate revocation and stoppage of importation of all non-supported chlorothalonil based products for use in Kenya namely (*BRAVO TOP 550SC, RANKONIL 500 SC, KOBAN, TWIGATHALONIL 720SC, ODEON 82.5 WDG, TWIGA EPONIL 600 SC, KATERINA 720 SC, GLIDER 720 SC, COMPLIANT 560 SC, PROVIDENCE 400 WP, LINKONIL 500 SC, ARROW 400SC AMIZOC 480 SC, AMIZOC 480 SC, FUNGINIL 720 SC, NOXNIL 72 SC, BEAVER 200 SC, TOMGOLD 440 SC , STOPPER 75 WP, UPSTANDING 720 WP, ABIR 720 WP and KENTHALONIL 720 SC*).
2. Phased withdrawal of chlorothalonil based products by December 31st, 2024.
3. All chlorothalonil end use products shall be packaged in water soluble bags to mitigate against operator exposure risk.
4. Immediate withdrawal and cancellation use of chlorothalonil based products in vegetables.
5. Immediate termination of any on-going registration of any chlorothalonil based products for agricultural use in Kenya.
6. Regular environmental monitoring of chlorothalonil in surface water bodies near commercial farms.

9.0. References

- The list of pest control products <https://www.pcpb.go.ke/on-crops/>
https://www.pcpb.go.ke/wpcontent/uploads/2020/10/guidance_on_dossier_evaluation_for_the_registration.pdf
- <https://efsa.onlinelibrary.wiley.com/doi/full/10.2903/j.efsa.2017.4873> (accessed 12th May 2022)
- <https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public/consultations/proposed-special-review-decision/2022/chlorothalonil/document.html> (Accessed 12th May 2022)
- https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/fs_PC-081901_1-Apr-99.pdf
- <https://www.fao.org/3/cb8313en/cb8313en.pdf> (Accessed 12th May 2022)
- EFSA (European Food Safety Authority), 2017. Conclusion on the peer review of the pesticide risk assessment of the active substance chlorothalonil. EFSA Journal 2018;16(1):5126, 47 pp. doi:10.2903/j.efsa.2018.5126

Appendixes

Appendix I: Summary of international regulatory decisions

Country/Region	Regulatory decision	Classification	Mitigation measures
European Union	² Withdrawal of authorisations by 29th April 2019 citing: <ul style="list-style-type: none"> • High potential for contamination of groundwater above the parametric drinking water limit of 0.1 µg/l by the toxicologically relevant metabolite CGA371075 in all pertinent groundwater scenarios • Adverse effects on endocrine organs but could not be concluded with data submitted • Genotoxicity concerns for residues • High risk to amphibians and fish 	Chlorothalonil suspected to be carcinogenic category 1 B	<ol style="list-style-type: none"> 1. EU MRL put at limit of detection (0.01mg/kg) 2. 20 metres no-spray buffer with 20 m VFS for spring and winter cereals 3. To protect aquatic organisms do not apply to artificially drained soils with clay content higher than or equal to 45% for winter
United States of America	Approved	Likely human carcinogen owing to presence of HCB that is classified as a B2 carcinogen	<ul style="list-style-type: none"> • Restrictions on labeling requirements and specified use designed to reduce handler and post application exposure are specified. • To protect wildlife, reduction in individual and seasonal maximum application rates for many use sites. • Untreated buffers are required between estuarine/marine water bodies and agricultural crops treated with chlorothalonil—at least 150 feet for aerial and air-blast applications and 25 feet for ground applications. • To reduce the level of HCB in chlorothalonil technical and manufacturing-use products to 40 ppm.

Country/Region	Regulatory decision	Classification	Mitigation measures
Canada	Continued registration of products containing chlorothalonil is acceptable.	Likely human carcinogen	<p>1. Amendment to label directions</p> <p>2. Cancellation of uses on greenhouse cut flowers, greenhouse pachysandra, and field grown roses (for cut flowers)</p> <ul style="list-style-type: none"> ○ All chlorothalonil products currently registered as dry flowable or water dispersible granules must be packaged in water soluble packaging. ○ Additional measures to mitigate exposure of mixers/loaders/applicators, including personal protection equipment and/or engineering controls. ○ Additional measures to mitigate exposure of postapplication workers, including reduced number of applications and restricted-entry intervals ○ Additional label statements to clarify use directions. ○ Standard precautionary label statement to mitigate a potential drift into residential areas <p>Environment</p> <ul style="list-style-type: none"> ● Revised buffer zones ● Requirement for a vegetative filter strip⁶
JMPR Evaluation	Evaluated, 2014		Conclusion not reached based on the data provided; No codex MRL set
Australia	Approved		Restricted to two applications per crop and not for use with backpack sprayers e.g. vegetables

Appendix II: Public comments on Chlorothalonil and end use products

No	Comments	Respondent
1.	We have adopted Crop protection management strategies, which ensure responsible use of pesticides and guarantee minimal negative impact to people and environment.	Africalla Kenya LTD
2.	Essential for pea Ascochyta control and rust in beans.	Kenya Flower Council
3.	We can do without Chlorothalonil	Equinox Flowers
4.	We are not using Chlorothalonil	P. J. DAVE Flowers LTD
5.	Not required at Finlay Flowers	Finlays Flowers
6.	We have a phase out plan for product Chlorothalonil for June 2023.	Shalimar Flowers
7.	<p>Chlorothalonil is essential for the control of pulse disease including Ascochyta in Peas, Chocolate Spot in Faba Beans, Septoria tritici in wheat and Ramularia in Barley. As a multi-site inhibitor chlorothalonil plays a crucial role in reducing resistance development amongst new SDHI and triazole fungicides including bixafen and prothioconazole respectively.</p> <p>Whilst the product has been lost in Europe, this was a result of the active ingredient no longer being supported through registration because of a change in regulatory requirements rather than a specific concern over the safety of the product.</p>	Agriventure Kenya
8.	Active ingredient that must be withdrawn immediately. Proposed withdrawal in Kenya should be based on: 1) Carcinogenicity 2) Reproductive toxicity	-K, KOAN, RODI, RTFI
9.	Chlorothalonil is a highly effective multi-site inhibitor and like that a cornerstone in resistance management. This is essential for growers and helps to ensure that a range of tools remain effective in the prevention and control of fungal	Syngenta Kenya

No	Comments	Respondent
	<p>diseases in plants.</p> <p>Withdrawal of chlorothalonil would leave farmers vulnerable to alternative active substances which would not only be less effective or less desirable from a resistance management or crop tolerance perspective, but they also cost more than chlorothalonil. This means that in addition to potential yield losses, the gross margin of crops (e.g., potatoes) would decrease.</p> <p>The risk assessments for chlorothalonil demonstrated that there is no risk using this fungicide according to the label recommendations stated for the targeted uses: operators, consumers and the environment remain safe when the product is used properly. Chlorothalonil based products remain key in allowing for a certain level of productivity for such economically important crops as wheat and barley, peas, beans, coffee, and potato.</p> <p>Regulatory decisions should be accounting for both the safety and the socio-economic importance of crop protection products linking it to the food security challenge in Kenya.</p>	
10.	<p>Based on its possibility to cause cancer, it should be removed from the Kenyan market under the precautionary principle. This is also supported by the fact that it is highly toxic to fish & amphibians</p>	Greenpeace Africa
11.	<p>Okay to discontinue</p>	Agricultural Employers' Association (AEA)
12.	<p>Active ingredient that must be withdrawn immediately.</p> <p>Proposed withdrawal in Kenya should be based on:</p> <ul style="list-style-type: none"> • Genotoxicity which results in carcinogenicity (now category 1B) • Contamination of groundwater by the metabolites • Risk to aquatic species like amphibians and fish 	BIBA-K, KOAN, RODI, RTFI

No	Comments	Respondent
13.	<p>a) Increase public capacity building on safe use of pesticide application, create public awareness, PPEs, do more research and allow industry self-regulation.</p> <p>b) Identify and publicize crops in which the selected active ingredients have been proved to be harmful to humans, animals and the environment.</p> <p>c) Follow Plant Protection (General) Regulations, 2021 where such incidences of perceived harmful effects of a pesticide are suspected.</p>	Fresh Produce Consortium of Kenya (FPC Kenya)

Appendix III: Registered Pest Control Products Containing Chlorothalonil

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
1.	DACONIL 720SC (BRAVO 720 SC) Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for control of Coffee berry disease (CBD) in Coffee; Bean rust, Angular leaf spot, Anthracnose & Botrytis on French beans; Aschochytes & Botrytis on Snow peas; Botrytis on Roses; Early & Late blight in Potatoes REI: 12hours; French beans & Snow peas: PHI- 14 days Potatoes: PHI- 7 days Coffee beans: PHI- 35 days	Submitted
2.	BRAVO TOP 550SC Suspension Concentrate	Chlorothalonil 500g/L + Difenoconazole 50g/L	Fungicide for control of Early blight & Late blight in Potatoes & Tomatoes. REI: 12hours Potatoes: PHI- 7 days Tomatoes: PHI- 7 days	Not submitted
3	CLORTOSIP 75 WP Wettable Powder	Chlorothalonil 75%	Fungicide for control of coffee berry disease (CBD) in Coffee. REI: 24hours Coffee- PHI- 35days	Submitted
4	CLORTOCAFFARO (ROVA) 500 Flow	Chlorothalonil 500g/L	Fungicide for control of coffee berry disease (CBD) in Coffee. REI: 24hours Coffee - PHI- 35 days	Submitted
5	ROVA 75 WP	Chlorothalonil 750%	Fungicide for control of coffee berry disease (CBD) in Coffee; Botrytis & Black spot on Roses. REI: 24hours	Submitted

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
			Coffee beans- PHI- 35 days.	
6	RANKONIL 500 SC Suspension Concentrate	Chlorothalonil 500g/L	Fungicide for the control of Downy mildew on Snow peas & Roses. REI: 12hours; Snow peas: PHI- 7 days	Not submitted
7	DAKOTA 50 FW Suspension Concentrate	Chlorothalonil 50% w/v	Fungicide for the control of Early & Late blight on Tomatoes; Downy Mildew & Leaf spot on Cucumbers; Coffee Berry Disease (CBD) on Coffee; Botrytis in Roses. REI: 12hours; Tomatoes: PHI- 7 days; Cucumber: PHI- 7 days; Coffee beans: PHI- 35 days	Submitted
8	KOBAN	Chlorothalonil 750g/Kg	Fungicide for control of Coffee Berry Disease (CBD) in Coffee. REI: 12hours; Coffee beans: PHI- 35 days	Not submitted
9	TWIGATHALONIL 720SC Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for control of Botrytis & Black spots in Roses; Anthracnose, Angular leaf spot & Botrytis in French beans; Coffee Berry Disease (CBD) of Coffee; as Tank mix with AG COPP 75WP & ISACOP for control of Coffee Berry Disease (CBD) on Coffee. REI: 12hours French beans: PHI- 7 days Coffee beans: PHI- 35 days	Not submitted
10	ODEON 82.5 WDG Water Dispersible Granules	Chlorothalonil 825g/Kg	Fungicide for the control of Early blight on Tomatoes; Downy mildew and Botrytis in Roses; Coffee Berry Disease (CBD) in Coffee; as Tank Mix with FUNGURAN OH 50 WP for control of Coffee berry	Not submitted

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
			disease (CBD) in Coffee. REI: 6hours; Tomatoes: PHI- 7 days; Coffee beans: PHI- 35 days.	
11	TWIGA EPONIL 600 SC Suspension Concentrate	Epoxiconazole 100g/L + Chlorothalonil 500g/	Fungicide for the control of Rust, Anthracnose & Angular leaf spot on French beans. REI: 12hours French beans: PHI- 7 days	Not submitted
12	FOLIO GOLD 537.5 SC Suspension Concentrate	Metalaxyl-M 37.5g/L + Chlorothalonil 500g/L	Fungicide for control of Downy mildew on Roses; Early & Late blight in Tomatoes. REI: 6hours; Tomatoes: PHI- 7 days	Submitted
13	KATERINA 720 SC Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for control Downy mildew & Botrytis on Roses & Squash; Early & Late blight in Tomatoes; Coffee berry disease (CBD) in Coffee; Rust on French beans. REI: 12 hours; Tomatoes: EPHI- 7 days; Squash & French beans: PHI- 7 days; Coffee beans: PHI- 35 days	Not submitted
14	CHEROKEE 487.5 SE Suspo- Emulsion	Propiconazole62.5g/L + Cyproconazole 50g/L +Chlorothalonil 375g/	Fungicide for the control of Stem rust and Yellow rust in Wheat. REI: 12 hours Wheat: PHI- 54 days	Submitted
15	GLIDER 720 SC Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for the control of Coffee Berry Disease (CBD) in Coffee. REI: 12hours Coffee beans: PHI- 35 days	Not submitted

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
16	COMPLIANT 560 SC Suspension Concentrate	Chlorothalonil 500 g/L + Azoxystrobin 60 g/L	Fungicide for control of powdery mildew and downy mildew in Roses; Angular leaf spot, anthracnose and rust on French beans; leaf spot, black leg and club root in cabbages and coffee berry disease in coffee, downy mildew and rust in broccoli. REI: 12 hours. French beans: PHI- 7 days Cabbages: PHI-7 days. Coffee beans: PHI-7 days Broccoli: PHI-7 days	Not submitted
17	PROVIDENCE 400 WP	Pyrimethanil 130 g/kg + Chlorothalonil 270 g/kg	Fungicide for the control of Powdery mildew & Botrytis on Roses & Carnations; Early blight in Tomatoes; Angular leafspot, Anthracnose & Rust in French beans. REI: 12hours French beans: PHI- 7 days Tomatoes: PHI- 7 days	Not submitted
18	LINKONIL 500 SC	Chlorothalonil 500g/L	Fungicide for the control of Botrytis and Downy mildew in roses. REI-12hours	Not submitted
19	ARROW 400SC Suspension Concentrate	Chlorothalonil 400 g/l	Fungicide for control of Early blight & Late blight Tomatoes. REI: 12hours Tomatoes: PHI- 14 days	Not submitted
20	AMIZOC 480 SC Suspension Concentrate	Azoxystrobin 80g/L + Chlorothalonil 400g/L	Fungicide for control Downy mildew on Roses; Yellow rust, Leaf rust & Stem rust in Wheat. REI: 6 hours Wheat: PHI- 54 days	Not submitted
21	FUNGINIL 720 SC Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for control of Botrytis & Downy mildew in Roses	Not submitted

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
			REI: 12hours	
22	METACHLORO 720 WP Wettable Powder	Metalaxyl 80g/kg + Chlorothalonil 640g/kg	Fungicide for control of Downy mildew & Botrytis on Roses. REI: 12hours	Submitted
23	NOXNIL 72 SC Suspension Concentrate	Chlorothalonil 720g/L	Fungicide for control of Early & Late blight in Tomatoes; Downy mildew & Leaf spot in Cucumber. REI: 12hours Tomatoes: PHI- 7 days Cucumber: PHI- 7 days	Not submitted
24	BEAVER 200 SC Suspension Concentrate	Chlorothalonil 150g/L + Iprodione 50g/L	Fungicide for control of Botrytis in Roses. REI: 12hours	Not submitted
25	TOMGOLD 440 SC Suspension Concentrate	Chlorothalonil 400 g/L + Metalaxyl-M 40 g/L	Fungicide for control of downy mildew in roses. REI: 12hours	Not Submitted
26	MIXANIL 425 SC Suspension Concentrate	Cymoxanil 50 g/L + Chlorothalonil 375 g/L	Fungicide for control of early and late blight in potatoes and tomatoes; anthracnose and downy mildew in courgettes; angular leaf spots and anthracnose in French beans. REI: 12hours Tomatoes: PHI-3 days Potatoes: PHI-28 days French beans: PHI-10 days Courgettes: PHI-7 days	Submitted
27	CLEANER 720 SC Suspension Concentrate	Chlorothalonil 720 g/L	Fungicide for control of downy mildew & botrytis in roses. REI: 12 hours	Submitted
28	STOPPER 75 WP	Chlorothalonil 750 g/Kg	Fungicide for the control of downy mildew and botrytis	Not submitted

	Product particulars	Active ingredient	Registered uses	Status: Hazard & Risk assessment submitted for review
	Wettable Powder		on roses REI: 6Hrs	
29	ROVA 500SC	Chlorothalonil 500g/L	Fungicide for control of coffee berry disease (CBD) in Coffee. REI: 24hours Coffee beans- PHI- 35 days	Submitted
30	UPSTANDING 720 WP Wettable Powder	Metalaxyl 80g/kg + Chlorothalonil 640g/kg	Fungicide for control of Downy mildew & Botrytis on Roses. REI: 12hours	Not submitted
31	ABIR 720 WP Wettable Powder	P(ii) Metalaxyl 80g/kg + Chlorothalonil 640g/kg	Fungicide for control of Downy mildew & Botrytis on Roses. REI: 12hours	Not submitted
32	KENTHALONIL 720 SC	Chlorothalonil 720 g/L	Fungicide for control of downy mildew & botrytis in roses. REI: 12 hours	Not submitted