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Ozone Act review – a business bonus

Businesses and individuals holding licences through the Australian Refrigeration Council (ARC) will save money and time through the outcomes of the Australian Government's review of the Ozone Protection and Synthetic Greenhouse Gas Management Programme.

Along with a statutory phase-down of Hydrofluorocarbon (HFC) imports, some of the key outcomes of the review relate specifically to the licensing regulations around refrigerants.

These include:

- Providing for ARCtick licence holders to renew their licences rather than applying for a new licence, saving businesses $580,000 annually through a reduced regulatory burden.
- Strengthening the Department of the Environment's role as the refrigeration and air conditioning licensing scheme regulator through new offence provisions, increased penalty amounts and the publishing of compliance actions.

These measures were suggested by the ARC during consultation on the review, to improve the effectiveness of the scheme through streamlining the licence process and making it more efficient for individuals and businesses.

The Department of the Environment will also work with the ARC and businesses to develop information to better inform equipment owners of the benefits of properly installing new equipment and regularly maintaining it. The result will be substantial savings in emissions from reduced gas leakage and lower electricity use. Businesses will also benefit from reduced electricity costs, reduced replacement costs for gas leakage and longer equipment life.

All measures are intended to commence by 1 January 2018, providing the amendments to the legislation pass through Parliament.

To read more on the Ozone Act review visit the Department of the Environment website at **www.environment.gov.au** and type **'Ozone Review Outcomes'** into the search bar.

Technical and training quality boost for ARC

ARC's training and technical advisory services just got a boost with the recruitment of refrigeration and air conditioning training expert Noel Munkman to its ranks.

Quality technicians delivering quality results is a key outcome of the ARC licence scheme. Having spent over 30 years developing training for the refrigeration and air conditioning industry, Noel is excited to see the fruits of these labours being put into action by ensuring that technicians are getting the best possible training and support.

In addition to providing technical support to ARC licence holders, Noel will be representing technicians through the ARC on various industry committees.

Noel Munkman
Technical and Training Manager, ARC

"Not only will Noel be helping technicians and businesses improve their day-to-day operations, he will also help ARC to set the future standards for the industry by guiding our industry working groups to recommend solutions for safety issues, technology, training and refrigerant evolution in the sector," said ARC CEO Glenn Evans.

Refrigerant flammability classification review

UPDATE

The ARC represents licence holders on a number of committees and groups who look at ways to improve safety, good practice, ease of use and cost efficiencies for technicians. We are currently assisting the Australian Standards refrigerant flammability classification review and have provided an outline of its progress below.

The current classifications

The current **AS/NZS 1667.1: 1988 Refrigeration systems Part 1: Refrigerant Classification**, covers the refrigerant classification according to its physical properties. **Table 2.1** below only lists five groups, that is – A1, A2, A3, B1 and B2.

TABLE 2.1

SAFETY GROUP CLASSIFICATION OF REFRIGERANTS AS DETERMINED BY FLAMMABILITY AND TOXICITY

Flammability group	Toxicity group	
	A	B
	$LC_{50} \geq 10{,}000$ ppm	$LC_{50} < 10{,}000$ ppm
1 (Non-flammable)	A1	B1
2 (LEL ≥ 3.5% volume)	A2	B2
3 (LEL < 3.5% volume)	A3	

NOTES:

1 Toxicity group classification is based on an acute health effect measured by the LC_{50} value of the refrigerant. Information on chronic health effects measured by TWA exposure standards of refrigerants is given in Table 3.1. Practical limits for Group B refrigerants are based on the LC_{50} value where available.

2 Information on the classification of particular refigerants is given in Section 3.

3 This classification system does not include toxic products of refrigerant combustion.

The current **AS/NZS 1677.2:1998 Refrigerating systems – Safety requirements for fixed applications**, details the minimum safety requirements for fixed applications of all refrigeration systems.

Review

Both of these standards were released in 1998 and are now being revised. The proposal is to use the latest equivalent International Standards (ISO) and make the appropriate minor changes to suit Australian and New Zealand regulations. The applicable ISO standards are as follows:

- **ISO 817:2014 Refrigerants** – Designation and safety classification
- **ISO 5149:2014: Refrigerating systems and heat pumps** – Safety and environmental requirements is published in 4 parts as follows:
  - **ISO 5149-1:2014 Refrigerating systems and heat pumps** – Safety and environmental requirements – Part 1: Definitions, classification and selection criteria
  - **ISO 5149-2:2014 Refrigerating systems and heat pumps** – Safety and environmental requirements – Part 2: Design, construction, testing, marking and documentation
  - **ISO 5149-3:2014 Refrigerating systems and heat pumps** – Safety and environmental requirements – Part 3: Installation site
  - **ISO 5149-4:2014 Refrigerating systems and heat pumps** – Safety and environmental requirements – Part 4: Operation, maintenance, repair and recovery

Proposed changes

ISO 817 will be used to replace Part 1 of AS/NZS1677 and ISO 5149 will be used to replace part 2 of AS/NZS1677. ISO 817 has eight separate safety classifications (A1, A2L, A2, A3, B1, B2L, B2 and B3) for refrigerants as per **Table 2.2** below, instead of the five currently listed in **Table 2.1**.

TABLE 2.2	SAFETY GROUP	
Higher Flammability	A3	B3
Flammable	A2	B2
Lower Flammability	A2L	B2L
No Flame Propagation	A1	B1
	Lower Toxicity	Higher Toxicity

A2L group refrigerants include R1234yf. B2L group refrigerants include R717 (Ammonia).

These may or may not be adopted in the AS/NZS versions after the second round of public consultations on the drafts which closed on 4 May 2016. Standards Australia is expected to publish the Australian/New Zealand version of these documents later this year.

Australia 'top of the world' in refrigerant management

It's official – ARC are 'best in the world' – or so says a recent US report into regulations and licensing of environmentally damaging refrigerants.

Released in 2016, the report by US Air Conditioning, Heating and Refrigeration Institute (AHRI)* has Australia as a global leader in areas such as effectiveness, cost/burden on industry, stakeholder engagement and level of success. This was in comparison to Canada, California, Japan, the UK and the United States, as well as China, Brazil and the European Union.

And in terms of results, the numbers speak for themselves:

Controls around handling and trade of refrigerants has resulted in 24.37 megatonnes of CO_2-e direct emissions savings.

Recovery and destruction has prevented the emission of 5000 tonnes of ozone depleting refrigerants and stopped 10 million tonnes of carbon dioxide (CO_2) equivalent from entering the atmosphere.

Domestic licensing (ARCTick) has the support of 80,000 licensed individuals and businesses Australia-wide.

Mission accomplished? Far from it. According to a 2015 report by Expert Group, the ARC licence scheme will continue to provide significant direct and indirect emissions savings over the next two decades, with further direct emissions reductions estimated at 58.02 megatonnes CO_2 projected to 2030. ^ While the licence scheme administered by the ARC provides a world's-best practical framework – it is the licensed technicians and businesses that give it effect and that should be congratulated.

To read the report visit the ARC website at **https://arctick.org/media/1176/ahri_8018_final_report.pdf**

** Research Project 8018, Review of Refrigerant Management Programs.*

*^ Expert Group, Assessment of environmental impacts from the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989, April 2015. To read the report visit **www.environment.gov.au** and type **'attachment b impact analysis'** into the search bar.*

Meet the refrigeration and air conditioning industry board

The ARC's Board of Directors come from the refrigeration and air conditioning sector – they are your industry representative board. The Board consists of three directors responsible for the stationary sector and three directors responsible for the automotive sector. The ARC CEO is the executive director.

1 **Kevin O'Shea, (Chairperson)**
Refrigeration & Air Conditioning Contractors Association

2 **Ian Stangroome**
Vehicle Air Conditioning Specialists of Australia

3 **Peter Blanshard**
Institute of Automotive Mechanical Engineers

4 **Brenton Kaitler**
Automotive Sector Representative

5 **Mark Padwick**
Air Conditioning & Refrigeration Equipment Manufacturers Association of Australia

6 **Glenn Evans**
CEO, Australian Refrigeration Council

There is currently one vacancy for a stationary sector representative.

ARC board meetings are available for member association representatives to attend and have their say. Visit **www.arctick.org/information/about-arc/arc-members** to see if your association is a member. If you have not joined one of the ARC's member associations, ask yourself why not? **Contact enquire@arctick.org for any further information.**

Certificate II Split Systems – A case study

The UEE20111 Certificate II in Split Air-conditioning and Heat Pump Systems is one pathway to achieving the ARCTick Restricted heat pump, split systems – installation and decommissioning licence.

Typically, to complete the UEE20111 course would take approximately one year part-time off the job training with a registered training organisation (equating to a nominal duration of 360 hours), in addition to one year of relevant full time on the job training with an employer. The Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995 outline which qualifications (national quality council endorsed) are aligned to each licence.

Recognition of prior learning (RPL) may be applicable to people that can demonstrate they have already achieved some of the stated competencies listed below. The RPL is a rigorous process, which is evidenced-based – not a 'tick the box' exercise. The following example is for a qualified electrician applying for recognition of prior learning (advanced standing) into the Certificate II course. The highlighted dark blue competency units may have been covered in an electrical trade course and may be granted as RPL. However, as can be seen from this example, even with the maximum RPL, there is still substantive additional work required to obtain the qualification.

CORE COMPETENCY UNIT CODE	CORE COMPETENCY UNIT TITLE	NOMINAL HOURS
UEENEEE038B	Participate in development and follow a personal competency development plan	20
UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace	20
UEENEEE102A	Fabricate, assemble and dismantle utilities industry components	40
UEENEEE105A	Fix and secure electrotechnology equipment	20
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications	40
UEENEEE137A	Document and apply measures to control OHS risks associated with electrotechnology work	20
UEENEEJ102A	Prepare and connect refrigerant tubing and fittings	30
UEENEEJ105A	Position, assemble and start up single head split air conditioning and water heating heat pump systems	70
UEENEEJ172A	Recover, pressure test, evacuate, charge and leak test refrigerants – split systems	60
UEENEEK142A	Apply environmentally and sustainable procedures in the energy sector	20
Elective unit/s		20
	TOTAL NOMINAL HOURS	360

Source: Training.gov.au and Victorian Purchasing Guide

What work can a 'Split System' licence holder do?

The holder of a Restricted heat pump, split systems – installation and decommissioning licence is only qualified and entitled to:

- ✓ Work with single head split system air conditioners of less than 18kW cooling capacity
- ✓ Undertake installation, including running the pipe work of single head split system air conditioners
- ✓ Introduce additional refrigerant when required on extended pipe runs during installation only
- ✓ Commission the system after installation is completed
- ✓ Undertake removal of refrigerant from the system prior to decommissioning.

The holder of a restricted 'Split System' licence is not qualified and not entitled to:

- ✗ Work with any split system air conditioner of more than 18kW cooling capacity
- ✗ Install multi head split system air conditioning systems
- ✗ Carry out any service, repair or maintenance of any split system air conditioner
- ✗ Carry out any installation, service, repair or maintenance of any other refrigeration or air conditioning equipment

ARC Industry working groups – Call for Participants

An exciting opportunity exists for ARC members and licence holders to get their teeth stuck into the most important issues influencing the sector and effect real change by joining the newly formed ARC Industry Working Groups.

There are currently openings for suitable candidates in two groups:

Training Quality Working Group

With technology and refrigerant evolving each year, the level and quality of training for technicians needs to maintain a high standard.

ARC is calling for qualified industry people to join our Training Quality Working Group to look at issues relating to refrigeration and air conditioning qualifications and training. It is vital ARC are kept informed of the issues affecting the levels of training quality in the industry. This working group will help to inform ARC of the challenges and provide guidance on solutions.

Refrigerant Evolution Working Group

With a refrigerant evolution currently taking place within the industry, it is incumbent on industry to look at strategies to ensure technicians keep up with these changes.

The industry-led working group will look at issues affecting technicians at the coal face including: safety, training requirements and technology advances.

It is important the ARC is kept up-to-date with, and can meet, the numerous challenges resulting from changes in technology and refrigerants.

Interested in joining the ARC's Industry Working Groups?

You can download further information on each group and how to apply by visiting the following webpages:

Training Quality www.arctick.org/working-group-training
Refrigerant Evolution www.arctick.org/working-group-refrigerant

Training courses in regulators' sights

With the help of industry, ARC and the Australian Skills Quality Authority (ASQA) a number of substandard training courses have been recently closed down.

Sub-standard courses have no place in the refrigeration and air conditioning (RAC) industry or as part of the ARCTick licence scheme. After ARC pursued compliance issues related to the licence scheme, two Certificate II courses being delivered in Victoria by an interstate training body were stopped due to non-licensed handling and storage of refrigerant – clear breaches of the Ozone regulations.

In addition, two Certificate III RAC courses being delivered in Western Australia are being investigated by the training regulator ASQA due to complaints over the legitimacy of the advertised duration to complete the qualification. ASQA has since confirmed they are now taking regulatory action against the registered training organisation.

"ARC has shown that by partnering with the Australian Skills Quality Authority and acting on complaints raised to us by industry, it is possible to rid the sector of sub-standard training courses," said ARC CEO Glenn Evans.

"Appropriate qualifications are the cornerstone of the ARCTick licence scheme and, on behalf of the 80,000 licensed technicians and businesses, ARC will keep up the pressure on training bodies to help ensure quality courses are delivered for our quality industry.

While ARC has always been in this space, we have recently escalated our activities through an active partnering role with ASQA and use of promotion as an added deterrent, rather than just reporting," said Mr Evans.

If you have concerns about the quality of training in the RAC sector contact ASQA on **1300 701 801** or visit **www.asqa.gov.au/complaints**

You can also contact ARC on **1300 884 483** or email our Technical and Training Manager Noel Munkman – **nmunkman@arctick.org**

Innovations in refrigerant leak detection – saving money and the environment

Regular leak detection not only benefits the environment, it also helps you and your customers save money.

During servicing of air conditioning and refrigeration systems, leak detection is a mandatory requirement of both the stationary and automotive code of practice manuals.

Recently, some innovative leak detection applications have moved from the more traditional use of nitrogen, to a non-flammable mixture of nitrogen and hydrogen. Due to its exceedingly small molecular size and low viscosity hydrogen is an ideal leak detection medium. It can improve detection by escaping easily through any leak in greater volume than other gases.

Ultimately this can lead to enhanced environmental compliance and cost savings from reduced maintenance, lower refrigerant requirements and improved system energy efficiency.

Benefits of using nitrogen and hydrogen:

- ✓ Up to 100 times more accurate than traditional bubble spray techniques.
- ✓ No need to wait for bubbles to form for small leaks or do pressure decay tests – save time.
- ✓ Protect the environment from undetected refrigerant leaks.
- ✓ Improve energy efficiency.
- ✓ Reduce maintenance call outs.
- ✓ Easy to use, safe and efficient.

Seminars to help auto industry prepare for R1234yf and R744

DON'T MISS OUT

VASA, Refrigerants Australia, Refrigerant Reclaim Australia and the ARC have partnered to deliver a national roadshow of educational seminars called **future:gas**.

See table below for remaining seminars at time of print:

Adelaide SA Tuesday July 26	**Brisbane QLD** Thursday August 4
Perth WA Wednesday July 27	**Auckland NZ** Wednesday August 10
Darwin NT Thursday July 28	auto-AC future:gas ROADSHOW
Townsville QLD Wednesday August 3	

Visit **www.futuregas.ac** for further information or email **support@futuregas.ac**

For more information contact us
call **02 6230 5244**
visit **www.refrigerantreclaim.com.au**

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