



New Zealand Cold Storage Association

Submission to MBIE on DISCUSSION DOCUMENT on;

Ensuring effective regulation of health and safety risks associated with toxic or flammable refrigerant gases.

The NZ Cold Storage Assn submits two issues that we believe have not been adequately addressed in the Discussion Paper.

Issue 1 The distinction between commercial refrigeration installation & repair businesses and owner/operator employed technicians who work exclusively on the owner/operators refrigeration plants.

The NZ Cold Storage Assn has concerns that members who employ full-time technicians who safely oversee the day to day running and minor maintenance of their refrigeration systems could be excluded from these tasks if they do not have formal trade certification. Frequently such technicians have other additional engineering responsibilities not directly related to refrigeration so they need a wide range of skills and experience.

We believe **Option 1** could quite readily be adopted to overcome this issue. Technicians who fall into this category could be required to demonstrate their competence and knowledge to carry out these tasks at a lower level than commercial technicians who undertake work on refrigeration systems as a business on multiple sites using multiple refrigerants.

Issue 2 The flammability, toxicity and widespread application of anhydrous ammonia refrigerant as compared with other refrigerants.

A review of refrigerants to replace HFC's should have no impact on the continued use of Anhydrous Ammonia. It was in widespread use before HFC's were introduced and will continue to be used long after they have been replaced. To treat ammonia as similarly flammable as hydrocarbon refrigerants would be conservative in the extreme.

Treated correctly the toxicity of anhydrous ammonia can be seen as a positive characteristic. It has a distinct pungent smell at levels well below the point where it can be harmful. This allows technicians to detect and repair the smallest of leaks before they cause any harm.

Anhydrous ammonia is widely used in NZ in medium and large industrial refrigeration systems. It is flammable only at a very limited range of temperature and concentration with air.

Ignition directly from a flame or heat source is extremely rare. For this reason we believe that the reason for excluding it from the joint Australian/New Zealand Standard for commercial refrigeration systems remains as valid as it was when this decision was originally taken.

The Tamahere fire quite rightly prompted a review of standards for explosively flammable hydrocarbon refrigerants but this should have no impact on the use of anhydrous ammonia.



We believe that **Option 1** would be more useful to our members than **Option 2** if our **Issue 1** is addressed.

In addition to an online database, individual technicians could be required to carry evidence of registration so it would be easy for our members or WorkSafe Inspectors to verify their qualifications.

Option 2 puts compliance responsibility onto refrigeration businesses and it would be more difficult for our members to verify the qualifications of an individual technician.

We believe that **Option 3** would be difficult for WorkSafe to police because of the specific technical knowledge and training Inspectors would need to be effective in assessing what constitutes a safe practice.

Coldstores are often located in relatively small town centres where it could be difficult for suitably qualified Inspectors to adequately provide inspection/verification coverage.

The Role of NZ Fire Service

We believe that it is important for the NZ Fire Service to be familiar with any coldstore that uses flammable or potentially toxic refrigerants.

If this had occurred at Tamahere then it is likely that the disaster could have been averted.

A simple familiarisation visit on an annual basis that included emergency shut-down procedures and knowledge of the refrigerants used and their flammability and toxicity status would be all that was required.

The NZ Cold Storage Assn is grateful for this opportunity to be involved in the review of regulations governing the installation and use of potentially hazardous refrigerants and we look forward to further involvement as this review progresses.

Attached are our responses to the questions raised in ANNEX D.

We do not support Options 2 and 3 so we have not responded to questions 11 to 21. If MBIE decides to adopt one of these options we would seek to have further input.

A handwritten signature in blue ink, appearing to read "Bruce Mulligan".

Bruce Mulligan
President



MBIE Submission Responses to ANNEX D

- 1 No. The flammable characteristics need to be managed in a significantly different manner to toxicity. The only common element is the need to prevent, identify or control refrigerant leaks. Responses to identified leaks are different because the dangers are quite different and require different knowledge and training. In any commercial cool/coldstore, conversion from any refrigerant to another should only be carried out by Trade Certified Technicians. Refrigerant conversion requires a high level of technical knowledge of the design parameters and duties of the existing refrigeration plant. This is quite different to running and safely operating a well-designed and maintained refrigeration plant. Ammonia refrigeration plants are fundamentally different to HFC plants and it is unlikely that any HFC plant would be converted to ammonia without major modification of the refrigeration system. The pipework of HFC plants is generally copper where ammonia pipework is usually high pressure steel. Ammonia is incompatible with copper. The compressors are also significantly different and generally incompatible.
- 2 The Objectives are appropriate.
- 3 Yes provided there are steps of authorisation appropriate to the risks.
- 4 Mandatory training and Authorisation would provide confidence to the refrigeration industry provided it was appropriate to the tasks being undertaken.
- 5 Yes
- 6 No. Some non-toxic and non-flammable refrigerants are tasteless and odourless and leaks could cause asphyxiation by replacing air in confined locations.
- 7 Not applicable to our membership



- 8 Disagree. It is more important for categories to focus on the tasks a technician seeks to perform rather than the type of refrigeration plant being worked on. Routine daily de-frosting of evaporators in an industrial ammonia plant requires less training and carries significantly less risk than carrying out major repairs on a small mobile refrigeration unit that uses a highly flammable refrigerant. There should be a Category for Coolstore Operator Employed Technicians to work exclusively on the Coolstore Operators site.
- 9 Yes provided there is scope in the prior learning criteria recognition that would include a technician who has experience running an individual refrigeration plant for a coolstorage company, as opposed to refrigeration installation and repair businesses.
- 22/23 As operators of ammonia refrigeration plant we believe that the flammability of anhydrous ammonia is a relatively low risk compared to its toxicity. This view is supported by the extremely small number of reported incidents where it has ignited. To our knowledge zero occasions ever in NZ. We submit that the current exemption related to regulation 10.10 should remain.
- 24 No the current exemption for ammonia is justified.
- 25 Yes. Exemptions to any proposed changes to regulation 10.10 should exclude refrigeration plants constructed prior to the implementation of AS/NZS 5149 : 2016.
- Transitional arrangements implies that the exemption would be temporary, we believe it should be for the safe working life of the refrigeration plant.
- 26 We believe the costs of including anhydrous ammonia in regulation 10.10 would significantly outweigh the benefits in safety.