FSC-TPL-01-002 Application for a derogation to use a highly hazardous pesticide

Diflubenzuron

Name and contact details of certification body requesting derogation:	SCS Dave Wager dwager@scscertified.com 510 251-7049
Active ingredient for which derogation requested:	diflubenzuron
Geographical scope of requested derogation:	Michigan
Is there an accredited or preliminarily accredited FSC Forest Stewardship Standard applicable to the territory concerned?	FSC US standard
Requested time period for derogation: (Derogations shall normally be issued for a five-year period. There will be a presumption against renewal of a derogation after the expiry of the five-year period).	5 years

1. Demonstrated need

Need may be demonstrated where:

- The pesticide is used for protecting native species and forests against damage caused by certain native and introduced species or for protecting human health against dangerous diseases, OR
- Use of the pesticide is obligatory under national laws or regulations, OR
- Use of the pesticide is the only economically, environmentally, socially and technically feasible way of controlling specific organisms which are causing severe damage in natural forests or plantations in the specified country (as indicated by consideration, assessments and preferably field-trials of alternative non-chemical or less toxic pest-management methods)

Explain how the proposed use complies with the specified criteria for need, including the consideration of alternatives which do not require the use of pesticides on the FSC list of 'highly hazardous pesticides':

Diflubenzuron is the safest and most cost-effective material for controlling epidemic populations of the redheaded pine sawfly (*Neodiprion lecontei)*. Of the pesticides registered for redheaded pine sawfly in Michigan, Diflubenzuron affects the least number of non-target insect species.

The redheaded pine (RHPS) sawfly is a serious pest of planted red pine. The sawfly damages young pines less than 15 feet (5 meters) tall. Branches stripped of their needles die. Effects can range from widespread mortality in younger plantings to permanent economic loss resulting from stunted and misshapen trees.

Heaviest infestations occur on red pine growing under stress, particularly those at the edges of hardwood forests, on droughty soils, or where competing vegetation is heavy. RHPS is also periodically epidemic on planted pine on better sites, especially during continuous years of drought.

Susceptibility and vulnerability of plantation red and jack pine to redheaded pine sawfly damage can be reduced by promoting tree vigor and minimizing competition for moisture and nutrients. Thus, sawfly management calls for planting on better pine sites and controlling competing vegetation.

Planting on lighter (drier) soils can reduce vegetative competition, but increases the risk of drought and nutrient stress. Michigan DNR typically seeks to balance the trade-offs between maximum productivity achieved through complete control of competing vegetation and increased vegetative diversity achieved through reduced use of herbicides. The latter results in higher levels of competing vegetation and stress. In some cases this leads to increased RHPS damage prompting control efforts to minimize economic loss.

Michigan DNR manages over 250,000 acres of planted red pine which serves as an important source of dimensional lumber, utility poles and pulpwood. Assuming an average 80 year rotation and assuming that this acreage is maintained in planted red pine production, regenerating about 3,000 acres annually would provide an ideal, uniform distribution of red pine age classes. Assuming that such plantings are susceptible to the sawfly from the time they are 2 feet tall until they are 15 feet tall, we have about 30 to 35 thousand acres that are potentially susceptible to the RHPS. Only a portion of these plantings will experience a

sawfly epidemic. The need to monitor and manage the threat of RHPS on planted red pine exists only for the first 10 to 15 years of an 80 year rotation. Once trees attain an average height of 15 feet, the threat of RHPS damage is greatly diminished. In the past decade, Michigan DNR has treated for RHPS three times. In 2003 1,321 acres were treated with diflubenzuron, 333 acres in 2004 and 480 acres in 2005. Identification of building RHPS populations through annual monitoring of high-risk red pine plantations has significantly reduced the number of acres needing treatment.

Not Controlling the Redheaded Pine Sawfly

Not using diflubenzuron to control red headed pine sawfly would have negative social and economic impacts on the Michigan state forest system. Populations could build to the point where damage would spread to neighboring young native and planted pine stands. The result would be poor stocking sub-optimized returns on investment to the people of the state of Michigan and reduced supply of valuable wood products.

2. Specified controls to mitigate the hazard

The derogation shall specify the controls that will be implemented to mitigate the hazard associated with the use of the pesticide, for example restrictions related to weather conditions, soil types, application method, water courses, etc.

If the specified formulation is considered to reduce the level of hazard then the information on which this claim is based shall be presented, and the applicant shall provide credible independent, third party support for the claimed reduction of hazard.

Specify the controls that will be implemented to mitigate the hazard:

Herbicides sold in the United States must be registered with the Federal government and in some cases by state regulatory agencies. They are reviewed and regulated by the U.S. Environmental Protection Agency (USEPA) under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA 1974; 7 J.S.C. 135 et seq., Public Laws 92-516, 94-140, and 95-356) and recent amendments. EPA regulations are enforced at the state level through approved agencies. These agencies administer federal legal requirements through training and enforcement programs within each state. Applicator certification, auditing, pesticide registration and enforcing the terms of the pesticide labels fall within the jurisdiction of the state agencies.[1, 2, 3]

The printed information and instructional material that must be included with registered herbicides that are sold in the U.S. is known as the "label" and constitutes a legal document. These instructions are considered a part of compliance with FIFRA and other Federal regulations, and failure to use an herbicide in accord with label restrictions can lead to severe penalties. The label provides information on the chemical compound(s) comprising the active ingredient(s) of the herbicide, directions for correct use on target plant species, warnings and restrictions, and safety and antidote information. Additionally, information concerning impacts to non-target organisms (particularly threatened or endangered species) is available from both State and Federal Fish and Wildlife agencies (i.e., U.S. Fish and Wildlife Service, Natural Resource Conservation Service, and CA Department of Pesticide Regulation)

Risk mitigation strategies.

Risks associated with the use of diflubenzuron are reduced by various means. Diflubenzuron is included on FSC's "highly hazardous" list because it has a Kow rating that exceeds the threshold for this indicator, however this does not reflect the actual breakdown of the product as it is applied in diluted formulation in the field under US EPA labelling requirements. It is also included on FSC's "highly hazardous" list because it is toxic to some aquatic crustaceans. However, when diflubenzuron is applied under field conditions these risks are significantly reduced by preventing or minimizing exposure. First, the product Dimilin is diluted to a concentration of 40.4% diflubenzuron. Secondly, exposure to applicators, users and others is reduced through the use of protective clothing and through restricting access to treated areas as specified on the label. In Michigan applicators must be trained and certified in order to purchase or apply the product. An essential part of this

[1] See http://www.epa.gov/ne/enforcement/pesticides/index.html for an example.
[2] See http://npic.orst.edu/state1.htm for more detail
[3] See http://www.access.gpo.gov/uscode/title7/chapter6_subchapterii_.html

training is human and environmental safety. Thirdly, the product as applied is normally diluted to concentrations of ≤3% and rates of application are reduced to the lowest effective levels both to reduce risk and cost. Application rates are typically in the range of 2 ounces of Dimilin (40.4% diflubenzuron) per acre (48 grams per hectare) which is roughly equivalent to slightly more than 1/100th of a drop of active ingredient per square foot.4 Fourth, application techniques are designed to recognize and protect areas of known environmental risk. Michigna DNR requires that a Pesticide Application Plan be complete for each area treated. Included in the plan is the identification of water features that should be avoided. Ground application equipment is very precise in applying the chemical where it is intended. Likewise helicopter applications utilize GPS equipment enabling them to avoid oversparying nearby water features, roads, human dwellings and other off target areas. Michigan DNR pesticide policy work and instructions require buffers of at least 100 feet between the treated areas and streams or other water features. Finally, plantings that require sawfly management (e.g. treatment with diflubenzuron) only need such treatment once and less frequently twice in the life of the planting (typically 50 to ≥ 80 years). Many sites need only local treatments to a portion of the area where RHPS damage is most severe. In these cases treatments are usually done with ground equipment. Generally infested plantings require aerial applications. For additional information on the chemistry, research results on bioaccumulation and aquatic toxicity see the Sept 8, 2006 letter from Chemtura to FSC appended to the end of this application.

[4] Assuming 20 drops/ml of water

3. Program to identify alternatives

The application shall describe the program(s) which are in place in the territory concerned or which will be put in place during the period over which the derogation will be applicable, designed to identify alternative pest control methods which do not use highly hazardous pesticides.

Research

A significant role of the US EPA which regulates and controls pesticide use in the U.S. is to continually review and assess pesticides that are lower risk alternatives than existing products. Since 1996 the EPA has reviewed tolerances on nearly 10,000 chemicals and introduced new safety standards for several of them. As cumulative risk is evaluated and new standards are developed product labels are updated to reduce application rates, apply newly devised use restrictions or even remove products from use. This ongoing review is also incorporated into the North American Free Trade Agreement (NAFTA) and subsequently supported by similar initiatives in Canada. This program gives preference in pesticide registration to reduced risk products. As a result pesticide use in North America continues to develop lower risk products and application techniques. (U.S. EPA, 2007).

Various university and internal research initiatives are underway with focus areas on the following areas:

1. Alternative chemicals. Investigate chemical alternatives using products that are not included in the FSC “highly hazardous” list.
2. Improved chemical use strategies. Continue to look for chemical use strategies that apply less chemical, more precisely targeted to reduce overall quantity of chemical applied.
3. Alternative non-chemical treatments. Continue to look for effective mechanical, physical (fire) and biological control methods.
4. Annual rapid early detection and evaluation monitoring surveys of high-risk plantations to reduce the number of acres requiring treatment for RHPS.
5. Michigan Department of Agriculture and Michigan State University continue to develop and apply Integrated Pest Management programs that provide educational materials to pesticide applicators.

4. Stakeholder support

All applications for derogations shall include evidence that the application is supported by social, environmental and economic stakeholders in the best interests of promoting FSC's goals in the territory concerned. It is the responsibility of the applicant to present this evidence in support of their application (see summary of procedures in Section 8, below).

The level of stakeholder support required will be evaluated taking account of the geographical scope of the derogation, the justification of need, and other factors include in the application such as the strength of the program to identify alternatives, and the level of controls to mitigate the identified hazards.

A written letter of support by the Board of Directors of the FSC National Initiative for the territory concerned shall normally be considered sufficient evidence of national stakeholder support for the application.

Describe the consultation that has taken place and summarise the results:

Stakeholder consultation will occur August 1 through September 16, 2007. This section will be completed at the conclusion of the stakeholder consultation period.

Contingency plan to eliminate use of the pesticide during the derogation period

Derogations shall normally be issued for a five-year period. There is a presumption against renewal at the end of this five-year period unless it can be clearly demonstrated that the program to identify alternatives has been fully implemented but has failed to identify an acceptable alternative in the available time.

Forest managers seeking certification under an approved derogation should therefore ensure that they have a contingency plan in place to eliminate use of the pesticide prior to the end of the derogation period. If derogation is not renewed, the continued use of a highly hazardous pesticide after the expiry of the derogation would be considered a major non-compliance and would lead to the withdrawal of the certificate.

As a condition of use of a derogated pesticide, forest managers shall record quantitative and qualitative information about their use of such a pesticide, and this information shall be included in the certification body's evaluation reports and in all subsequent surveillance reports.

Compliance with these requirements would need to be demonstrated by an applicant for certification at the Forest Management Unit (FMU) level and be verified by the certification body prior to the issue of a certificate. However, this evaluation is independent of the decision to issue a derogation for use of a pesticide over a geographical area.

References:

USEPA 2007. Regulating Pesticides. http://www.epa.gov/pesticides/regulating/

Appendix:

Chemtura letter dated Sept 8, 2006 to FSC International