

WORKSAFE

APP203974

WORKSAFE ADVICE

WorkSafe advice on the reassessment application
Hydrogen cyanamide and hydrogen cyanamide containing
formulations

30 July 2021

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1 INTRODUCTION

This is WorkSafe New Zealand's (WorkSafe) review of Application APP203974 (Hydrogen cyanamide and hydrogen cyanamide containing formulations - Reassessment).

Every year 750-900 people die prematurely as a result of work-related ill-health, much of which is from chemical exposure. As the regulator of workplace health and safety, WorkSafe has a role in leading, influencing and leveraging the health and safety system to improve health and safety outcomes.

WorkSafe's role in the wider health and safety system involves reviewing applications for new substance approvals and providing advice to the Environmental Protection Authority (EPA) to ensure that the risks associated with the use, handling, manufacture and storage of substances approved in New Zealand can be managed adequately.

The following report is based on information from the EPA (as reassessment applicant) and NZKGI (information submitted in response to the EPA's Call for Information).

2 APPROVAL PROCESS

The controls for hazardous substances and duties to mitigate the risks that hazardous substances pose sit under two regimes:

- the Hazardous Substances and New Organisms Act 1996 (HSNO) for non-work, public health and environmental risks, and
- HSWA for work-related risks (including the HS Regulations and other regulations).

HSWA gives WorkSafe responsibility for setting, administering and enforcing controls to mitigate the health and safety risks of using, handling, storing or manufacturing hazardous substances in the workplace. Since December 2017, the workplace controls for hazardous substances have been set in the HS Regulations and relevant safe work instruments (SWI) under HSWA.

Under (HSNO), the EPA is responsible for approving and classifying hazardous substances.

This division of roles requires the EPA and WorkSafe to work together to assess hazardous substances applications, to ensure the appropriate controls from each regime are applied to safeguard people (both at work and outside the workplace) and the environment.

The objectives of WorkSafe's participation in the hazardous substance applications process are to ensure that:

- hazardous substances at work are treated in a way that protects workers and other persons against harm to their health, safety, and welfare by eliminating or minimising risks arising from work, contributing to reduced incidence of work-related ill-health
- WorkSafe maintains a constructive and collaborative relationship with the EPA in assessing hazardous substance applications.

Consistent with the purpose of HSWA, regard must be had to the principle that workers and other persons should be given the highest level of protection against harm to their health, safety and welfare from hazards or risks arising from work, so far as is reasonably practicable.

Where existing controls under HSWA are not considered adequate, additional or varied controls may be imposed only by way of a safe work instrument.

3 RELEVANT REGULATIONS

In reviewing this application WorkSafe has considered the PCBU's obligations under:

- HSWA
- the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (the GRWM Regulations), and
- the HS Regulations.

In assessing the adequacy of the default hazardous substances controls, WorkSafe also takes account of other relevant requirements under the health and safety legislative framework, for example duties:

- to manage risks associated with substances hazardous to health by applying the hierarchy of controls (regulations 5 to 8 and 28 of the GRWM Regulations)
- to provide information, supervision, training and instruction (regulation 9 of the GRWM Regulations)
- to provide workplace facilities (regulations 10-11 of the GRWM Regulations) including ventilation and facilities to control airborne contaminants
- to provide personal protective equipment (regulation 15 of the GRWM Regulations)
- to carry out exposure monitoring and health monitoring (regulations 32-42 of the GRWM Regulations,).

'Upstream duties', or the duty of a PBCU who designs, manufactures, imports or supplies a hazardous substance to ensure that a substance is without risks to the health and safety of persons so far as is reasonable practicable, may also apply (sections 39-42 of HSWA).

WorkSafe's advice to the EPA may refer to any of the above duties.

3.1 Upstream Duties

Upstream duties are relevant if a new substance has properties that make it more hazardous than existing similar products, for example, if it has a non-active ingredient (such as a surfactant) that is more hazardous than similar ingredients in similar products. The similar products demonstrate that it is possible to avoid the hazard.

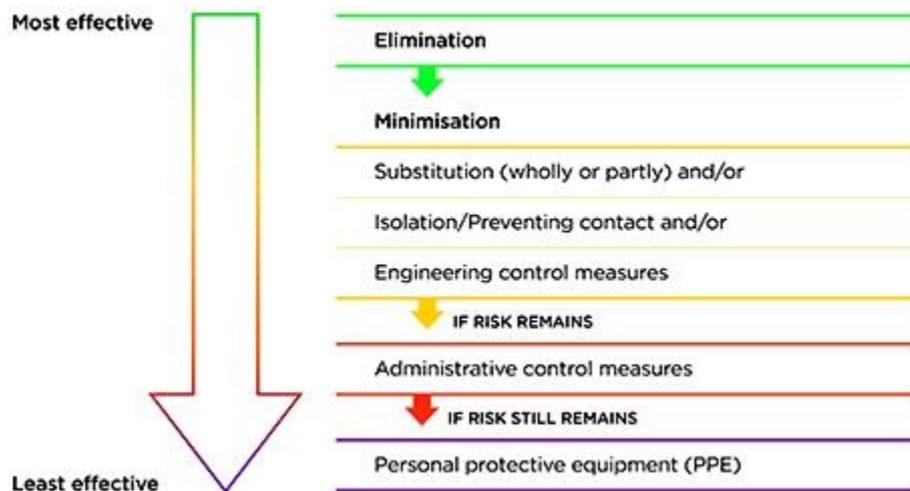
3.2 Hierarchy of Controls

Under section 30(1)(a) of HSWA the PCBU must eliminate risks to health and safety so far as is reasonably practicable. If this is not reasonably practicable, the PCBU must minimise the risks so far as is reasonably practicable following the hierarchy of controls.

The hierarchy of controls is set out in regulation 6 of the GRWM Regulations.

If elimination is not possible, a PCBU must consider (in this order):

- Substitution, isolation, engineering control measures
- administrative controls
- personal protective equipment (PPE): If risk remains after all other measures have been applied, the PCBU must supply and ensure the use of personal protective equipment.



Personal protective equipment (PPE) may need to be used or worn to minimise health risks, but should only be used as an exposure control measure to minimise risk when other control measures alone can't adequately do so.

The decision to choose PPE in the absence of control measures higher up the hierarchy must be based on the principles of reasonable practicability. Considerations of cost alone is not sufficient to determine 'so far as is reasonably practicable'.

PPE should not be the first or only risk management method considered, and WorkSafe expects PCBUs to give preference to other controls that protect multiple at-risk workers at once. Regard must also be given to providing the highest level of protection for workers and others, so far as is reasonably practicable.

4 ASSESSMENT

WorkSafe New Zealand (WorkSafe) has reviewed the available information for application APP203974 (Hydrogen cyanamide and hydrogen cyanamide containing formulations). We have determined that the default controls set out in the *Health and Safety at Work (Hazardous Substances) Regulations 2017* (the HS Regulations) do not adequately manage the risks to bystanders and worker health and safety. Further information is required to determine whether additional controls could adequately manage the risks identified by the EPA risk assessment.

WorkSafe has reviewed this application taking into consideration the PCBU's obligations under:

- the Health and Safety at Work Act 2015 (HSWA);
- the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (the GRWM Regulations), and
- the Health and Safety at Work (Hazardous Substances) Regulations 2017.

We have based our advice on the information provided in the following documents:

- Application Form
- Science Memo
- New Zealand Kiwifruit Growers Incorporated (NZKGI) Human Health Risk Assessment for kiwifruit

5 ADVICE

WorkSafe has assessed the available information for APP203974 and considers that compliance with the HS regulations and Health and Safety at work (General Risk and Workplace Management (GRWM) Regulations will not adequately reduce the risks associated with the use of this substance in the workplace.

Based on the human health risk assessments carried out by the EPA and the kiwifruit specific risk assessment carried out on behalf of New Zealand Kiwifruit Growers Incorporated (NZKGI), WorkSafe has concerns for the health of workers and the ability of PCBUs to manage the risks of using hydrogen cyanamide appropriately.

Classification Changes

The EPA has proposed significant changes to the classification of hydrogen cyanamide. Changes include adding a carcinogenic 6.7B classification and increasing the skin and eye classification from irritant to corrosive 8.2C and 8.3A.

PCBUs using substances that are confirmed or possible carcinogens must consider substituting carcinogenic substances with alternative, less hazardous substances.

If elimination and substitution is not feasible, PCBUs must apply controls as per the hierarchy of control specified in the GRWM regulations.

Worker Exposure

The EPA derived acceptable level of operator exposure to hydrogen cyanamide is 0.01 mg/kg bw/d. The modelling carried out by the EPA predicts that for kiwifruit at the top application rate, operator exposure will be up to 30 times higher than the acceptable level even when full PPE, including a respirator, is worn. At the lower modelled application rate, operator exposure will be up to 13 times higher than the acceptable level .

The EPA modelling indicates that even when engineering controls, enclosed mixing and loading system, and enclosed cab application are used, operator exposure would be up to 8 times greater than the acceptable level of exposure, if the operator was doing both mixing and loading, and application (which we understand is the norm).

WorkSafe requires more information from the horticulture industry about

how worker exposure could be reduced below the acceptable level. Such information could include, recent developments relating to closed mixing and loading systems, their effectiveness and their availability in New Zealand, and developments in enclosed cab air quality systems.

The EPA considered that an assessment of re-entry worker exposure was not required. The basis for this was that spray application is done when the vines and trees are dormant, so it is unlikely they will have leaves. Any assessment using foliar contact is therefore likely to overestimate exposure.

WorkSafe agrees with the EPA justification for not carrying out a re-entry assessment and concludes that a restricted entry interval is not required.

Bystander Risks

Depending on the application rate, the modelling estimates that buffer zones between 28-34m are required to protect bystanders from airblast spraying of apples, and buffer zones between 4-8m are required for kiwifruit airblast spraying. If this substance approval is retained, we recommend that the EPA establish buffer zone requirements to protect bystanders.

Certified Handler and Tracking

Based on the risk assessments carried out by NZKGI and the EPA, there are significant risks to workers when using this substance that, if not managed appropriately, could lead to serious health effects. The EPA modelling estimates that even with high-level engineering controls in place, such as enclosed mixing and loading systems and enclosed cabins, the exposure may be higher than the acceptable operator exposure level (AOEL).

If this substance approval is retained, we recommend that a certified handler control is applied to this substance to ensure users are adequately trained and aware of these obligations under the HSW Act.

More information required

In summary, WorkSafe needs more information to determine appropriate controls. The following information is requested:

- how industry is recording the use of hydrogen cyanamide
- information on recent developments relating to closed mixing and loading systems, including how effective they are and their availability in New Zealand
- measures such as automation that PCBUs could implement to

- reduce the worker exposure to acceptable levels
- refined or higher tier modeling for operator exposure when using enclosed cab and enclosed mixing and loading systems.