Refrigerants Australia Statement on PFAS and TFA

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) are described in media reports as a class of more than “XX 000 synthetic chemicals” that are highly resistant to heat, oil, and water. Media reports have noted PFAS persists in the environment for extended periods because they are unable to break down over time. They have been characterised as highly toxic, with significant environmental and human

health implications.

These claims are frequently framed in sensational terms, but the underlying issues are considerably more complex. Industry decision-making and regulatory frameworks must be informed by

comprehensive, evidence-based assessments rather than media narratives intended to provoke public alarm.

Facts on PFAS

* Perfluoroalkyl & Polyfluoroalkyl substances (PFAS) are a diverse group of over 4,700 synthetic molecules. The number of commercially available PFAS compounds is well under 1,000, and legacy contamination issues involve only tens of compounds.
* In the OECD’s paper on “Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances”, PFAS is articulated as “broad, general, non-specific term, which does not inform whether a compound is harmful or not but only communicates that the

compounds under this term share the same trait for having a fully fluorinated methyl or methylene carbon moiety”. Stating that all PFAS compounds are the same is inaccurate.

* Many media sources refer to PFAS as “forever” chemicals. This term is inaccurate when applied to the broad number of compounds that fit under the PFAS umbrella. Certain PFAS, such as HFOs, rapidly break down in the atmosphere as designed.
* Research is correct in identifying several PFAS that are problematic and pose a risk the

environment and to human health. Importantly, this research does not apply to all PFAS, and not all varieties of these chemicals share these risks. PFAS contamination resulting from legacy industrial and commercial applications, such as firefighting foams, represents a genuine and complex environmental challenge requiring substantial resources to address.

* PFAS have vastly different properties. Many do not dissolve in water or penetrate living cells, thus posing no threat to human health.
* The circulation of misleading or inaccurate information undermines effective responses by diverting attention and resources toward PFAS compounds that pose little or no risk.
* Labelling all PFAS as “highly toxic” is also inaccurate.
* PFAS have been used in medicine for decades, including in lifesaving treatments like Paxlovid, Lipitor, Flonase, surgical lubricants, and asthma inhalers.
* Fluoro polymers like PTFE (Teflon) is widely used in the RACHP industry due to their chemical resistance and mechanical properties. Usage is linked to bearings in compressors, sealings in valves and is seen as main premise for designing energy efficient equipment
* A variety of PFAS also exist in a broad of products and industries. It is important to be specific when addressing concern around PFAS, so that specific varieties and products that present a potential harm can be regulated and their harm mitigated.

Some facts on Trifluoroacetic acid (TFA)

* HFOs break down in the environment within 10-26 days, leading to their low-global warming potential (GWP) and low environmental impact. One of the breakdown products of some HFOs is TFA.
* TFA does not bioaccumulate, bio-magnify, and is non-toxic at levels seen in the environment.
* The research on TFA is extensive. Multiple evaluations of peer-reviewed literature over more than 20 years have consistently concluded that current concentrations of TFA from the

degradation of HCFCs HFCs and HFOs do not present a risk to humans and the environment.

* TFA is not classified as a carcinogen, mutagen, or reproductive-developmental toxicant per the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) guideline.
* TFA has been present in our oceanic environment for thousands of years, and evidence

suggests that the majority of TFA comes from natural processes. Current evidence suggests TFA is not of high concern.

Restrictions on PFAS and TFA impacting the RAC industry

* There are currently no national restrictions on PFAS and TFA that impact the RAC industry.
* Several countries - including Australia, the EU and the USA - are assessing PFAS to determine whether any restrictions are warranted. The issues involved in this assessment are complex, and the last advice from the EU – where most of the action is – is that any proposed

restrictions will not be made until 2028.

* Some U.S. and European regulators are exploring various forms of PFAS regulation, including broad-based bans on all PFAS in products and bans on the use in specific products. Legal advice on the European Union’s proposed approach suggests that blanket bans will likely not meet legal requirements and a more sophisticated approach will be required, which will

require significant time and far more precise assessments.

* A smart regulatory approach will look to match risks versus benefits, requiring a close calculus on a product-by-product basis.
* Refrigerants Australia believes broad based regulation is inappropriate, as it fails to account for the diverse toxicology, bioaccumulation, and persistence across this broad class of chemicals. Additionally, readily available substitutes do not exist for various critical uses in pharma, aero, semiconductor, and other industries.

**Statement on sources**

Most of the statistics and factual statements included in this statement have been sourced from reports and materials published by the Organisation for Economic Co-Operation and Development (OECD). The Environmental Assessment Panel of the Montreal Protocol has published many reports since the beginning of the century indicating that TFA is not a concern. The broad claims presented by media sources are evident in numerous sources, but the

Australian Broadcasting Corporation’s article on ‘PFAS “forever chemicals” are all around us. What does it mean for our health?” is one such example. The ‘Globally Harmonised System of Classification and Labelling Chemicals’ (GHS) referenced in this statement is a publication under the United Nations Economic Commission for Europe. Furthermore, information regarding the medical and practical applications of PFAS chemicals, information has been derived from a multitude of sources including MED institute, responsible for the certification and regulation of medical equipment. Finally, further updates have been sourced from the *Cooling Post* on events in Europe.