



FAQs arising following the release of the EDN Decision by the EPA

What is the significance of the EPA decision permitting the use of EDN in New Zealand

The EPA decision approving EDN allows the use of an alternative to methyl bromide as soon as trading partners and Resource Management Act consents are in place. The controls determined by Worksafe and the EPA for EDN are less stringent than those for methyl bromide fumigations.

Significantly the EPA decision means that MPI can continue to progress negotiations with trading partners on acceptance of EDN as an option for use to meet importing country phytosanitary requirements. MPI supports the use of EDN as a potential alternative to methyl bromide use as a phytosanitary and biosecurity treatment.

Market access negotiations

When the efficacy data sets for EDN and reduced rates of methyl bromide became available in 2019 MPI formally sought approval from China and India to include EDN in the phytosanitary treatment schedules. At the same time requests for approval to reduce the rates of methyl bromide used were also made to both countries. Since 2019, MPI has held technical bilateral discussions with Chinese and Indian officials to further progress NZ's proposals.

India has recently requested further information on EDN treatment efficacy. MPI is engaged with officials from India's Department of Agriculture and Farmers Welfare and industry partners to meet this request.

What will EDN cost to fumigate logs compared to other treatments

Draslovka has advised that EDN fumigation will be comparable to that of methyl bromide fumigation (without the cost of recapture). At this point STIMBR cannot confirm a hard cost of EDN fumigation. Methyl bromide fumigation has always been more costly than phosphine and more so when methyl bromide recapture costs are included. EDN fumigation costs will be competitive with methyl bromide and debarking.

Does this mean MB will no longer be able to be used

MB use will be determined by market requirements and the ability to meet the stringent buffer and recapture requirements determined by the EPA in the 2021 Reassessment Decision. While acknowledging the impacts of methyl bromide on the ozone layer it is important that methyl bromide remain in the treatments tool kit with appropriate recapture controls. Having EDN available provides a very workable and attractive alternative solution.

Why is EDN important

At the outset of the STIMBR research programme in 2011 the goal was to identify, confirm and move to a more sustainable economically viable alternative to methyl bromide. The EPA decision to approve EDN for use in New Zealand provides for that outcome. While MPI has yet to gain approval

to include EDN in the treatment schedules to our key markets that task should be made easier now the EPA has approved EDN for use in New Zealand.

What does STIMBR think of this approval

STIMBR is pleased to have a proven alternative to methyl bromide that is environmentally more friendly, and is not difficult or more costly to use, so that the trade in export logs can continue. The need for additional phytosanitary tools has become even more apparent with the removal of the trade with India and the limited capacity to debark all the volume for China that would have been previously treated with methyl bromide.

What significant benefits does EDN bring

- EDN efficacy is supported by a very robust data set for the pest species of concern associated with *Pinus radiata*
- A buffer for the public of 50m has been determined by the Worksafe whereas significantly larger buffers are required for methyl bromide
- Recapture of EDN before venting is not required as there is very little gas left following the fumigation to be recaptured
- EDN is environmentally sustainable as it is neither a greenhouse gas nor does it deplete ozone.

How does the recent EDN decision compare with the 2021 Methyl bromide decision

In short EDN has less stringent controls than those assigned by regulators to methyl bromide in 2021. These requirements reflect the bodies of evidence considered by the EPA for both fumigants in recent years.

A comprehensive table listing the regulatory requirements for EDN and methyl bromide is appended to this document.

Can the industry have confidence in this alternative to methyl bromide

The industry can now move forward knowing that the efficacy data for EDN is robust, durable and importantly defensible. It will stand the test of time. Additionally, the industry is now in a position where it can move to a proven alternative to methyl bromide confident in knowing that Worksafe and the EPA have subjected the molecule to rigorous assessments before approving its use in New Zealand.

How can we be sure that EDN is safe

The Chairman of the Decision making committee (DMC) Dr John Taylor has recognised the challenges and the rigour that was applied to evaluating EDN. In the Decision Executive summary he wrote;

“Assessment of a new fumigant within the hazard classification applicable to EDN was a significant undertaking. This was particularly so given the absence of approvals (and associated documentation) for the use of EDN sought by the applicant in international regulatory jurisdictions which New Zealand often aligns with. The applicant and STIMBR provided extensive data in support of the application and 43 parties made submissions on the application.”

Going on to say in the Decision (Page 37);

“5.2 In making its decision, the Committee took into account best international practices and standards for the safe management of hazardous substances.

“5.3 The Committee considered that, with controls under the HSNO Act and the HSW Act in place, the risks to human health and to the environment will be negligible, and the benefits associated with the release of this substance will outweigh the adverse effects. Therefore, the Committee has made the decision to approve with controls (presented in Appendix D) the import or manufacture of EDN for release in accordance with section 29 of the HSNO Act and clause 26 of the Methodology.”

Was Worksafe involved in the approval process

Work Safe played a critical role in reviewing the data to evaluate risk in the workplace and consequently developed a Safe Work Instrument for EDN which sets out the use requirements to protect the public and workers when EDN fumigations are undertaken.

Compliance with the two sets of controls required by our regulators will ensure in the words of Dr John Taylor “..... *the risks to human health and to the environment will be negligible, and the benefits associated with the release of this substance will outweigh the adverse effects.*”

Will those using EDN be trained to apply the product

As part of its stewardship programme, the manufacturer, Draslovka has been working with Worksafe preparing a Good Practice Guide for EDN fumigations which will be released once the Safe Work Instruments are signed off by the Minister for Workplace Relations and Safety. Under the provisions of the Hazardous Substances and New Organisms Act, controlled substance licence holders will be trained to enable them to train and evaluate certified handlers to use EDN. The first training course will occur in June 2022 for controlled substance licence holders. This will enable certification of certified handlers in mid to late July 2022.

Are the controls reasonable

Yes, and the controls have been designed to keep all those in the port and surrounding communities safe while providing controls which are workable on the port. The decision provides reasonable, workable controls without the need to recapture any remaining gas at the end of fumigations. A buffer of 50 metres is required for the public and continuous monitoring is required. Monitoring will be used to set an affected area within which PPE must be worn and to ensure any increase in the levels of EDN surrounding the fumigation enclosure can be quickly dealt with.

What is the minimum temperature that EDN can be used

There is no minimum temperature. EDN boils at minus 21 degrees Celsius. This is a significant advantage as EDN does not require the heating coil required for methyl bromide and can be used to fumigate New Zealand logs and timber even at the lowest temperature's found on our ports. In trials in Korea EDN was used successfully to treat logs infested with the insect vector of pine wood nematode (not present in New Zealand) at temperatures below freezing.

Will the loading timeframes following venting of EDN treatment be changed

There is no reason why the time requirements for loading following venting of stacks treated with EDN should differ from those used historically for methyl bromide fumigations.

Can EDN be used in ship-holds

The EPA did not approve EDN treatment of ship-holds. Worksafe has advised Draslovka that it will prepare a Safe work instrument when real world data from ship hold fumigations becomes available. Draslovka has advised the EPA that it intends to lodge an application with the EPA seeking a reassessment for ship-holds once it has compiled the needed data. Draslovka has permission from Australian regulators to collect the required data from ship-hold fumigation and intends progressing these trials soon. Tests conducted in 2021 in Australia indicate that ship-hold treatment is feasible. Industry support will be welcome to develop the required data and case.

What are the hurdles remaining following EPA approval of EDN

While EDN is now registered for use in NZ on exports, there remain some hurdles to overcome, the most significant of these being the need to gain importing country approval of EDN as a phytosanitary treatment and internally in NZ, ensuring there are fumigators to use the product and obtaining the required Resource Management Act consents specific to each port. Work with trading partners (India and China) has been ongoing for some time. The release of this decision adds new impetus to these negotiations. Australia has already approved the use of EDN on processed wood exported from New Zealand.

When will we be able to use EDN in New Zealand

Consent will be required from the relevant regional council and importantly trading partners before EDN can be used on log stacks. When regional council approvals are granted. EDN will be able to be used to treat timber products bound for Australia during the *Arhopalus* flight season as Australia has previously approved this use.

Worksafe has advised Draslovka that all administrative work associated with the EPA and Worksafe approval processes should be completed by mid-July 2022. Draslovka will be working with Port Authorities and hopes to have EDN used in at a least one port before year end.

Genera's application seeking renewal of the consent it holds is yet to be notified. Any decision arising following the hearing is likely to be contested. Anticipate 18 months from the hearing date possibly more.

Other parties may seek consent to use EDN in regions where EDN may be used to fumigate logs and forest products. With the exception of Northport, applications are most likely to be notified to the public and submissions called for, resulting in a potentially drawn out process.

Resource Consents in New Zealand

The Bay of Plenty Regional Council requires fumigation service providers to seek consent to discharge to air. Genera has included EDN in the suite of fumigants it intends to use in the application to Council seeking renewal of the consent it holds.

Northport holds a consent from the Northland Regional Council which permits the port to undertake fumigations at the port. The port company must seek agreement from council staff to add fumigants to the list it holds approval for. The addition of fumigants approved by the EPA and Worksafe does not require notification.

Are there any other Ports that have shown an interest in the use of EDN

There has been discussions with Port of Tauranga and Northport with regard to EDN. Demand for EDN use at these and other ports will be driven by industry identifying where opportunities exist. The need for consent in each area is likely and will need to be confirmed on a case by case basis.

An alternative of off port fumigation may also be considered at some sites, but does have the disadvantage of the requirement to have treated logs on board a ship within the prescribed timeframes.

Recently the following statement appeared . . . “Most importantly, EDN is better for the health and safety of fumigation workers and the surrounding communities.” Is this valid or is this one person’s interpretation?

The words used are both fair and reasonable given that the EPA Decision making committee has reported its’ assessment of EDN in the EPA Decision document. In the Decision Chairman, Dr Taylor states;

“.....The Committee has considered all the effects of this substance throughout its life cycle, the controls that may be imposed on this substance, and the likely effects of this substance being unavailable. ..”

Concluding;

“The Committee considered that, with controls under the HSNO Act and the HSW Act in place, the risks to human health and to the environment will be negligible, ..”

APPENDIX 1: Comparison of the Methyl bromide and EDN regulatory controls in New Zealand

Controls for Ethanedinitrile (EDN™) and Methyl bromide (MB) as of April 2022

As determined by the EPA and Worksafe

Notes:

1. This table records the chemical specific requirements documented in the respective decisions by Worksafe and the NZ EPA .
2. The default controls that result from the hazard classification for EDN™ and Methyl Bromide are the same except the requirements under Health and Safety at Work (Hazardous Substances) Regulations 2017 Part 7 Controlled substance licences.
3. MB also has a series of controls that are increasingly restrictive. The controls documented in this chart are those required in 2022 and then in 2030 (unless otherwise mentioned).
4. In several controls (notification of neighbours, data collection and reporting) the EPA decision and WorkSafes SWI provide details about what is required and have not been included in their entirety. These lists are very similar for both EDN™ and MB.
5. Regional Councils may impose additional requirements which are not included here.
6. MPI also has some data collection requirements to prove that the fumigation has been performed in accordance with its fumigation standard. Again; these are not included in this chart.

Key

- No shading is an EPA control
- Green shaded indicates a WorkSafe control

	Ethanedinitrile (EDN™)	Methyl bromide(MB)
TEL air -1 hr	not required	1 ppm or 3.9 mg/m ³
TEL air - 24 hr	0.034 ppm (0.072 mg/m ³)	0.333 ppm or 1.3 mg/m ³
TEL air chronic (annual average)	not required	0.0013 ppm or 0.005 mg/m ³
WES - 8 hour (WES - TWA)	3 ppm (6.4mg/m ³)	5 ppm (19 mg/m ³)
WES ceiling WES - STEL	5 ppm (10.6mg/m ³)	
Ship hold fumigations	Not approved <i>Note: Draslovka will seek a reassessment once data is prepared (underway)</i>	• Ended 1/1/2022
Dose to concentration	None	• Dose to concentration must occur from 1/1/2024
Maximum application rate	<ul style="list-style-type: none"> • 120 grams/m³ <p><i>Using the results of the efficacy data set for EDN™ MPI is seeking approval from trading partners for a schedule rate of 100 grams/m³</i></p> <p><i>Note: Treatment rate is not temperature dependant</i></p>	<ul style="list-style-type: none"> • India: 48 - 72 g/m³ for 24 hrs • China: 80 - 120 g/m³ for 16 hrs <p><i>Note: these are maximum rates and can vary according to temperature</i></p>

<p>Applied to</p>	<ul style="list-style-type: none"> • Export timber and logs under a sheet/tarpaulin or in a shipping container <p><i>Note: A reassessment will be sought to extend the approval to imports</i></p>	<ul style="list-style-type: none"> • Logs, timber, imports, fruit , soil
<p>Impurity in the imported EDN™</p>	<ul style="list-style-type: none"> • Hydrogen cyanide at 1% v/v maximum 	
<p>Notification</p>	<ul style="list-style-type: none"> • Of the territorial authority with regard to the intention to carry out a fumigation at least 24 hours before a fumigation • Details are contained in the decision about notifying neighbours 	<ul style="list-style-type: none"> • Of the territorial authority and neighbouring marae and community facilities the intention to carry out a fumigation at least 24 hours before the start of a fumigation • Details are contained in the decision about notifying neighbours
<p>Buffer zone and who may not enter the zone</p> <p>Buffer distances must be equal to or more than the distances quoted in the control .</p> <p>There is an expectation that the buffer will be moved further out if monitoring shows a move is necessary to protect unprotected bystanders and/ or the public</p>	<ul style="list-style-type: none"> • For the public 50 meters for each fumigation <ul style="list-style-type: none"> • Members of the public must not enter the buffer zone • Affected area (an area where WES may be exceeded) is established and managed in the workplace using monitors for unprotected bystanders. This adaptive management approach ensures that; <ul style="list-style-type: none"> • Unprotected bystanders (workers) must not enter the affected area • Buffer zones must be kept under observations (on land and over water). 	<p>Containers</p> <ul style="list-style-type: none"> • 10 m for less than 77m³ • 25 m for greater than 77m³ <p>Log stacks – the buffer zone changes according to the % recapture</p> <ul style="list-style-type: none"> • Over 99% recapture the buffer zone is 50 m at less than 72g/m³ or 95 m at less than 120 g/m³ • As the ability to recapture declines the buffer distances graduate through to no recapture when the buffer must be 210 m at 40 g/m³ or 700m at 72-120 g/m³ <ul style="list-style-type: none"> • no member of the public may enter • the zone must be kept under observation; and • the TEL_{air} for methyl bromide must not be exceeded beyond the boundary of the buffer zone.

Tarpaulin	<ul style="list-style-type: none"> • Must be in good repair <ul style="list-style-type: none"> • Be tear and rip free • Made secure against likely inclement weather • Sealed 	<ul style="list-style-type: none"> • No specific requirements
Floor of the fumigation enclosure	<ul style="list-style-type: none"> • Flat and impermeable to EDN™ 	<ul style="list-style-type: none"> • No specific requirements
Ventilation – wind speed	<ul style="list-style-type: none"> • at least 2 m/s 	<ul style="list-style-type: none"> • at least 2 m/s.
Ventilation can commence	<ul style="list-style-type: none"> • When the concentration inside the fumigation enclosure is 700 ppm or less, and must, • Take place between sunrise and sunset 	<ul style="list-style-type: none"> • When the treatment time is finished
Recapture in containers minimum recapture	<ul style="list-style-type: none"> • Not required 	<ul style="list-style-type: none"> • From 1/1/2023 80% of MB present in a container at the end of the fumigation must be recaptured • This % increases on 1/1/2027 to 90% and to 99% on 1/1/2031
Recapture under log sheets minimum performance requirements	<ul style="list-style-type: none"> • Not required 	<ul style="list-style-type: none"> • From 1/1/2022 50% of fumigations must recapture 30% of MB under the sheet at the end of the fumigation with an average annual recapture performance of 55% • By 1/1/2025 100% of fumigations must be recaptured • The minimum recapture increases over time to 99% of MB under the sheet at the end of all fumigations by 1/1/2035

End of ventilation i.e., when logs can be moved	<ul style="list-style-type: none"> • After one hour and when measurements adjacent to the logs have EDN™ concentration below the WES (i.e., 3ppm) for 15 minutes 	<ul style="list-style-type: none"> • Unclear but it is noted when no recapture is required atmospheric levels of MB must be monitored until the exposure level is below 0.05 ppm for at least— <ul style="list-style-type: none"> • 15 minutes, where 7 kg or more of MB is applied in a 1-hour period: or • 3 minutes, where less than 7 kg of MB is applied in a 1-hour period. • Or when recapture has been completed
Signage	<ul style="list-style-type: none"> • Specified 	<ul style="list-style-type: none"> • Signage must be erected
Data that must be collected about the fumigation	<ul style="list-style-type: none"> • Wind speed and direction measurements at the location every 3 minutes • EDN™ levels outside the fumigation enclosure (at the buffer zone and within that the affected area) • Full operational details of each fumigation • Must continue from the start of fumigation until ventilation has been completed • Data required is listed in the SWI 	<ul style="list-style-type: none"> • Wind speed every 3 minutes • About the fumigation, ventilation and recapture • Levels of MB within and outside the fumigation enclosure • Must continue from the start of fumigation until ventilation or recapture has been completed • Data required is listed in the SWI
Monitoring inside the fumigation enclosure	<ul style="list-style-type: none"> • Continuously throughout the EDN™ fumigation using three probes 	
Notification of TEL exceedance to the local authority as soon as practicable and within	<ul style="list-style-type: none"> • Within 24 hours of the exposure level having been exceeded • Data required specified <p><i>Also specified by WorkSafe</i></p>	<ul style="list-style-type: none"> • Within 24 hours of the exposure level having been exceeded (either TEL air -1 hr or TEL air- 24 hr • Data required specified

Health monitoring	<ul style="list-style-type: none"> • Audiometric and respiratory health monitoring at least twice a year 	<i>Requirements being clarified with Worksafe</i>
Annual reporting	<ul style="list-style-type: none"> • Provide an annual report to Worksafe and the relevant Medical Officer of Health and EPA – by 31st March • Data required specified 	<ul style="list-style-type: none"> • To the EPA by 30/6/ of the following year • A monitoring report is required by 30/6/ if more than 500 Kg of Methyl bromide is applied in the preceding year
Records	<ul style="list-style-type: none"> • Must be kept for 7 years, and, be available anytime for inspection. 	<ul style="list-style-type: none"> • Must be kept for 7 years, and, be available anytime for inspection.
Source of regulations	<ul style="list-style-type: none"> • EPA EDN Details on hazardous substances database • The Safe work Instrument has been approved in principle and is not published .The contents of the EDN™ have been confirmed by the author with WorkSafe. • WES 	<ul style="list-style-type: none"> • EPA MB Details on hazardous substances database • Safe work Instrument • WES