

Synthetic Refrigerant Stewardship

Milestone 3: Report 3

Scope for industry credentials

This scoping report has been prepared by the Synthetic Refrigerant Stewardship Working Group as part of a process to develop an industry led product stewardship programme for synthetic greenhouse gas refrigerants in New Zealand.

The report is for the Synthetic Refrigerant Stewardship Working Group and Ministry for the Environment's purposes only and should not be quoted or reproduced without the consent of the project manager.

Questions regarding this report should be directed to the Synthetic Refrigerant Stewardship Project Manager whose contact details appear below.

Darren Patterson – Synthetic Refrigerant Stewardship Project Manager: darren@3R.co.nz

Document Control and Sign Off

Date	Version	Document	Author
10/09/19	Draft V1	Synthetic Refrigerant Stewardship Milestone 3: Report 3 Scope for industry credentials	IHRACE Christine Johnston
11/09/19	Draft V2	Working group comments	IHRACE Christine Johnston Working Group
12/09/19	Final	Milestone 3: Report 3 Scope for industry credentials	IHRACE Christine Johnston Working Group

Synthetic Refrigerant Product Stewardship Scheme

Training Overview

Introduction

The HVAC&R Industry are represented by several membership organisations, IRHACE and CCCANZ and an industry training body RLNZ. All are well established and confident they are in general the voice of industry.

We outline below at a high level, the background to the training along with an overview of current training requirements within the HVAC&R industry and the intended training structure which has been developed in concept. This training would support a Synthetic Refrigerant Product Stewardship scheme to ensure full compliance.

Background

The HVAC&R industry have been frustrated by lack of mandatory training and registration for many years. Working with gases can be a hazardous pursuit and all those working with those gases must be compliant and be able to demonstrate knowledge of current and future refrigerants as they evolve.

With the impending ratification of Kigali in NZ leading to the HFC Phasedown, the HVAC&R industry have over the past 18 months worked with the Labour Workforce Unit of MBIE to develop a Credential for the Industry. Through several comprehensive consultations, MBIE arrived at decision in Q2 of 2019. This has recently culminated in Cabinet approving in principle a mandatory Refrigeration License Regime which will come into force in 2022.

There are some key areas for which MBIE still require clarification, from industry and other stakeholder groups. A second, targeted round of consultation to clarify those outstanding points is to follow in September, with the intention of Regulations being finalised in late 2019.

Current training available to the HVAC&R Industry

Currently training in refrigerants and the wider HVAC&R industry focuses on HFC's (Synthetic Refrigerants) which along with Ammonia (to a lesser extent) have been the predominant refrigerants used in NZ for over 20 years. This training will continue in its current format and transition until the Refrigerant License Regime is implemented in late 2022.

Approved Filler License

Following the Tamahere Disaster, a Compliance Certificate was created for Filling and Handling of pressure vessels of synthetic refrigerant. This was subsequently transferred to the HSWA 2017 and is now administered by Worksafe as the Approved Filler Compliance Certificate. This activity is pivotal to the safe and compliant use of pressure vessels when handling HFC refrigerant gases. The Approved Filler Compliance Certificate also limits the retail purchase of refrigerant to those who hold the Compliance Certificate. This Compliance Certificate would be a clear gatekeeper for a Refrigerant Product Stewardship Scheme.

Despite the Phasedown, these refrigerants will remain available through to 2035 and beyond, though in increasingly smaller volumes. There will continue to be a need to provide training and requisite compliance regimes.

MBIE are of the view that with the future License Regime the Approved Filler Compliance Certificate will not be required under the Refrigerant License Regime. However MBIE don't get the point, that the safe and compliant filling of HFC's will remain a requirement and will require the current Approved Filler Compliance Certificate to continue.

Other training

Refrigerant and Mechanical Services Technicians are all able to enter the industry through an Apprenticeship scheme, through on the job and polytechnic based training. This mode of training will theoretically continue under the new License regime (detailed below). Currently apprentices have the following training available to them:

- Level 3 Refrigerant Assistant (Pre-Trade)
- Level 3 Split System (Heat Pump) Qualification (currently being redeveloped into a L4 Qual)
- Level 4 Refrigeration Trade Certificate
- Level 4 Mechanical Services Trade Certificate

Post Graduate training is also available to those currently in the workforce. This is intended to provide training in compliance as with the Approved Filler Compliance Certificate, or to upskill technicians in new theories and materials such as Flammable Awareness Training. Examples of the training available include

- Approved Filler License
- Approved Filler License Renewal
- Flammable Awareness Training
- Ammonia Awareness Training
- Ammonia Plant Operator Certificate

All are available as face-to-face courses and some online or as blended learning. The practical component remains an essential mode to ensure suitable understanding and proficiency is demonstrated. Most of the above training provides Unit Standards to qualifying learners. This will continue under the future Refrigerant License and in fact may hold more weight to both learners and employers.

How the training will be structured under the License Regime

A cross section of HVAC&R industry experts have developed a training programme to support the impending Refrigerant License Regime. This focuses on safety, excellence, continual upskilling and professional development, across all refrigerants it will also establish competency through both theoretical and practical training.

MBIE also undertook a second body of work to address compliance with AS/NZ Standard for commercial refrigeration systems using anhydrous ammonia. This is also reflected in the below training programme.

A high-level outline of that training is listed below

It is intended that the training will follow pathways for varying levels of practitioner. These will take the form of a tiered system with certain pre-requisite training for all tiers.

The basic skills required in an environment covering all refrigerants must be standardised. Similarly a standard procedure for managing Synthetic Product Stewardship will need to be developed. In all cases Technicians will be required to sit a practical and theoretical examination and be graded according to their competency level.

Introductory/ Sector Specific Courses/	Heatpumps/ Air Con/ Light < X kg	Automotive/ Comm Refrig < X kg	Commercial Refrigeration < X kg	Ammonia
*Approved Filler *Recovery *CO2 *Flammable *Refrigerants	*Approved Filler Course *Other refrigerants as required *Flammable Refrigerants *CO2 *Pressure *EST	*Approved Filler Course *Other refrigerants as required *Flammable Refrigerants *CO2 *Pressure *Brazing *HSNO *Gen Risk & Workplace Mgt *EST	*Approved Filler Course *Other refrigerants as required *Flammable Refrigerants *CO2 *Pressure *Brazing *HSNO *Gen Risk & Workplace Mgt *EST	Plant Operators *Industrial Ammonia Plant Operators * +hours Design Build Service *Trade Cert Level 4 *Ammonia Service Tech *Required Unit Standards
	Trade Certificate Level 3	Trade Certificate Level 4	Trade Certificate Level 4	Trade Cert Level (Level TBA)

***Please note the above tiers and training components are current at the time of writing, dependent on final approval and signoff from MBIE and WorkSafe.**

Refrigerant Types

This training covers all refrigerants, to ensure no workarounds and full competency. Whilst synthetic refrigerants HFC's are being phased down there is potential for new synthetics to be developed as a lower GWP offering. Some Low GWP Refrigerants such as Flammables and CO2 are already available, but it has already been identified that the refrigerants available may change markedly in coming years. New courses are being introduced to reflect the refrigerants and equipment available and will be updated over time to ensure currency with these changing refrigerants.

License Regime

The intention is that an Apprentice graduating with a Level 4 Trade Certificate after 3-4 years of study and with the requisite work experience would graduate with a Refrigeration License having received the required training and demonstrated the required competencies.

The workarounds in the industry (Risk)

There are some key areas of concern, which to date aren't captured in the intended License Regime. There is always risk if loopholes are available. That workers and PCBU's will look to bypass the License regime and required training in order to cut costs and expedite work where possible is likely without those workarounds being captured in the Refrigerant License regime

These risks include.

- The absence of HFC's as a mandatory aspect of the License Regime

- Mandatory training and Licensing for Installers and Service Technicians working on Heat Pumps, Car Air-Conditioning and Light Commercial Refrigeration Units
- Possible exclusion of Farm Milk Vat and Refrigerated Transport
- Possible exclusion of Ammonia Coolstore Plant Operators

We point out, the above omissions would hinder a Product Stewardship Scheme for Synthetic Refrigerants being truly effective.

Summary

The above is a summary of where IRHACE, CCCANZ and RLNZ envisage training will be required to support health & safety and compliance and allow the successful management of a Synthetic Refrigerant Product Stewardship Scheme.

The organisations representing the HVAC&R industry, IRHACE, CCCANZ and RLNZ are pleased to be able to support 3R Group in this project and are committed to ensuring a high level of compliance in all aspects of the use of all refrigerants.