FSC-TPL-30-001 Application for a temporary derogation to use a ‘highly hazardous’ pesticide

<table>
<thead>
<tr>
<th>A. General Requirements</th>
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<tbody>
<tr>
<td>Application submission date</td>
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<tr>
<td>SCS Global Services</td>
</tr>
<tr>
<td>2000 Powell St., Suite 600</td>
</tr>
<tr>
<td>tel: 510.452.8049</td>
</tr>
<tr>
<td><a href="mailto:bgready@scsglobalservices.com">bgready@scsglobalservices.com</a></td>
</tr>
<tr>
<td><a href="http://www.SCSglobalservices.com">www.SCSglobalservices.com</a></td>
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<tr>
<td>Name and contact details of certification body submitting the derogation:</td>
</tr>
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<td>Active ingredient for which a temporary derogation is being requested:</td>
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<tr>
<td>Copper sulfate (CAS # 1333-22-8)</td>
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<td>Trade name and formulation type of the Pesticide:</td>
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<td>Various commercial agricultural fertiliser blends containing copper sulfate (1333-22-8)</td>
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<td>Method of application and the application equipment and intended quantities:</td>
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<td>Ground based application of granular fertiliser. Single application per crop rotation (30yrs) at 7.5kg/ha elemental copper.</td>
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<td>Common or Scientific name of the pest (or description of the problem/issue, as applicable)</td>
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<td>Copper deficiency in podzol soils</td>
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<tr>
<td>Name and FSC certification codes of certificate holders(^1) requesting a temporary derogation. Please indicate scale category and whether it qualifies as a SLIMF.</td>
</tr>
<tr>
<td>HQPlantations Pty Ltd</td>
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<tr>
<td>Certificate Code SCS-FM/COC-00148P</td>
</tr>
<tr>
<td>License Code FSC-C107541</td>
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<tr>
<td>Large</td>
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<tr>
<td>Scope for which a temporary derogation is being requested: (Please attach map is possible).</td>
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<tr>
<td>Queensland</td>
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<td>For area and more information see the <a href="#">Public Forestry Stewardship Plan</a></td>
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<td>Type of Forestry, species and expected forest area where use of the HHP is intended:</td>
</tr>
<tr>
<td>Approximately 1,500 hectares per annum of plantations of the Southern Pine species group (including Pinus elliottii var. elliottii (PEE), Pinus caribaea var. hondurensis (PCH), Pinus caribaea var. caribaea and PEE x PCH hybrids).</td>
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</tbody>
</table>

\(^1\) In the case of forest management enterprises applying for FSC certification, the FSC certificate holder code can be provided at a later stage, if and when the company achieves certification.
DEMONSTRATED NEED

a) Please describe briefly the silvicultural system (methods for site preparation, practices for harvesting, regeneration, time between rotations) in the MU(s) included in the scope of the requested derogation.
b) Please describe the Integrated Pest Management (IPM) system in place, including the plan to monitor the distribution and density of the targeted pest organisms in the MU(s).
c) Please indicate the thresholds above which, the damages caused by the targeted pest organisms are classified as severe and how they have been established.
d) Please indicate the population size of the targeted pest organism in the MU(s).
e) (Fill in only if you represent a large-scale MU)
Please indicate the conclusions of the comparative Cost/Benefit Analysis of using the requested pesticide versus other non-highly hazardous control alternatives.
The cost – benefit analysis shall include, at minimum, the following scenarios:
• no action vs. remedial control (short-term)
• no action vs. preventive practices (long-term)
f) (Fill in only if you represent a large-scale MU)
Please provide a review carried out by independent experts of the Cost/Benefit Analysis in e).
g) (Fill in only if you represent a medium or small-scale MU)
Please describe possible non HHP alternatives to the use of the requested HHP and explain why they are not considered feasible to control the targeted pest organisms.
h) Please include an estimate of the amount of area over which the pesticide is to be applied and how much of the pesticide is expected to be used annually.
i) (Fill in only if you are applying for the renewal of a derogation)
Please attach a report on the implementation of the IPM system during the previous derogation period, covering at minimum:
☐ Brief description of the silvicultural system in the MU(s) included in the scope of the requested derogation.
☐ A list of the monitored pest organisms.
☐ The results of the annual monitoring of the target species in relation to the defined thresholds.
☐ Quantitative data of the use of ‘highly hazardous’ pesticides per year for the full period of the existing derogation, areas of application and application method.
☐ A description of the programs that have been implemented to investigate, research, identify and test alternatives to the ‘highly hazardous’ pesticide, and the results.

Response
Copper is a critical nutrient for normal growth in all plants, and in the estate of HQPlantations, Pinus caribaea, Pinus elliottii and their hybrids (Southern Pines) on organic matter rich sandy podzol soils commonly found in coastal lowlands in Queensland. Copper deficiency is so severe that a commercial plantation is not possible without remedial treatment. Where young trees have a severe deficiency in copper, early growth tends to be epinastic and can continue to a state where trees grow horizontally along the soil surface or even complete full loops as depicted in Figure 1. Understandably, where this occurs it is not possible to produce an economically viable crop. Turvey (1984) demonstrated that it is possible to rectify copper deficiency in plantations by applying copper and a large body of unpublished internal work by the Queensland Department of Forestry has also found that a single application of 7.5 kg/ha of elemental copper, applied within the first five years of planting Southern Pines on podzol soils, can prevent copper deficiency symptoms occurring in the crop.
Some anecdotal evidence has indicated that burning to reduce both the soil organic matter levels and the soil nitrogen levels can assist in reducing the imbalance of copper to nitrogen however this is not a preferred practice for forest managers as it is far more preferable to maintain soil organic matter and soil nitrogen, which becomes critical latter in the rotation. Forest managers have tried a range of other treatments including inserting copper as solid metal into young plants and various mulches, however to date the only economically, environmentally and socially acceptable way to treat deficiency is to apply copper as either copper sulfate (both listed as highly hazardous pesticides).


**SPECIFIED CONTROLS TO PREVENT, MINIMISE AND MITIGATE HAZARDS.**

a) Description of the nature of the controls that will be implemented for the use of the derogated pesticide to prevent, mitigate and minimize any deleterious effects on ecological, social and economic values within and beyond the management unit.

b) References to national laws/ regulations on safety measures should be made and any additional safety measures to supplement these laws/ regulations should be stated.

c) Optional: Description of any relevant site-specific conditions that might mitigate likely negative effects resulting from the derogated pesticide) and/or description of mitigating properties specific to the formulation/ product used.
In Australia, each State and Territory government is responsible for the regulation and control of use of fertiliser. There are a number of requirements under the Queensland Government Agricultural Standards Regulation 1997, the relevant regulation for fertilisers. Fertilisers must be appropriately named, with as a minimum the content of or concentration of each element, its name and what form it is in. Fertiliser must not exceed set levels of harmful ingredients, such as heavy metals. The Queensland Environmental Protection Act 1994 also includes specific provisions to avoid the impact of fertilisers on the Great Barrier Reef. The purpose of the Act is “to protect Queensland’s environment while allowing for development that improves the total quality of life both now and in the future, in a way that maintains the ecological processes on which life depends”. The Act considers environmental contamination of the environment, described as the release whether by act or omission, of a contaminant into the environment, whether the contaminant is a liquid or solid. The application of fertiliser generally and copper in particular is included within the Act as an environmentally relevant activity. As such, there are numerous controls around the way in which application must occur in order to manage the risk of harm to the environment. It is an offence under the Act to cause serious or material harm, with the risk of incurring heavy fines or up to 5 years imprisonment.

The Australian Work Health and Safety (WHS) Act, supported by the Work Health and Safety (WHS) Regulations, dictate that the manufacturer or importer of a hazardous chemical must prepare a SDS (Safety Data Sheet) for the chemical. The contents of the SDS are dictated by the Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals (2011). SDS datasheets must contain as a minimum:

- Identification of the chemical
- Hazard(s) identification
- Composition and information on ingredients
- First aid measures
- Fire fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls and personal protection
- Physical and chemical properties
- Stability and Reactivity
- Toxicological Information
- Ecological information
- Disposal information
- Regulatory Information

In the case of the principal copper product (also contains other nutrients) used by HQPlantations, the SDS stipulates that users must Avoid contaminating waterways. The SDS recognises that the product has low to moderate toxicity with the potential to cause adverse health effects with over exposure. As
a consequence the SDS stipulates eye and skin contact and inhalation must be avoided. Where exposure cannot be avoided, personal protective equipment must be used, including a Class P1 (Particulate) respirator must be worn. In addition the SDS stipulates safe transport, storage and handling requirements such as storing in a cool, dry well ventilated area and avoiding excessive heat.

The end result for Queensland is that copper fertilisers are:
- transported and stored safely
- used only by persons that are appropriately trained and where deemed necessary, licensed
- used in a way that ensures the safety of applicators and the public
- used in a way that ensures the safety of the environment
- used in an accountable manner through detailed recording of all locations and amounts applied

Forestry Application
HQPlantations have well documented policies and operational procedures, best practice manuals or similar for the use and handling of chemicals that are in alignment with State and Federal Government requirements. These include company Health and Safety Standards and detailed operations plans.

Staff are trained to a high level and only qualified staff or contractors are used to carry out fertilising operations. A principal component of chemical user training is learning to read, understand and implement all instructions on labels and SDS’s to ensure these are adhered to. Site-specific fertiliser plans are developed that address any known neighbour and environmental sensitivities. Fertilising plans include details of un-treated buffer zones, which are used to protect sensitive areas within, or, adjacent to the plantation. Weather conditions are carefully monitored throughout each operation to avoid application when risk of offsite transport. Operations will be postponed, or cancelled where weather conditions are not suitable. Follow-up monitoring of the impacts of the operation on relieving copper deficiency symptoms are undertaken.

Copper Sulfate specific controls
Copper sulfate is a toxicant of aquatic environments and is acutely toxic to rats and birds hence it’s listing as by FSC as highly hazardous. The forest industry already applies buffers to operations where copper sulfate is being utilised. The application method for copper sulfate is restricted to ground based application of the granular product so there is no risk of drift onto non-target aquatic areas. Additionally it is applied as a granule which is quickly dissolved and absorbed into the soil and there is no evidence to suggest that birds or mammals intentionally ingest the product. In the podzol soils where copper is applied there is inherently very high levels of organic matter which is added to through the retention of harvest slash residue. The additive effect of this very high level of organic matter at these sites leads to copper being bound up rapidly further reducing the risk of offsite movement. To mitigate the risk of incidental human ingestion workers follow procedures as outlined in company policies and the SDS which require the use of gloves and respiratory protection when handling the product. Soils are surveyed in advance to ensure only those deficient in copper are treated with copper fertiliser.

PROGRAM TO IDENTIFY ALTERNATIVES TO A ‘HIGHLY HAZARDOUS’ PESTICIDE INCLUDING PREVENTATIVE SILVICULTURAL MEASURES.

a) (Fill in only if you represent a large-scale MU)
Please describe the research program (individually or in collaboration with other research agencies/institutions or commercial enterprises) and/or field trials of alternative non-chemical or less hazardous methods of pest management that have been planned for the requested derogation period, including devoted resources and expected timelines.

b) (Fill in only if you represent a medium-scale MU)
Please describe how you will support and/or be involved in a research program from research agencies/institutions (e.g. universities) or commercial enterprises in the requested derogation period, including devoted resources and expected timelines.

c) (Fill in only if you represent a small-scale MU)
Please describe the program to exchange information related to pesticides use with other forest managers, to contact research institutions and/or search in alternative databases, that will be implemented in the requested derogation period.

d) (Fill in only if you are applying for the renewal of a derogation)
Please describe the programs that have been implemented to investigate, research, identify and test alternatives to the requested ‘highly hazardous’ pesticide, and the results. Describe the programs that are in place to identify alternatives, including a timetable as well as research partners and targets:

Response

Given that copper is an essential nutrient for plant development playing a vital role in the efficiency of photosynthesis and the conversion of photosynthates to macromolecules, particularly lignin (Landis and Steenis, 2000), it is unlikely that the need for copper application can be completely eliminated. Some tree species are less sensitive to copper deficiency than Pinus caribaeas, Pinus elliottii and their hybrids, however none have been found that produce a similar quality of wood and growth to date. There is some limited evidence in Pinus radiata that there may be some genotypes that are less sensitive to copper deficiency and this has also been observed in Pinus caribaeas, however this is an extremely difficult trait to breed for due to the strong influences of spatial and temporal variation in soil and climatic conditions. In addition there are few clones or families that demonstrate a high level of resistance and consequently should these be deployed on a large scale, there would be a significant narrowing of the genetic diversity of the plantation established on podzol sites which increases the risk of a catastrophic impact from an alternative environmental or biological stressor.

HQPlantations maintains a series of long term fertilizer treatment response trials to determine the longevity of fertilizer persistence in the soils beyond the length of a single rotation. Into the future this should allow for even more judicious use of copper with either reduced rates of use, or, where it can be shown with confidence that copper is no longer in deficiency, the elimination of use. In addition, investigations are underway to determine whether alternative copper compounds (not listed on the HHP list) may be substituted for copper sulfate.

STAKEHOLDER CONSULTATION

a) Description of the nature of the information provided and consultation undertaken with potentially affected groups and local communities (e.g. neighbors on directly adjoining land) who use managed forests for various purposes (as a source of groundwater, for hunting, fishing or gathering medicinal or edible plants) and those stakeholders with the more general interest regarding the use of pesticides.

b) Description of the consultation mechanism (i.e. public notices in local newspapers or on local radio stations, letters sent to potentially affected persons, meetings, field observations etc.) used to inform, consult and receive significant feedback from the majority of the potentially affected persons.

c) Evidence of balanced stakeholder consultation with:
   - Potentially (directly or indirectly) affected persons or groups of individuals
   - Local/regional environmental organizations (non-governmental organizations)
   - Local/regional government (environmental authorities)
   - Representatives of the local community (e.g. contacted at community meetings)
   - Representatives of the forest industry

d) A summary of the comments received and any responses presented for each stakeholders category. Explanations should be given of how stakeholder concerns were addressed. Where necessary, the original stakeholder comments may be requested.

Response