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## DECISION

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30 November 2012

### 1. Summary

| Substance                  | Tri-Form 60   |
|----------------------------|---|
| Application code           | APP201454   |
| Application type           | To reassess any hazardous substance under section 63A of the Hazardous Substances and New Organisms Act 1996 ("the Act")  |
| Application sub-type       | Modified reassessment   |
| Applicant                  | TRICAL, Inc   |
| Purpose of the application | To seek an EPA Reassessment for the modification of Additional Control 13, part (1) on Tri-Form 60 to allow a 5°C minimum soil temperature at the time of application provided the soil is immediately sealed with plastic sheeting |
| Date application received  | 4 September 2012  |
| Submission period          | 18 September – 31 October 2012  |
| Consideration Date         | 12 December 2012  |
| Considered by              | A Decision-Making Committee of the Environmental Protection Authority ("EPA")   |
| Decision                   | The modified reassessment of the substance is approved with controls  |

### 2. Background

- 2.1. The soil fumigant Tri-Form 60 contains 1,3-dichloropropene and chloropicrin. It was approved by the Environmental Protection Authority on 23 August 2011 and has the HSNO Approval Number of HSR100563. The current controls that apply to Tri-Form 60 are included in the decision document for application ERMA200323.
- 2.2. The approval of Tri-Form 60 includes a control (Additional Control 13) that requires that the substance only be used to treat soil between temperatures of 10°C and 27°C at the beginning of the application.

- 2.3. The applicant is seeking the variation of this control to allow the substance to be applied into soil at a minimum temperature of 5°C, a reduction from the previous approved minimum of 10°C, when plastic covering is used on the treated soil.
- 2.4. Grounds for this reassessment were established under section 62(2)(c) of the Act by the EPA in its decision dated 8 May 2012. In its decision, the EPA determined that the application of the substance to soil covered by plastic at temperatures down to 5°C represented a significant change in use compared to the use that is permitted by the current HSNO approval. As such, the EPA considered that the reassessment of the approval of Tri-Form 60 could be justified on the grounds that information has become available showing a significant change of use (section 62(2)(c)).

### 3. Process, consultation and submissions

- 3.1. The application was lodged by TRICAL, Inc pursuant to section 63A of the Act on 4 September 2012.
- 3.2. The Labour Group of the Ministry of Business, Innovation and Employment (MBIE), the Agricultural Compounds and Veterinary Medicines (ACVM) Group of the Ministry for Primary Industries (MPI) and the Ministry of Health were advised of the application on 5 September 2012. No comments were received.
- 3.3. The application was publicly notified and open for submissions from 18 September to 31 October 2012. No submissions were received.

### 4. The requirements of section 63A of the Act

- 4.1. Under section 63A(1) of the Act, a modified reassessment may be carried out where the reassessment will involve only a specific aspect of an approval and the proposed amendment is not a minor or technical amendment to which section 67A of the Act applies.
- 4.2. The Committee considers that—
  - (a) a reassessment of the substance under section 63 of the Act is not appropriate because the reassessment will involve only a specific aspect of the approval (i.e. the temperature of the soil at the time of application of Tri-Form 60); and
  - (b) the amendment is not a “minor in effect” or minor or technical amendment to which section 67A of the Act applies (i.e. a change in control about the soil temperature during application is not considered a minor in effect or minor or technical amendment, as the lower temperature may result in a significant increase in risk).
- 4.3. Under section 63A(6) of the Act, the EPA may approve or decline an application for reassessment under section 63A of the Act, as it considers appropriate, after taking into account:
  - (a) all the effects associated with the reassessment; and

- (b) the best international practices and standards for the safe management of hazardous substances.

## 5. Assessment of the effects associated with the reassessment

- 5.1. The applicant's proposal is to modify the Additional Control 13 from the existing wording:

*“Measures required to restrict fumigant emission from treated soil*

*(1) The soil temperature at the depth of injection shall be a minimum of 10°C and shall not exceed 27°C.”*

to

*“Measures required to restrict fumigant emission from treated soil*

*(1a) The soil temperature at the depth of injection shall be a minimum of 5°C and shall not exceed 27°C at the beginning of the application when the soil is to be immediately covered with plastic sheeting, or (2a) The soil temperature at the depth of injection shall be a minimum of 10°C and shall not exceed 27°C at the beginning of the application when an alternative means of sealing the soil surface is used.”*

- 5.2. The staff consider that the amended control would be clearer if it read as follows:

*(1a) The soil temperature at the depth of injection shall be a minimum of 5°C and shall not exceed 27°C when measured immediately before the beginning of the application of Tri-Form 60 when the soil is to be immediately covered with plastic sheeting, or*

*(2a) The soil temperature at the depth of injection shall be a minimum of 10°C and shall not exceed 27°C when measured immediately before the beginning of the application when an alternative means of sealing the soil surface is used.*

### Purpose of the original control to limit application to temperatures above 10°C

- 5.3. The reason for prohibiting fumigation at temperatures less than 10°C was based on the concern that the substance would be slower to degrade and potentially be more mobile in soil with an increased risk of contaminating groundwater. As a general rule, the half-life (the time taken for 50 % of a given substance to degrade in a particular media) of a pesticide in soil doubles with each 10°C decrease in temperature.

### Supporting information

- 5.4. The applicant provided one New Zealand study and one case study from the United States of America (USA) to support their proposed change to the control.
- 5.5. The first study by Homer and Hough (2011) from Plant and Food Research measured changes in soil temperature at three depths beneath soil covered with plastic sheeting, and in bare soil.

- 5.6. The trial site was established in Hawke's Bay, New Zealand, in early spring 2011, to determine whether significant temperature increases occurred beneath plastic covers used in soil fumigation. Temperature loggers were placed at five, 20 and 30 cm beneath standard fumigation plastic and in bare soil.
- 5.7. Within a few hours of application of the plastic to the soil surface, temperatures were markedly higher under the plastic. Differences were greatest near the surface (five cm) with an average increase over the first two days of 4.9°C in plastic-covered plots. Deeper in the soil profile there was a smaller, but still significant, difference, with average increases in the first two days of 2.5 and 1.2°C at 20 and 30 cm depths, respectively. As time progressed, the difference in temperature between plastic-covered and bare plots increased, with average differences over the first seven days of 5.3, 3.9 and 2.6°C at five, 20 and 30 cm respectively.
- 5.8. The USA case study provided by the applicant also demonstrated higher soil temperature under plastic tarpaulins compared to bare soil. This study was undertaken when soil temperatures were already high.
- 5.9. The Committee accepts that using plastic sheeting when applying Tri-Form 60 will increase the soil temperature which, in turn, will accelerate the degradation of the active ingredients. As indicated by the applicant this will reduce the time 1,3-dichloropropene is present in the soil.
- 5.10. The Committee also notes that the plastic covering will reduce the infiltration of rain, further lowering the risk of movement of the substance to groundwater and runoff.
- 5.11. The Committee is satisfied that the use of Tri-Form 60 at a minimum soil temperature of 5°C, provided the soil is then sealed with plastic sheeting, will not result in any increase in risk.

### Comparison with other substances containing 1,3-dichloropropene

- 5.12. The applicant identified two other fumigants that contain 1,3- dichloropropene that are approved for use in New Zealand. Both alternative fumigants have significantly higher concentrations and application rates of 1,3- dichloropropene than Tri-Form 60. They also have label instructions with temperature limits prohibiting use below 5°C or above 27°C. Information on the alternative fumigants is set out in Table 1 for comparison with Tri-Form 60.

Table 1 Comparison of fumigants containing 1,3-dichloropropene

| Substance   | 1,3-dichloropropene (g/kg) | Chloropicrin (g/kg) | Application rate 1,3-dichloropropene (kg/ha) | Minimum soil temperature (°C) |
|-------------|----------------------------|---------------------|--|-------------------------------|
| HSR001640   | 615                        | 345                 | 164-470                                      | 5                             |
| HSR005700   | 945                        | –                   | 164-287                                      | 5                             |
| Tri-Form 60 | 290                        | 596                 | 105-253                                      | 10                            |

### Benefits of modifying the controls

- 5.13. Amending the controls, as requested by the applicant, will allow the use of Tri-Form 60 at soil temperatures of a minimum of 5°C. This will benefit growers as they will be able to have more flexibility about how they manage soil pests. It will also allow the use of the fumigant in more areas.

### Best international practices and standards for the safe management of hazardous substances

- 5.14. The controls applied to Tri-Form 60 are based on the HSNO Regulations. These regulations specify a number of controls which manage the human health and environmental risks posed by hazardous substances throughout their lifecycles. These controls include the requirement for protective clothing and provision of appropriate information, disposal and emergency management requirements.
- 5.15. In addition, the Committee notes that the substance may be managed in accordance with HSNO COP 31 Control and Safe Use of Fumigants. This code of practice represents best practice and the standard for the safe management of fumigants in New Zealand and has been approved by the EPA as a recognised means of complying with HSNO controls.
- 5.16. The Tri-Form 60 (brand name Pic-Clor-60) label in the USA allows the application of this formulation at a minimum soil temperature of 4°C for both tarped and non-tarped applications. The application of 1,3-dichloropropene (Telone) in the USA is also allowed at a minimum soil temperature of 4°C.
- 5.17. The Committee notes that 1,3-dichloropropene has not been reappraised for use in the European Union (EU) following a full regulatory review, on the basis that the information available is insufficient to meet EU regulatory requirements with regard to consumer exposure assessment and the environmental fate of the substance and its impurities (EC 2010)<sup>1</sup>. Particular concerns were identified with data gaps about the risks from groundwater contamination by the 1,3-dichloropropene, a metabolite, chloroacrylic acid and manufacturing impurities.
- 5.18. The Committee also notes that the United States Environmental Protection Agency (US EPA) plans to re-evaluate soil fumigants as a group beginning in 2013 as part of its registration review program. The US EPA may also consider additional mitigation measures during other regulatory reviews of 1,3-dichloropropene, should they occur.
- 5.19. If there are any changes related to the approval or controls in the USA, the EPA could use these as grounds for the reassessment of all substances containing 1,3-dichloropropene.

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<sup>1</sup> EC 2010 Review report for the active substance 1,3- dichloropropene. European Health and Consumers Directorate General SANCO/10691/2010 final [http://ec.europa.eu/sanco\\_pesticides/public/index.cfm?event=activesubstance\\_detail](http://ec.europa.eu/sanco_pesticides/public/index.cfm?event=activesubstance_detail)

## 6. Conclusion

- 6.1. The Committee is satisfied that the increase in risk from using Tri-Form 60 at soil temperatures down to 5°C provided plastic sheeting is used to cover the soil are negligible. The Committee is also satisfied that there will be benefits for growers as they will be able to fumigate when soil temperatures are low improving their ability to manage soil pests.

## 7. Decision

- 7.1. The Committee is satisfied that the application meets the criteria for consideration under section 63A.
- 7.2. Having considered all the effects associated with the reassessment proposal and best international practices for the safe management of hazardous substances, the Committee considers that that minimum soil temperature for the application of Tri-Form 60 should be 5°C when the soil is to be covered with plastic sheeting.
- 7.3. The application for the modified reassessment of the hazardous substance, Tri-Form 60, is thus approved with changes to the controls as set out in Appendix A.

**Date:** 30 November 2012

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**Shaun Ogilvie**  
**Chair, Decision Making Committee**  
**Environmental Protection Authority**

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## Appendix A: Revised controls applying to Tri-Form 60

Table 1 Revised controls for Tri-Form 60

| Number                        | Control Description  |
|-------------------------------|--|
| <b>Operational Controls</b>   |  |
| 13.                           | <p data-bbox="292 501 1522 546"><b>Measures required to restrict fumigant emission from treated soil</b></p> <p data-bbox="292 568 1522 658">(1) The soil temperature at the depth of injection shall be a minimum of 5°C and shall not exceed 27°C when measured at the beginning of the application of Tri-Form 60 when the soil is to be immediately covered with plastic sheeting;</p> <p data-bbox="292 703 1522 725">or</p> <p data-bbox="292 770 1522 860">(2) The soil temperature at the depth of injection shall be a minimum of 10°C and shall not exceed 27°C when measured at the beginning of the application when an alternative means of sealing the soil surface is used.</p> <p data-bbox="292 904 1522 1039">(3) The moisture content of the soil must be either—</p> <p data-bbox="379 949 1522 972">(a) greater than or equal to 70% when measured with a tensiometer, or</p> <p data-bbox="379 1016 1522 1039">(b) between 75-100% as defined by the USDA Feel and Appearance method<sup>2</sup>.</p>  |
| <b>Labelling Requirements</b> |  |
| 19.                           | <p data-bbox="292 1120 1522 1164"><b>Label statements</b></p> <p data-bbox="292 1164 1522 1198">The following statements (or equivalent) are required to be included on the substance product label:</p> <ul data-bbox="347 1209 1522 1697" style="list-style-type: none"> <li data-bbox="347 1209 1522 1243">• Tri-Form 60 shall only be used for soil fumigation.</li> <li data-bbox="347 1249 1522 1283">• Tri-Form 60 shall not be applied into or onto water.</li> <li data-bbox="347 1290 1522 1357">• The maximum application rate for Tri-Form 60 is 650 kg Tri-Form 60 per hectare, a maximum of 2 applications per year with a minimum application interval of 120 days.</li> <li data-bbox="347 1364 1522 1464">• The soil temperature at the depth of injection shall be a minimum of 5°C and shall not exceed 27 °C when measured at the beginning of the application of Tri-Form 60 when the soil is to be immediately covered with plastic sheeting.</li> <li data-bbox="347 1471 1522 1572">• The soil temperature at the depth of injection shall be a minimum of 10°C and shall not exceed 27°C at when measured at the beginning of the application of Tri-Form 60 when an alternative means of sealing the soil surface is used.</li> <li data-bbox="347 1579 1522 1697">• The moisture content of the soil must be either— <ul data-bbox="403 1624 1522 1697" style="list-style-type: none"> <li data-bbox="403 1624 1522 1657">(a) greater than or equal to 70% when measured with a tensiometer, or</li> <li data-bbox="403 1664 1522 1697">(b) between 75-100% as defined by the USDA Feel and Appearance method.</li> </ul> </li> </ul> |

<sup>2</sup> This method is described in the document entitled “Estimating Soil Moisture by Feel and Appearance” and can be found on the USDA website: <http://www.usda.gov/wps/portal/usda/usdahome> .