

# WORKSAFE

## APP202804

## WORKSAFE ADVICE

**WorkSafe advice on the application for approval to import and use ethanedinitrile as a phytosanitary treatment of wood products**

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# 1 INTRODUCTION

This WorkSafe New Zealand (WorkSafe) review of Application APP2002804 proposes setting requirements additional to those under the Health and Safety at Work (Hazardous Substances) Regulations 2017 (the HS Regulations) for ethanedinitrile (EDN) when used as a fumigant.

Every year 600-900 people die prematurely as a result of work-related ill-health. This is unacceptable. 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, and has firm targets and priorities to transform New Zealand's workplace health and safety performance.

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 any new substances approved in New Zealand can be managed adequately.

The following report is based on the information provided with the application, the EPA assessment and submissions received by the EPA for this application.

WorkSafe's review of this application has raised some areas of concern. As a result, WorkSafe is proposing controls based on the guiding principle of the Health and Safety at Work Act 2015 (HSWA), that workers should be given the highest level of protection against harm to their health, safety and welfare from hazards arising from work.

## 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 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 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:

- 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
- Provide personal protective equipment (regulation 15 of the GRWM Regulations)
- 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 reasonable practicable, may also apply (sections 39-42 of HSWA).

WorkSafe's advice to the EPA may refer to any 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

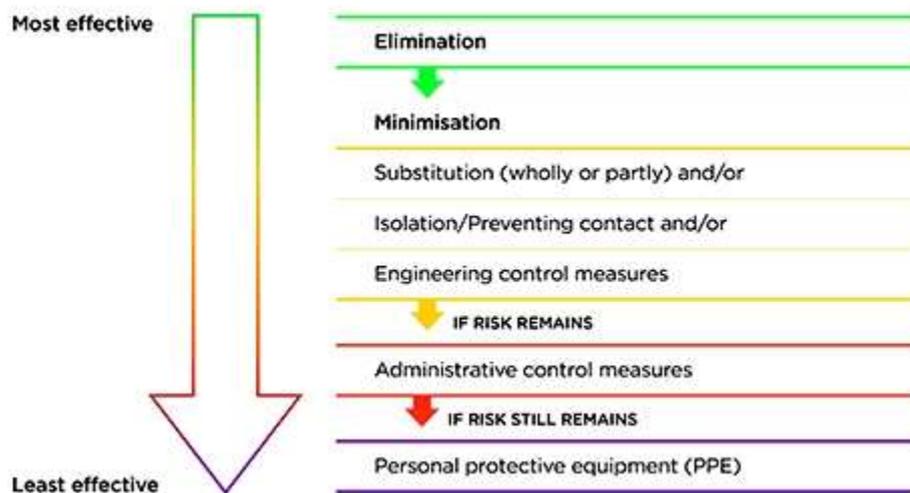
Under section 30(1)(a) of HSWA the PCBU must eliminate risks to health and safety so far as reasonably practicable. If this is not reasonably practicable, the PCBU must minimise the risks so far as is reasonably

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 a control measure to minimise or eliminate risk when other control measures alone can't adequately do so.

The decision to choose PPE in the absence of other 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 control 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

### 4.1 Appropriate Respiratory Protective Equipment (RPE)

Bruce Graham's report stated that the modelling results are not suitable for making decisions about workers operating closer than 10 metres to the log piles, but that anyone standing close to the log piles when the tarpaulins are removed has the potential to be exposed to instantaneous concentrations of between 'say' 700 to 5200 ppm.

In regard to this comment it should be noted that:

- a) Air purifying respirators (whether half face respirators, or the full face respirators discussed in the application) should never be used in situations where the IDLH may be reached or exceeded (as per AS/NZS 1715, Dräger and 3M technical guides, and the APVMA approval). As the IDLH is 50ppm (based on cyanide), air purifying respirators **should not be used for workers** working near the sheets during fumigation and venting, and only air supplied or self-contained breathing apparatus could be used.
  
- b) However, even if the IDLH wasn't an issue, an air purifying respirator could not be considered for use by workers near fumigation as:
  - based on the 8 hour WES-TWA of 3 ppm that WorkSafe will be adopting, the required minimum protection factor\*<sup>1</sup> would need to be between 233 and 1733 (700/3 and 5200/3)
  - for short high exposures, based on the WES-excursion limit (ceiling) of 5 ppm that WorkSafe will be adopting, the required minimum protection factor would need to be between 140 (700/5) and 1040 (5200/5)
  - AS/NZS 1715 (2009) Table 4.5 (on selection of filters for gases and vapours) states that a half face piece air purifying respirator (with cyanide appropriate filters) can only be used up to a concentration of 1000 ppm, and as such could not be considered
  - a full face piece P3 air purifying respirator (with cyanide appropriate filters) can be used up to a *maximum* of 10,000ppm, but only provides a protection factor up to 100

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<sup>1</sup> The protection factor required to reduce exposure to an accepted level. It is expressed as a ratio of the measured ambient airborne concentration of a contaminant to an acceptable exposure level or standard (AS/NZS 1715 (2009) Selection, use and maintenance of respiratory protective equipment).

(as such wouldn't provide the range of protection factors that may arise).

Considering the above points, the only option for workers near fumigation (e.g. applying fumigant, leak testing and venting) would be to use self-contained breathing apparatus (SCBA). WorkSafe is concerned that due to the level of training and maintenance required for SCBA, and because some people cannot use it for medical reasons, PCBUs may allow workers to wear air purifying respirators as an alternative. This possibility further supports our case for reducing the gas concentration by means such as recapture before venting.

The following information from Bruce Graham's report highlights that assessing risk during fumigation is difficult, and as such a conservative approach to control is appropriate:

- modelling the release of fumigant from log piles is not well-established and there is a high degree of uncertainty about the modelling results in the report.
- The movement of gases from a log pile release will be significantly affected by any induced draft caused by the tarpaulin removal and by any micro-meteorological effects in and around the log piles (e.g. wind whirls and eddies).
- The modelling results are specific to Port of Tauranga and may not be directly relevant to more constrained locations such as Picton. This might have a significant effect on the dispersal and thus concentrations that could occur as the tarpaulin is being removed.
- A study showed typically about 10% of applied EDN was lost by permeation through the tarpaulin material over a 24 hour period (thus there is a possibility for exposure during fumigation).
- Studies indicate that about between 1 to 10% of the gas remains after fumigation and is thus available during venting. At an application rate of  $150\text{g/m}^3$ , 1% would be around 700 ppm and 10% would be around 7000 ppm. Of course this would be dispersed over the area of the logs and released in bursts as the tarpaulin is removed, but it shows that predicting the level of exposure is difficult.

- The modelling is based on determining 1 hour and 24 hour averages and does not address instant high results e.g. during the first phase of tarpaulin removal. Thus the conclusion that workers could safely operate at 10 metres distance does not account for short high exposures e.g. would the IDLH be reached at 10 metres given the right wind movement?

#### **4.2 Appropriate PPE**

The Australian Pesticides and Veterinary Medicines Authority (APVMA) have established rules around protective clothing. WorkSafe did consider applying requirements on clothing using a SWI, however, existing regulations that apply to this substance already require that appropriate personal protective equipment (including protective clothing) is worn.

Regulation 13.8 of the HS Regulations requires PPE in accordance with regulations 15 to 20 of the GRWM Regulations for work involving class 6.1B substances.

Regulation 17 of the GRWM Regulations requires that PPE is suitable having regard to the nature of the work and any associated hazards.

#### **4.3 Gas Monitoring Equipment**

The most feasible gas monitoring equipment for daily or regular use (MSA Ultima XA) has a limited range of measurement. It can read from 1ppm to 50ppm but note:

- The error is +/-2 ppm, or 20% (whichever is greater). As such the lowest verifiable reading is 2ppm. This is equal to the proposed WES-TWA. That does not pose a problem as it the WES-TWA refers to an 8 hour average level, and we expect that workers who may be at risk of being exposed to ethanedinitrile would be protected.
- Probably a more appropriate WES value for very short exposures would be the excursion limit of 5 ppm which is in effect a ceiling limit (a maximum level not to be exceeded at any time). If correctly calibrated the meter could detect 5 ppm sufficiently, although because it has an error of 2 ppm, a value of 5 ppm should be considered a value of between 3 – 7 ppm.

#### **4.4 Leak Detection**

When the meter reads a value above 50 ppm it shows 'failure'. The method proposed for leak detection is to assume that when the meter shows 'failure' there is a leak.

This is a concern as:

- if there is a reading above 50 ppm, the actual concentration wouldn't be known, and potentially complicates calculation of levels in excess of the IDLH), and
- the 'failure' may be due to a malfunctioning gas meter rather than a leak.

#### **4.5 Monitoring Under Sheets During Fumigation**

Bruce Graham proposed that one way to reduce the levels given off during venting would be to ensure gas levels should be below 'say 750 ppm' prior to venting. However, as the meter only measures up to 50ppm this would require a system of dilution and testing.

#### **4.6 TEL Monitoring**

The EPA has proposed a TEL of 0.034ppm. However, as the lowest quantifiable level a meter can read is 2ppm, levels below the proposed TEL could only be measured by assuming that a zero reading on the meter is actually zero. This is not best practice because the meter has an error of 2ppm. Consequently, any level below 2ppm cannot contribute to the calculated TEL.

#### **4.7 Recapture/Scrubbing Option**

Given the levels of EDN released from the stack after fumigation (700-5200ppm) in the Bruce Graham Report and the low TEL value proposed by the EPA, WorkSafe is considering making recapture/scrubbing a requirement.

As noted above, PPE should not be the first or only control 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.

APVMA requires scrubbing for at least 4 hours, and in its submission, Nordiko states that it can provide scrubbing/recapture equipment.

Considerable work is needed on recapture requirements. WorkSafe requests more information on possible recapture processes to determine whether or not recapture is reasonably practicable.

- The APVMA requires scrubbing for at least 4 hours. However, WorkSafe does not have access to the information used to set this requirement. WorkSafe would need access to scientific data to set an appropriate period for recapture.

- Given the large amounts of fumigation at ports, the limited space and the time pressures, multiple recapture systems are likely to be needed to speed up the process.
- A small-scale Nordiko study showed that log stack levels after liquid scrubbing dropped from 1170 ppm to 18 ppm after 23 hours. This indicates that recapture can take significant time.
- Air movement within the stack is likely to be variable. This was reflected in the Nordiko study which showed the concentrations further away from the scrubber reduced much slower and remained higher for longer compared with the sampling position closest to the scrubber. This could indicate a need for multiple recapture points for a large stack.
- Reported percentages of residual EDN released on venting vary considerably. For example, the APVMA indicates that residual EDN can be between 8% and 39%, meaning 8-39% could be available for release to atmosphere on venting. This differs from the application (and Bruce Graham's report), indicating residual EDN of between 1 and 10%. This variability is another reason to consider recapture.

#### **4.8 Re-Entry Period**

WorkSafe is considering imposing a re-entry period. This would depend on any other requirements put in place, such as recapture. Given the time pressures and limitations of the ports, and the timeframes of MPI requirements (e.g. that logs are loaded on a ship within 36 hours in hot weather) this requires careful consideration.

The APVMA states that fumigated timber cannot be handled for 24hr unless appropriate PPE is worn. This will have implications for moving logs from the fumigated area onto the ships.

#### **4.9 Buffer Zones**

WorkSafe is considering requiring a buffer zone. This would depend on other requirements, such as recapture. WorkSafe requires further information to determine an appropriate buffer zone, as current information is inconsistent.

- The applicant has proposed a buffer zone of 20m without recapture.
- APVMA has set a buffer zone of 50m with recapture.
- Bruce Graham has proposed a buffer zone of 60m without recapture.

#### **4.10 Prescribed Exposure Standards (PES)**

WorkSafe is considering setting a PES. PCBU's must ensure that no person at the workplace is exposed to a concentration exceeding a PES. Where a workplace exposure standard (WES) exists, a PCBU must also carry out exposure monitoring if not certain on reasonable grounds whether the concentration exceeds the WES.

From 28<sup>th</sup> February to April 11<sup>th</sup> 2018, WorkSafe consulted on a proposed change to the WES-TWA for EDN, which was last updated in 2002, from 10ppm to 2ppm. WorkSafe considered 10 ppm was inadequate to protect workers based on the current knowledge of health risk. The 2 ppm value was derived from overseas reviews carried out between 2003 and 2016.

Submissions were mixed. Some agreed with the proposed value, and others suggested lower or higher values or an additional (one-off) WES-ceiling or short term exposure limit.

Following its review of the submissions WorkSafe has adopted a WES-TWA of 3 ppm, having regard to the quantification limit and error of the gas detector, and a slightly less stringent uncertainty factor (or safety factor) applied to animal toxicity data.

WorkSafe has also adopted a WES-ceiling (peak or one off) of 5 ppm, based on:

- the acute risks from short high exposures during venting
- the lack of chronic health risk information in the toxicity data
- an 8 hour (or longer) WES-TWA will largely be a calculated value for fumigation workers based on results from instantaneous gas monitoring
- a well-documented WES evaluation from the ACGIH supporting that value, and
- the use of a conservative uncertainty (safety) factor that supports the purpose of HSWA to give regard to the highest level of protection for workers and other persons.

#### **4.11 Flammability**

Data indicates that a flammable atmosphere exists for a period during fumigation. As shipping containers and ship holds are likely to contain non-intrinsically safe ignition sources (lights and fans), WorkSafe does not consider that default controls for flammable atmospheres can be met in containers and ship holds. As such WorkSafe does not consider it appropriate to carry out EDN fumigations in those areas, or any other area that has non-intrinsically safe ignition sources.

#### **4.12 Health monitoring**

The SWI should include health monitoring requirements. As EDN and hydrogen cyanide are known to be ototoxic (causing hearing loss even without noise exposure), we consider it reasonably practicable for PCBUs to ensure fumigation workers undergo audiometry health monitoring.

We would also recommend respiratory function testing, given:

- the irritant properties of ethanedinitrile, and
- the reliance on RPE (hence the need to ensure workers using RPE do not have chronic respiratory disease that may preclude or affect the use of RPE).

#### **4.13 Biological exposure monitoring**

In the body, EDN metabolises into cyanide compounds. Blood testing would be appropriate for acute high exposure (e.g. an unintended release or escape), and urine testing would be appropriate for chronic, low exposures (e.g. as an on-going assessment of regular exposure).

Canterbury Health Laboratories in Christchurch can measure the levels of the cyanide metabolites in blood and urine samples. Other laboratories may also offer this test, however Canterbury Health Labs are widely used and samples can be easily transported to the lab from around the country.

This ensures that it is reasonably practicable to provide regular and acute biological exposure monitoring.

## 5 SAFE WORK INSTRUMENT

Under HSWA, SWI may be made for the purposes of prescribing rules, standards and methods for managing workplace risk. SWI are essentially rules enforceable by WorkSafe, allowing for greater flexibility and timelier updates to the regulatory framework, reflecting changes in technology, standards and health and safety practice.

HSWA defines the purposes of SWI as:

- *to define terms, prescribe matters, or make other provision in relation to any activity or thing, including (without limitation) listing standards, control of substances, and competency requirements.*

New SWI and amendments to existing SWI must be approved by the Minister for Workplace Relations and Safety (the Minister). In approving an SWI, the Minister must be satisfied that all appropriate persons and organisations have been adequately consulted in its development.

SWI are a disallowable instrument for the purposes of the Legislation Act 2012. This means they can be disallowed by resolution of the House of Representatives (Parliament). If this occurs, a SWI ceases to have any legal effect. The House of Representatives may also amend a SWI or replace it with another instrument.

Because they are a disallowable instrument, SWI must be developed and made in accordance with their enabling legislation and the SWI development process must be rigorous and transparent. All proposed SWI requirements must go through a public consultation.

### 5.1 Criteria for Developing Safe Work Instruments

SWI have legal effect only to the extent that they are referred to in regulations. WorkSafe will only develop SWI where they have legal effect. Following good regulatory practice, decisions to make a SWI will be guided by an evidence-based assessment of the need for regulation and whether the proposed SWI will be effective in addressing the health and safety risk it seeks to address, using credible, robust evidence. WorkSafe will be satisfied that the costs for duty holders imposed by an SWI are not disproportionate to the health and safety risk it seeks to address.

WorkSafe will develop SWI to target health and safety risk and to advance the purpose of HSWA, that 'workers and other persons should be given the highest level of protection against harm to their health, safety and welfare from hazards and risks arising from work as is reasonably practicable'.

SWI may be developed to vary or set additional workplace controls, to the

extent that this is provided for in regulations, if prescriptive and mandatory requirements are necessary to ensure workers and other persons are provided the highest level of protection against harm to their health and safety.

In developing SWI for hazardous substances, WorkSafe will generally only develop class-wide controls. SWI for individual substances will only be developed in extraordinary circumstances. Where the need for change is specific to an individual site or PCBU, an exemption under section 220 of HSWA may be more appropriate.

## **5.2 Proposed Controls for EDN**

In order to ensure workers and other persons are provided the highest level of protection from the risks posed by the use of EDN, WorkSafe proposes making two new SWI with the specific purpose of setting out PES and health monitoring requirements, and adding new clauses to an existing SWI:

### Two new SWI giving effect to provisions of the General Risk and Workplace Management (GRWM) Regulations

For the purposes of regulation 29 of the GRWM Regulations, WorkSafe proposes to make a new SWI to prescribe exposure standards, thereby making the following values mandatory:

- TWA 8 hour 3ppm
- Ceiling 5 ppm

For the purposes of regulation 31 and 34 of the GRWM Regulations, WorkSafe proposes to make a new SWI to require health monitoring, in this case annual audiometry testing.

### Amendment to the Health and Safety at Work (Hazardous Substances – Additional and Modified Requirements for Specified Class 6 and 8 Substances) Safe Work Instrument 2017

Under regulation 13.46(4)(a) of the HS Regulations, WorkSafe plans to amend the above SWI to set the following additional requirements for EDN:

- recapture to protect workers and other people in the workplace from exposure to EDN.
- set a buffer zone to manage risks to other people in the workplace
- set entry restrictions for the buffer zone

### Additional controls set by WorkSafe (not requiring a SWI)

WorkSafe proposes to set a re-entry interval (REI) for EDN under regulation 13.23 of the HS Regulations.

## 6 DISCUSSION & RECOMMENDATION

Consistent with the purpose of HSWA, WorkSafe aims to provide workers and others affected by work the highest level of protection which is reasonably practicable.

Any storage, handling, use or manufacture of hazardous substances in the workplace (including EDN) is subject to HSWA and any applicable regulations under HSWA, such as the HS Regulations, the GRWM Regulations, and any others. Appendix 2 List the controls in the HS Regulations that will apply to EDN.

If WorkSafe decides that the risk posed by a substance necessitates controls additional to those established in HSWA, these are put in place using a SWI (subject to the Minister's approval).

If the EPA approves EDN, WorkSafe may propose a SWI to:

- prescribe exposure standards
- require health monitoring
- require recapture
- set a buffer zone
- set entry restrictions for the buffer zone.

WorkSafe may also set an REI under the HS Regulations.

The limitations of monitoring equipment and provision of recapture will be key considerations for determining which additional controls WorkSafe will set for EDN.

WorkSafe considers recapture the best way to reduce worker exposure and to keep release of EDN to a minimum, thereby ensuring the TEL is not breached. Recapture will also determine the length of the REI and size of buffer zones. However, some questions remain regarding recapture:

- What is the lowest reasonable recapture level?
- How long would this take?
- How would the level be measured?

WorkSafe requires more information on the effectiveness, reliability, practicality and capability of recapture technology. The application does not provide information on the benefits and drawbacks of recapture because it assumed that this process would not be required.

Under HSWA, all PCBUs must ensure appropriate PPE (including RPE) is provided to workers. If EDN is approved, RPE appropriate to the risk will

be required. This will depend on the effectiveness of recapture.  
WorkSafe does not consider it appropriate to carry out EDN fumigation in shipping containers or ships holds unless evidence is provided to show that the risks of flammable atmosphere zones can be managed  
WorkSafe will seek feedback on its proposed controls at the application hearing and looks forward to resolving our queries at the hearing.

# APPENDICES

## Appendix 1: Glossary

Term	Meaning
AS/NZS	Australia/ New Zealand Standard
Ceiling	A maximum level not to be exceeded at any time
GRWM Regulations	Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
HS Regulations	Health and Safety at Work (Hazardous Substances) Regulations 2017
HSWA	Health and Safety at Work Act 2015
IDLH	Immediately Dangerous to Life or Health: A situation that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment [NIOSH 2004].
PES	Prescribed exposure standard
PPE	Personal protective equipment
RPE	Respiratory protective equipment
SWI	Safe work instrument
TEL	Tolerable exposure limit
TWA	Time-weighted average
WES	Workplace exposure standard

## Appendix 2: Default Controls from the HS Regulations Applying to EDN.

Regulation	Control description
2.1 – 2.4	Labelling of hazardous substances
2.5 – 2.7	Signage requirements
2.11	Duty of PCBU to obtain and provide access to safety data sheets
2.12 – 2.13	Packing of hazardous substances
3.1	Duty of PCBU to keep hazardous substances inventory
3.2	Managing risks associated with hazardous substances
3.3	Duty of PCBU to review control measures
4.1 - 4.4	Certified handlers
4.5 - 4.6	Supervision and training of workers
5.2 - 5.5	Fire extinguishers
5.6 - 5.13	Emergency response plans
8.1- 8.2	Compliance certification
8.3	Public transportation of class 1 to 5 substances (except LPG)
10.3	General controls on class 2, 3, and 4 substances
10.4	Substances that must be secured
10.5	Requirement to segregate class 2, 3, and 4 substances
10.6	Duty of PCBU to establish a hazardous area
10.7	Application of other legislation to electrical systems located in hazardous atmosphere zones
10.8-10.20	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2, and 3.1 substances
10.26	Duty of PCBU to establish hazardous substance location
10.34	Requirement to have compliance certificate if class 2.1.1, 2.1.2, or 3.1 substance present at hazardous substance location
10.37	Requirement for transit depot

Part 11	Controls relating to the adverse effects of unintended ignition of class 2.1 and 3.1 substances
13.3	Duty of PCBU to keep record of application of certain class 6 and 8 substances
13.7	Duty of PCBU to ensure equipment is appropriate
13.8	Use of personal protective equipment when working with class 6 or 8 substances
13.9	Certain substances to be under personal control of certified handler or secured
13.11	Exception for transportation of packaged substances
13.13	Licences required for supply and acquisition of certain class 6 substances
13.14	Carriage of certain class 6 and 8 substances on passenger service vehicles
13.18	Prohibition on use of class 6 substance in excess of tolerable exposure limit
13.16	Additional restrictions relating to the transport of certain vertebrate toxic agents and fumigants
13.18	Duty of PBCU to ensure prescribed exposure standards for class 6 substances not exceeded
13.26	Storage of certain class 6 and 8 substances not located at hazardous substance location
13.27	Requirements applicable to farms
13.28	Controls on transit depots where class 6 or 8 substances present
13.29	Duty of PCBU relating to segregation of class 6 and 8 substances
13.34	Duty of PCBU to establish hazardous substance location where certain class 6 or 8 substances present
13.35	Requirements for stores other than indoor storage cabinets
13.36	Requirements for indoor storage cabinets for class 6 substances
13.38	Compliance certificate required for hazardous substance location
13.41	Minimum separation between protected places and hazardous substances locations containing packaged class 6.1 substances
13.42	Minimum separation between public places and hazardous substances locations containing packaged class 6.1 substances

13.45 Additional emergency management requirements for class 6

Part 14 Additional controls for fumigants

Regulation 14.3	Fumigants under the personal control of certified handler
Regulation 14.5	Exemption for transport of packaged fumigants
Regulation 14.6	Licence required for possession of fumigant
Regulations 14.7-14.9	Notification requirements
Regulation 14.10	Signage requirements
Regulation 14.15	Supervision of fumigation
Regulation 14.16	Ventilation of fumigation
Regulation 14.17	Completion of fumigation and notice of completion
Regulation 14.18	Record keeping requirements

Part 15 Requirements for Gases under Pressure

Part 16 Requirements for Tank Wagon and Transportable containers

Part 17 Requirements for Stationary Container Systems

# REFERENCES

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*Review of an Assessment of Ethanedinitrile for Log Fumigation*. Report to the Environmental Protection Authority Prepared by Dr Bruce Graham April 2018