



United Fresh
Technical Advisory Group

Head in the (Gas) Clouds:

Industrial Gases & The Horticulture Industry in 2020

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The AgriChain Centre

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Introduction

- Senior Project Officer, The AgriChain Centre
- Family has been farming in New Zealand for 125 years.
- A country boy from Helensville/Rodney.
- Grew up on and around dairy and beef farms.
- Switched to produce, as it doesn't try and kick you at harvest...
- TAG Role - Science Analyst, with specific area of expertise in Industrial Gases, Environmental Impacts, Traceability, and Operational Retail Supply Chain Activities.
- Supports the TAG team in translating science-based knowledge into practical industry friendly knowledge, information, and submission outputs.



Industrial Gases – The Basics

Industrial Gases occur in many places throughout our industry:

- Refrigeration – trucks, packhouses, coolstores, retail stores, etc.
- Ripening gases – ensuring product reaches shelves in a ripe state.
- Sanitary & Phytosanitary treatments – pest management inside, and at the border.
- Modified Atmosphere Packing (MAP) – extending prepacked produce shelf life.
- Modified Atmosphere Storage (MAS) – reducing quality loss during storage.
- Plant growth regulators – manage plant growth.
- Soil sterilisation – Pest management for some crops.



Industrial Gases – Challenges in 2020

Two Major Areas of activity in 2020:

- The phytosanitary fumigant Methyl Bromide – new recapture requirements. **Related to imports/exports.**
- HFC Refrigeration Gases – aka “Didn’t we deal with these in the 90s?” **Related to Health & Safety.**

Both topics arise due to international obligations and New Zealand legislation surrounding climate change.

Activities have occurred as a result of Government attempting to align handling requirements to improved Workplace Health & Safety conditions.





Methyl Bromide (MB) – The Basics

- A phytosanitary fumigant, required by countries to prevent pest incursions through imports.
- Highly Toxic.
- Colourless and odourless – invisible to humans.
- Since 2005, only permitted use is as fumigant.
- Main fumigant for most produce imports/exports.
- Alternatives (EDN, Hydrogen Cyanide, Metalaxyl, Thiram) have to be approved on a per product basis & are not general replacements.

Relevant issue:

- Use regulated since 1990 under International Greenhouse Gas Obligations.



Methyl Bromide (MB) – The Situation

- Last reassessed by the Environmental Risk Management Authority (then ERMA) in 2010.
- Now being reassessed by the Environmental Protection Authority (EPA).
- Original reassessment decision: by October 2020, MB fumigation needs recapture technology in place so that only 5ppm of MB remains in the container air post-fumigation.

PROBLEM!

- Produce both absorbs & releases MB during fumigation. It takes time to release MB post-fumigation, with up to 800ppm potentially remaining in the container air under standard conditions.
- Reaching a level of 5ppm can take several days of product sitting unrefrigerated at the fumigation facility.



Methyl Bromide (MB) – Impacts of New Recapture Require

- More time waiting at fumigation facility = delayed shipments and longer timeframes.
- Extended period unrefrigerated = loss of shelf life and spoiling product.
- Limited treatment and storage space at fumigation facility = reduced ability to treat and store product.
- Increased requirements for recapture = \$\$\$\$.
- Above issues could potentially lead to reduced export opportunities and income.
- Reduced export opportunities could mean an ongoing oversupply of export lines in the domestic market.
- Our industry loses out all round.



Methyl Bromide (MB) – United Fresh’s Response

- United Fresh has been submitting to the Government on this topic since June 2019.
- 3 submissions in June to August 2019, analysing and discussing impact on our industry.
- Requested changes to more accurately reflect product perishability requirements.
- March 2020 oral submission delayed to August due to COVID-19. August oral submission completed, with new implementation date moved to April 2021 as result of EPA granting a waiver to consider topic further.
- November submission to EPA in support of further extension to timeline until realistic Controls possible for produce resulted in change of waiver until August 2021.

**Application APP203660: Modified
Reassessment of Methyl Bromide**

**Response to Direction & Minute WGT025 of
the Decision-making Committee (DMC)**

Submitted by:



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Submitted to (reassessments@epa.govt.nz) on November 05 2020

HFCs – aka “Haven’t We Done This Already?”

- **CFCs, HCFCs, HFCs**, are all Greenhouse Gases, regulated by international agreements.
- **CFCs** and **HCFCs** are also Ozone Depleting.
- The **CFC** phaseout occurred **1990-2000**, with HCFC gases replacing CFCs.
- **HCFCs** were phased out **2000-2010**, with HFCs replacing HCFCs.
- **HFCs** now being phased out **2020-2035**.
- Replacement gases include Ammonia, Nitrogen, Carbon Dioxide, HFOs, Propane, and others.
- Yes, name might sound familiar, but **NO**, the HFC process of consultation and eventual regulations began only in 2015.





HFCs – The Situation

- Phaseout means replacement of gases over time, and dwindling supplies of HFCs.
- Replacements gases can potentially use the same equipment, or require refrigeration plant replacement. A gas-by-gas and site-by-site assessment will be needed.

PROBLEM!

- HFC replacements are toxic/flammable (e.g. Tamahere coolstore, caused by propane-based refrigerant).
- Replacements (flammable/explosive/toxic) can be used in retail displays, near metal & glass, and at child height.
- Particular problem for our industry, as there are risks at all stages of the entire supply chain - coolstores to retail.
- Government started consulting on updating Health & Safety at Work Act in 2018 to regulate refrigerant technician competence in maintaining refrigeration plants using the new gases.



HFCs – United Fresh’s Response

- United Fresh has been coordinating with the refrigerant industry body (CCCANZ) to submit to Government on Health & Safety updates.
- First submission occurred December 2018, related to Government proposals to license refrigerant technicians and license requirements.
- Second submission in January 2020 focused on likely impacts of Government wording of proposed final legislation updates, that would affect our industry, regarding multiple technician licensing types.
- Consultations are now complete. The Government began the process of updating regulations in May 2020.



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**Implications of the
Proposed Licensing Regime for Refrigeration,
Heating & Air Conditioning Technicians**

Covering

**The Specific Matters of Detail
Related to
HFC's & HFC Replacement Gases**

A Response to
The Targeted Consultation Document
Released by MBIE

Due 17th January 2020

Industrial Gases – Summary Results

- Refrigerant Gases – Submissions completed, Regulations now being updated, Health & Safety for our industry now improved with new technician licensing requirements.
- Methyl Bromide – Work ongoing.
- Our industry's perspectives have been heard during consultations and have contributed to creating a safer and more sustainable industrial gases environment.
- United Fresh will continue monitoring and engaging with government and other relevant parties on all Industrial Gas matters.



What Does 2021 Bring?

- Methyl Bromide – EPA consideration process still ongoing, potentially not complete until October 2021.
- Methyl Bromide – research into alternatives will continue, MPI may consider increasing alternatives to Methyl Bromide for some crops.
- Refrigerants – Licensed & competent technicians maintaining your equipment with experience in new refrigerants.
- Refrigerants – Annually increasing costs on HFC refrigerants through to 2036 as supply shrinks.
- Greenhouse Gases – Government statement expected on transitioning to a Carbon-neutral NZ by 2050.
- General Industrial Gases – Government plans to begin a reduction of toxic industrial gases.





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Thank You

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