EDN

an alternative fumigant

STIMBR

Draslovka

To be covered

Draslovka – the manufacturer

- Who are they
- What sets them apart.

EDN

- Characteristics
- Advantages.

Where we are at

- STIMBR confirmed EDN is an effective phytosanitary treatment for export logs and timber
- Registration process for use in New Zealand started.

Draslovka

- One of several businesses owned by BPD partners (4 families)
- Strong environmental and sustainability ethos e.g. solar and wind power, ecologically sustainable housing
- Draslovka business based on cyanide based chemicals

- Identified EDN as a “safer” fumigant
- Has commissioned a lot of research to show it is safer
- Funding EDN’s approval in New Zealand

Draslovka- how it operates

- Very environmentally responsible
- Production plant gold standard
- Cleaning up past pollution produced by the factory

- Constant monitoring in the factory
- Monitoring results available in real time to regulators

- Company results made publically available
- Committed to philanthropic support of community and arts
- http://www.draslovka.cz

Draslovka

EDN as a fumigant

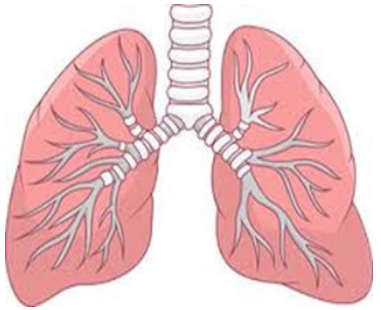
- EDN is an effective fumigant – for wood boring insects and bark beetles
- Also active against phytophthora and fungi (no NZ research).

- Does not destroy ozone - methyl bromide
- Is not a greenhouse gas - sulphyl flouride.

- EDN is a “drop in” alternative for methyl bromide
- The toxicity of EDN falls between that of Me Br and phosphine
- Very low level of EDN in head space at the end of fumigation
- Effective monitors available
- Antidote available.

EDN mode of action

- $CN\text{-}CN + H_2O \longrightarrow HCNO + HCN$



In the environment/wood breaks down to form ammonia and carbon dioxide

In the body

- At high levels leads to cellular asphyxiation
- Lower levels CN ⟶ thiocyanate ⟶ urinary excretion

EDN toxicology

- CN metabolised and detoxified by the liver then excreted in the urine i.e. will not accumulate in the body
- Primary effect via inhalation LC50 136 ppm for 4 hrs
- Same total exposure over longer period not toxic.

- EDN no dermal absorption observed
- Causes eye watering at greater than 16 ppm
- No sub-chronic, genotoxic, carcinogenic , neurotoxic, or endocrine disrupting effects
- No reproductive toxicity
- Suitable protective clothing and cost effective monitors available.

EDN ecotoxicity

- The EDN molecule dissipates quickly in the atmosphere
- In the environment EDN breaks down to form ammonia and carbon dioxide.

- OECD model shows emission of EDN to air
  - ❖ 99.96% remains in air
  - ❖ 0.03% is transported to water
  - ❖ 0.01% is transported to soil.
- Nature of fumigation site limits potential contact with invertebrates, soil organisms, animals
- No effect on plants
- Low movement into water provides little risk to marine organisms.

- EDN does not bio-accumulate.

Registering for use in New Zealand

- Must submit application to EPA for registration in New Zealand
- Provide use details, ecotoxicity , toxicology.

- Show that EDN is effective
- Model levels of EDN during commercial use.

- Discuss and balance risks , costs and benefits

- Take into account effects on community, society and in particular effect on Maori and their kaitiaki role.

New Zealand specific research

- PFR efficacy research shows EDN an effective replacement for methyl bromide
- Research has confirmed that EDN will control the three forest insects of concern to our trading partners.

- Full scale commercial log fumigation trial conducted at Tokoroa
- Found acceptable levels of external EDN during the fumigation
- 1% of initial dose rate left under the tarpaulin after 24 hours
- Rapid dispersal of EDN on venting no EDN measured after 4 hours.

Maori Reference Group

- James Doherty Ngā Kaihautū Tikanga Taiao (EPA Statutory Māori Advisory Committee)
- Dr James Ataria Department of Ecology, Lincoln University
- Dr Tanira Kingi Value Chain Optimisation, Scion
- Dr Oliver Sutherland Te Rūnanga o Ngāi Tahu HSNO Komiti.

"The MRG appreciated Draslovka's overall philosophy and their commitment to sustainability. Draslovka presented well, showing their proactive and transparent approach to business, as well as their willingness to engage with Māori. The MRG is pleased that EDN fumigant has emerged as an alternative to methyl bromide. The MRG's preliminary view is the use of EDN is not likely to raise serious concerns regarding potential risks and impacts on Māori interests. The MRG has a positive view of Draslovka's proposal to import EDN, notwithstanding the key issues and recommendations in this report and that efficacy data and detail information on its use pattern are yet to come."

Iwi associated with the main ports

- Whangarei
  - Ngati Wai - Tame Terangi
  - Te Runanga o Ngāti Whātua - Dane Karapu

- Napier
  - Mana Ahuriri Barry Wilson and Piri Prentice

- Tauranga
  - Ngai Te Rangi iwi - Kiamaia Ellis and Reon Tuanau
  - Ngati Kuku - Tio Faulkner
  - Ngati Ranginui iwi – Chris Stokes, Carlton Bidois and Pia Bennett
  - Ngati Pukenga iwi – Rehua Smallman and Buddy Mikaere
  - Ngai Tukairangi hapu – Hayden Henry
  - Ngati Pukenga - Pahu Akuhata.

EPA process

- Application submitted 14th July – over 250 pages.
- The EPA has asked for more information- principally clarification of:
  - Details of the most recent trials
  - How risk will be managed in the workplace and the workplace exposure values
  - Explanation of the speed of EDN breakdown.
- Met yesterday and aim to provide information within 2 weeks.
- If accepted the application will
  - Be notified to the public September with submissions closing Oct/Nov
  - Hearing date to be advised
  - Decision early 2018.

Environmental Protection Authority
Te Mana Rauhī Taiao

Questions